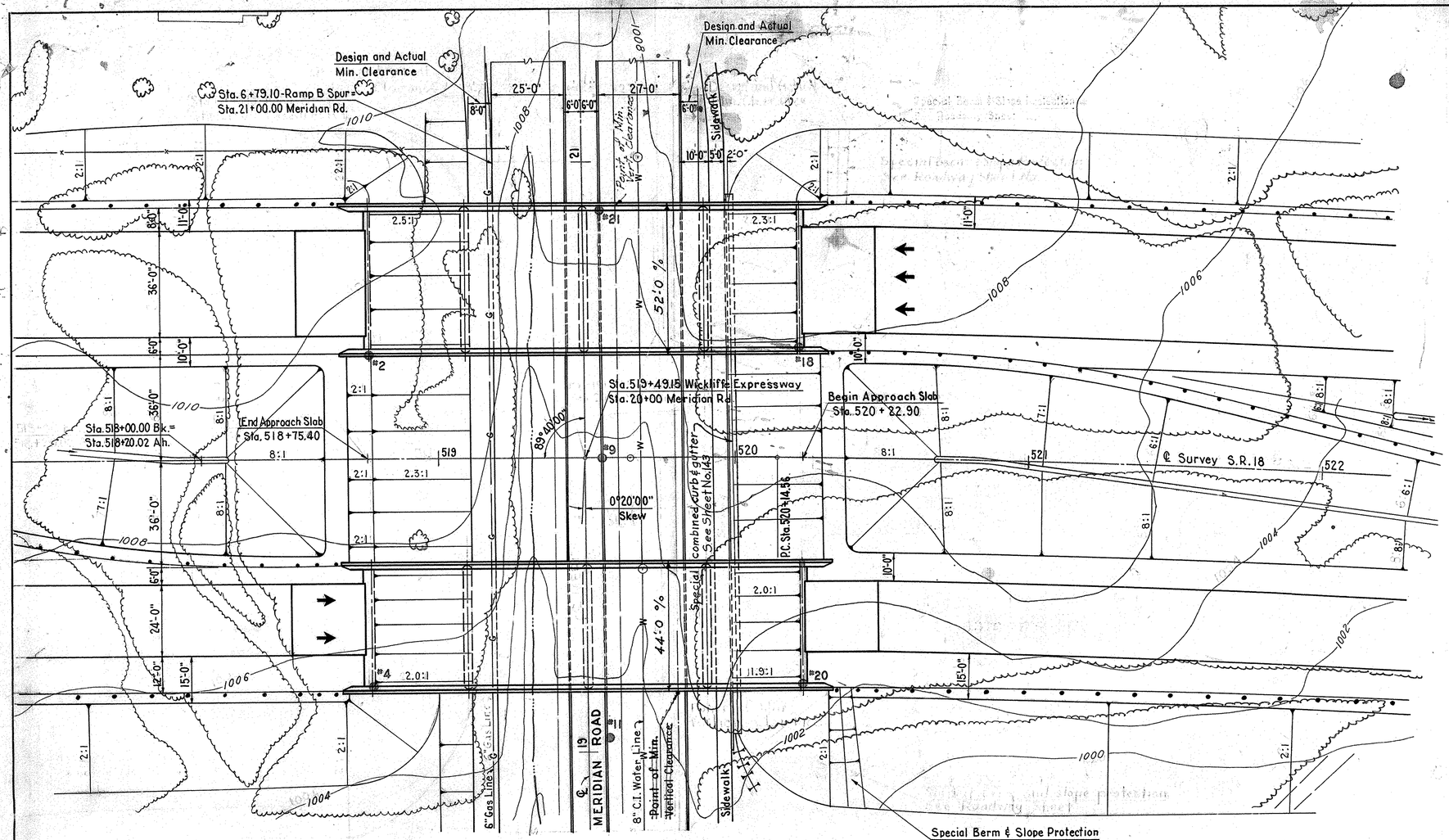
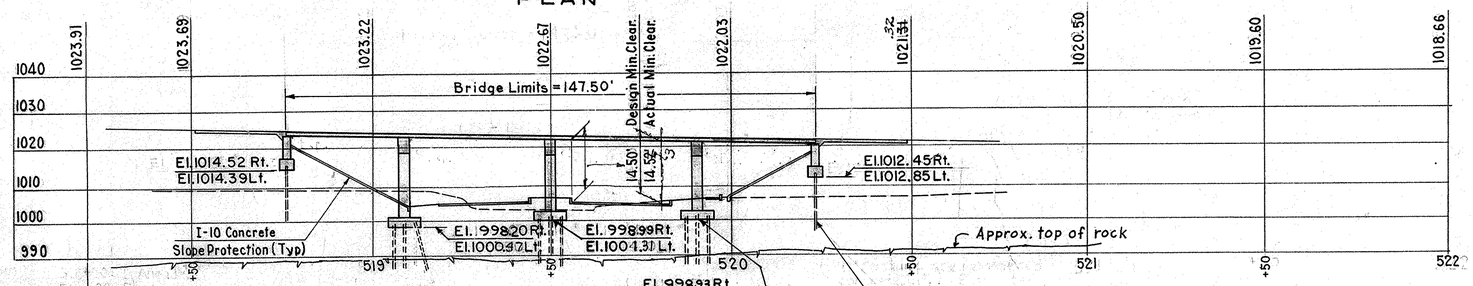
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

207

MAHONING COUNTY
MAH-18-15.50




PLAN




PROFILE ALONG ℄ S.R. 18

-0.491 % -1.883 %

P.I. Sta. 519+50
Elev. 1023.37
V.C. 400'

10 BP 42. steel H piles to rock
Estimated average pay length
Abutment 1 Rt. & 1 Lt. 27'-0
Pier 1 Lt. 17'-0; Pier 1 Rt. 14'-0
Pier 2 Lt. 19'-0; Pier 2 Rt. 17'-0
Pier 3 Lt. 17'-0; Pier 3 Rt. 17'-0
Abut. 2 Lt. 21'-0; Abut. 2 Rt. 26'-0

Soundings Legend
● = Core Boring

**FOUNDATION SOUNDINGS:** Foundation design & foundation quantities are based on a study of borings and soil Sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State assumes no responsibility for the accuracy there of.

BENCH MARK #215 Elev. 990.834
N. Bolt Hydrant, N.W. Corner Oregon and Schenely
78' W on Oregon from Schenley

BENCH MARK #216 Elev. 1001.203
W. Bolt Hydrant, One Block N. of Oregon

CURVE DATA
P.I. Sta. 527+73.91
Δ - 22°00' Rt.
D - 1°28'
R - 3906.53'
T - 759.35'
L - 1500.00'
E - 73.12'
P.C. Sta. 520+14.56 (84'-0" Median)
P.T. Sta. 535+14.56 (40'-0" Median)
S.E. 024'/ft.

PROPOSED STRUCTURES

TYPE: Continuous reinforced slab with reinforced concrete substructure
SPANS: 32'-6", 40'-6", 40'-6", 32'-6"
ROADWAY: Left 59'-0", Right 42'-0" with 1'-2" curbs
LOAD FREQUENCY: CF 2000 (57) Adequate for alternate AASHO Loading
SKEW: 0°20' Rt. Forward
WEARING SURFACE: 1" Monolithic Concrete
APPROACH SLABS: AS-1-54 (25' Long)
ALIGNMENT: Tangent
SUPERELEVATION: Varies

1975 A.D.T. = 45,000

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

SITE PLAN
BRIDGE NO. MAH-18-1552 L & R
OVER MERIDIAN ROAD
MAHONING COUNTY
STA. 518+75.40 TO STA. 520+22.90

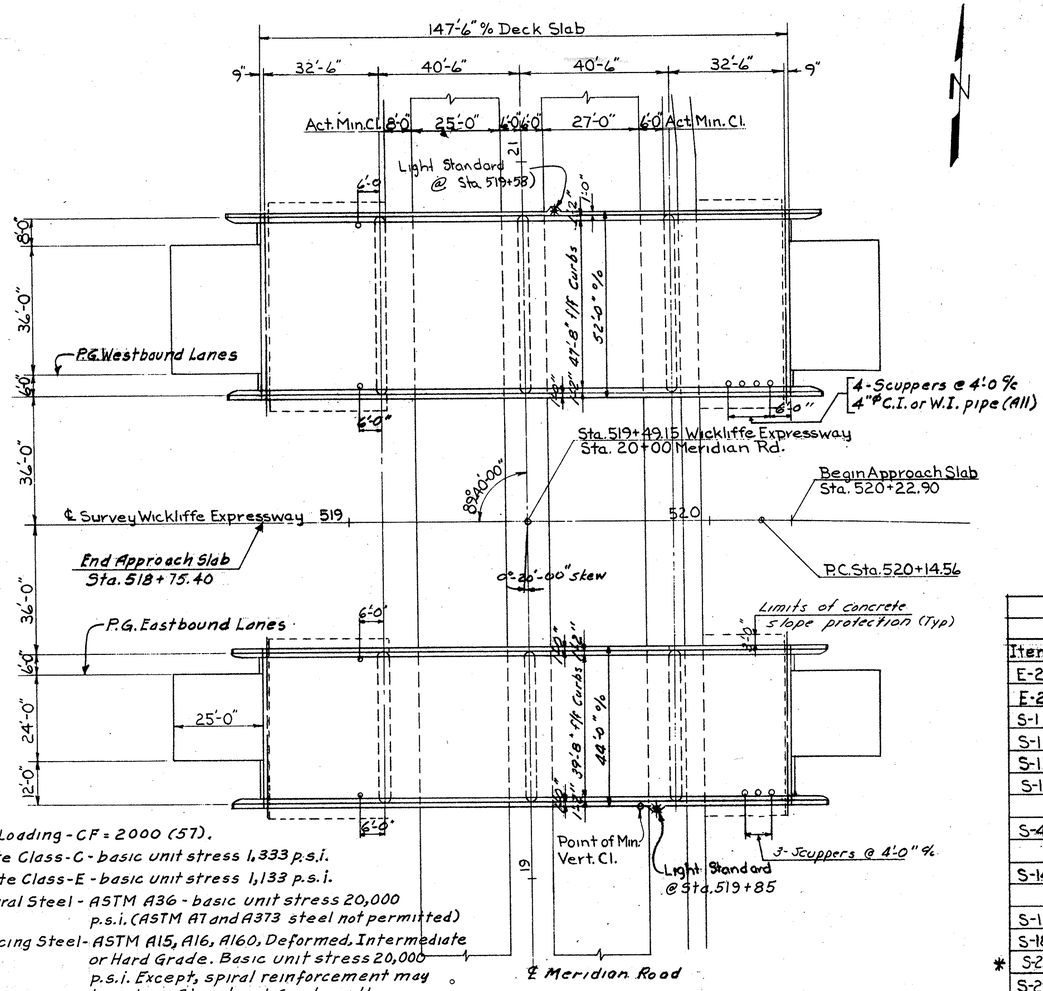
| PRESENT TOPOGRAPHY | | PROPOSED WORK | | | |
|---|---|---|---|---|---|
| SURVEYED | DRAWN | DESIGNED | DRAWN | CHECKED | REVIEWED |
| Aurilio | T.G. | L.G.H. | Bo | R.L.M. | LGH 10/15/65 |

Rev. 2-1-66

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

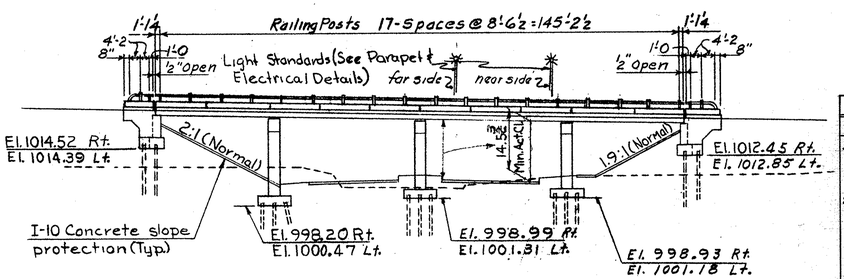
208

MAHONING CO.
MAH-18-15.50

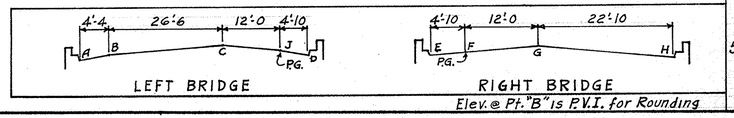



Design Loading - CF = 2000 (57).
Concrete Class-C - basic unit stress 1,333 p.s.i.
Concrete Class-E - basic unit stress 1,133 p.s.i.
Structural Steel - ASTM A36 - basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted)
Reinforcing Steel - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

GENERAL PLAN




ELEVATION




Elev. @ Pt. "B" is P.V.I. for Rounding

## GENERAL NOTES

## MERIDIAN ROAD

REFERENCE shall be made to Standard Drawing AS-1-54 revised July 5, 1962 and to Supplemental Specifications S-101 "Water-reducing, Set-retarding Admixture", dated July 12, 1962.

DESIGN SPECIFICATION: This structure conforms to the requirments of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated September 1, 1957, together with current revisions thereof.

EXCAVATION QUANTITY includes the removal of fill material required for construction of abutments. EXCAVATION QUANTITY includes the removal of fill material required for construction of Pier 2, left and right.

PILES shall be driven with a hammer of not less than 11,000 ft. lb. per blow to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

| | 11,000 ft. lb. | 15,000 lb. ft. |
|---|---|---|
| Abutment 1R, 1L and 2R | 47T | 40T |
| Pier 1L, 2R, 3L and 3R | 43T | 39T |
| Pier 1R | 47T | 42T |
| Pier 2L | 41T | 37T |
| Abutment 2L | 50T | 43T |

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile for abutment piles and 31 tons per pile for the pier piles.

CAMBER: Loaded falsework shall have have a camber of ½" for end spans and 11/16" for the middle spans to allow for vertical curve and dead load deflection. This is the amount of camber required before falsework is released. To obtain this proper allowance shall be made for the deflection of falsework members.

MACHINE FINISH: At the Contractor's option, the concrete bridge deck may be finished by the use of a finishing machine.

## GENERAL NOTES - Continued

## ESTIMATED QUANTITIES

| Item | Total | Unit | Description | LEFT BRIDGE Superstr. | Abut's. | Piers | General | RIGHT BRIDGE Superstr. | Abut's. | Piers | General |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E-2 | Lump Sum | Lump Sum | Coffer dams, Cribs and Sheeting | | | | Lump Sum | | | | Lump Sum |
| E-2 | 931 | Cu.Yd. | Unclassified Excavation | | 161 | 330 | | | 143 | 297 | |
| S-1 | 829 | Cu.Yd. | Class "C" Concrete, Superstructure | 448 | | | | 381 | | | |
| S-1 | ~~180~~ 190 | Cu.Yd. | Class "C" Concrete, Pier Caps & Columns | | | ~~91~~ 90 | | | | ~~290~~ | |
| S-1 | 244 | Cu.Yd. | Class "E" Concrete, Pier Footings | | | 122 | | | | 122 | |
| S-1 | 174 | Cu.Yd. | Class "E" Concrete, Abutments | | 92 | | | | 82 | | |
| S-4 | 291,246 | Lbs. | Reinforcing Steel | 107,361 | 8868 | 46,634 | | 90038 | 7870 | 30,475 | |
| S-14 | 669.66 | Lin. Ft. | Railing (Type "A", Aluminum Rail and Supports, Concrete Parapet) | 294.83 | 40.00 | | | 294.83 | 40.00 | | |
| S-16 | Lump Sum | Lump Sum | First Test Pile | | | | Lump Sum | | | | |
| S-18 | 3843 | Lin. Ft. | 10BP42 # Steel H Piles | | 528 | 1590 | | | 477 | 1248 | |
| * S-25 | | | Electric Lighting System, complete | | | | | | | | |
| S-29 | 11 | Each | Scuppers (4" ϕ 1'-8½" long C.I. or W.I. pipe) | 6 | | | | 5 | | | |
| S-29 | 27 | Cu.Yd. | Porous Backfill | | 15 | | | | 12 | | |
| I-10 | 757 | Sq.Yd. | Concrete Slope Protection | | | | 401 | | | | 356 |
| S-101 | 829 | Each | Water-reducing, Set-retarding Admixture | 448 | | | | 381 | | | |

* See General Lighting Summary, Sheet No. 199 for detailed description, unit and quantity.

## DECK ELEVATIONS

| Station | A | B | C | J | E | F | G | H | D |
|---|---|---|---|---|---|---|---|---|---|
| 518+70 | 1023.~~21~~26 | 1023.~~28~~32 | 1023.70 | 1023.51 | 1023.~~43~~44 | 1023.51 | 1023.~~70~~68 | 1023.~~35~~2 | 1023.43 |
| +80 | .~~12~~23 | .~~29~~29 | .61 | .42 | .~~34~~6 | .42 | .~~61~~57 | .~~26~~0 | .34 |
| +90 | .~~92~~0 | .~~93~~25 | .51 | .32 | .257 | .32 | .44 | .~~18~~08 | .~~24~~5 |
| 519+00 | 1022.~~92~~71 | .0020 | .41 | .22 | .169 | .22 | .362 | 1022.~~10~~96 | .~~14~~5 |
| +10 | .~~82~~3 | 1022.~~95~~15 | .31 | .12 | .079 | .12 | .~~24~~19 | .~~02~~83 | .04 |
| +20 | .~~72~~01 | .~~90~~10 | .20 | .01 | 1022.989 | .01 | .~~H~~06 | 1022.~~94~~70 | 1022.~~93~~4 |
| +30 | .~~67~~04 | .~~85~~05 | .09 | 1022.90 | .879 | 1022.90 | 1022.~~97~~3 | .~~85~~56 | .~~82~~3 |
| +40 | 1022.~~61~~99 | 1022.~~79~~ | 1022.98 | .79 | .~~7~~79 | .79 | .~~83~~79 | .~~76~~43 | .71 |
| +50 | .~~53~~4 | .~~73~~93 | .86 | .67 | .679 | .67 | .695 | .6623 | .~~59~~60 |
| +60 | .48 | .~~66~~86 | .74 | .55 | .~~56~~3 | .55 | .550 | .~~58~~14 | .~~47~~8 |
| +70 | .~~41~~2 | .~~59~~79 | .62 | .43 | .446 | .43 | .~~40~~35 | 1021.~~83~~97 | .35 |
| +80 | .~~37~~6 | .~~55~~72 | .49 | .30 | .~~33~~4 | .30 | .~~24~~0 | .~~13~~84 | .22 |
| +90 | .~~33~~69 | .~~53~~65 | .36 | .17 | .~~2~~12 | .17 | .094 | 1021.~~93~~68 | .09 |
| 520+00 | .~~33~~62 | .~~51~~57 | .23 | .04 | .~~08~~10 | .04 | 1021.~~93~~88 | .~~72~~52 | 1021.96 |
| +10 | .~~30~~65 | .48 | .09 | 1021.90 | 1021.~~95~~7 | 1021.90 | .~~7~~72 | .~~51~~36 | .82 |
| +20 | .43 .~~25~~48 | .~~43~~41 | 1021.~~97~~6 | .76 | .824 | .76 | .38 .~~60~~55 | 0.95 .~~30~~17 | .67 |
| +30 | 1022.~~18~~ | 1022.~~36~~5 | 1021.~~85~~4 | 1021.61 | 1021.~~69~~71 | 1021.61 | 1021.~~43~~ | 1021.~~08~~ | 1021.52 |

PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments, after which excavation shall be made for the abutment and piles driven.

FIRST TEST PILE:

Payment will be made for only one first test pile. It may be driven for either the Right or the Left Bridge.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

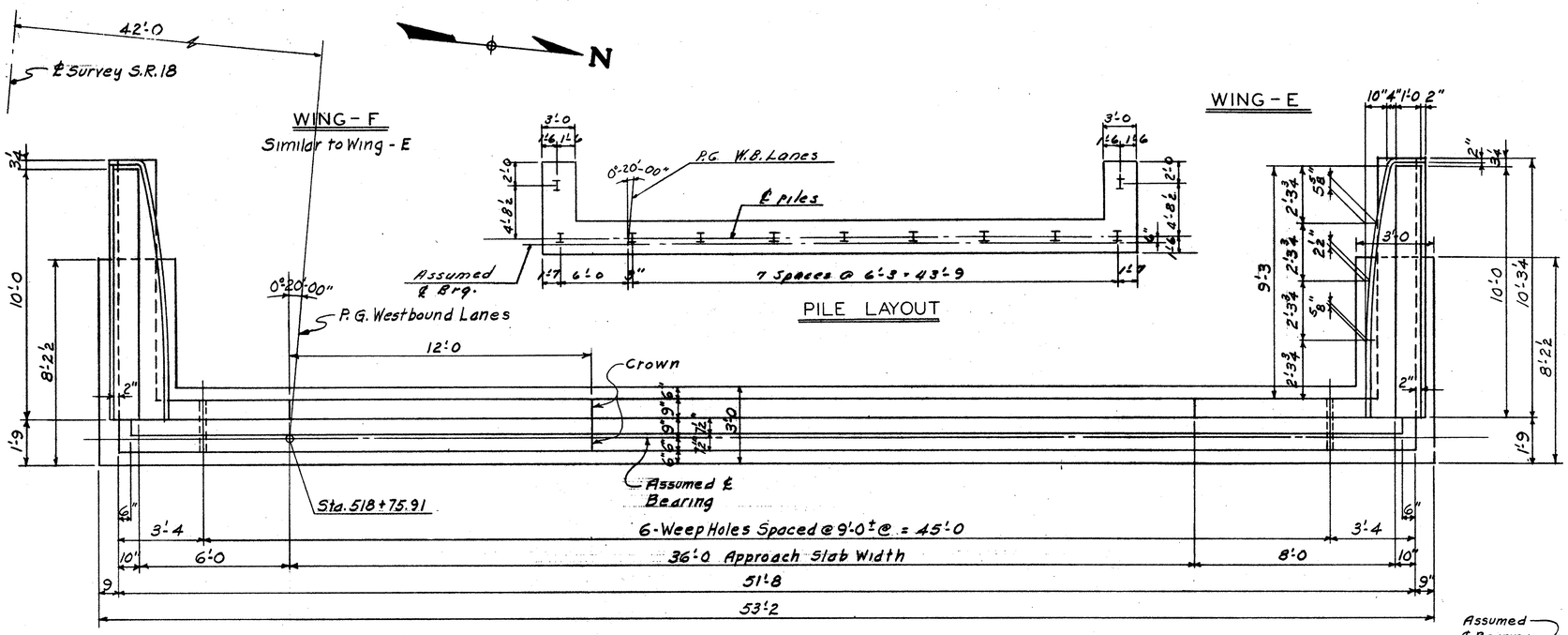
GENERAL PLAN & ELEVATION
BRIDGE NO. MAH-18-1552 R/L
OVER MERIDIAN ROAD
Sta. 518+75.40 To Sta 520+22.90

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | L.E.D. | | S.J.F. A.A. | L.G.H. 10-15-63 | 2-1-66 |

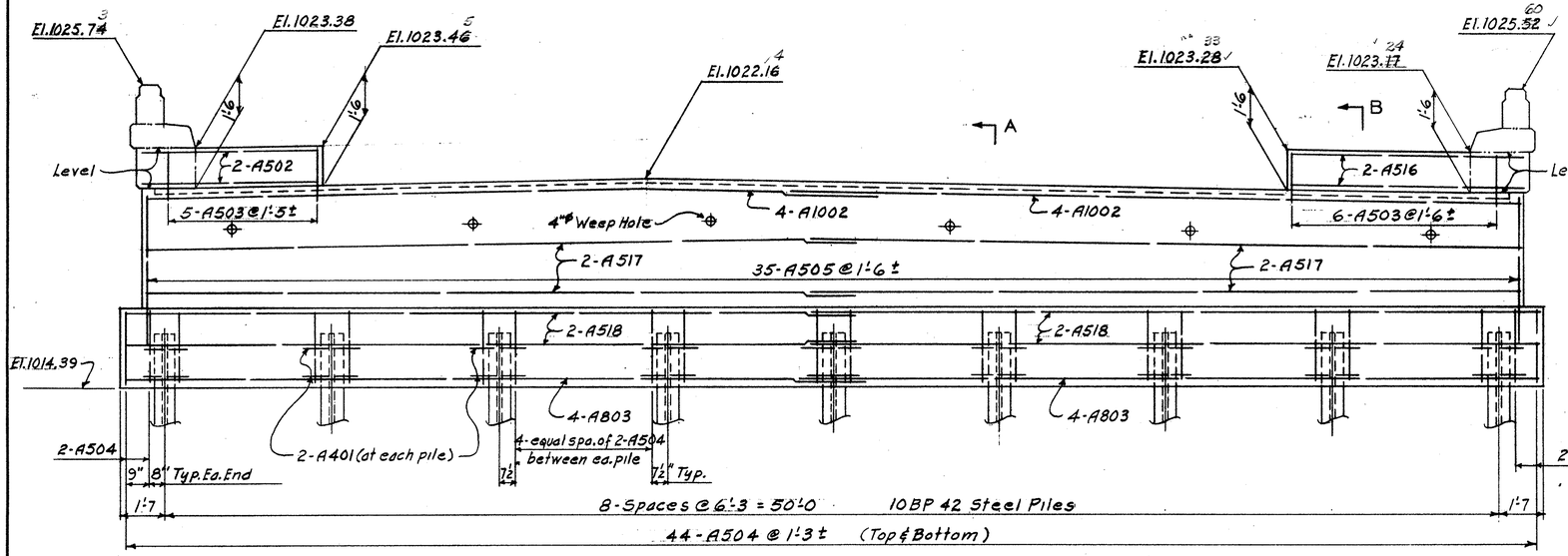
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

209

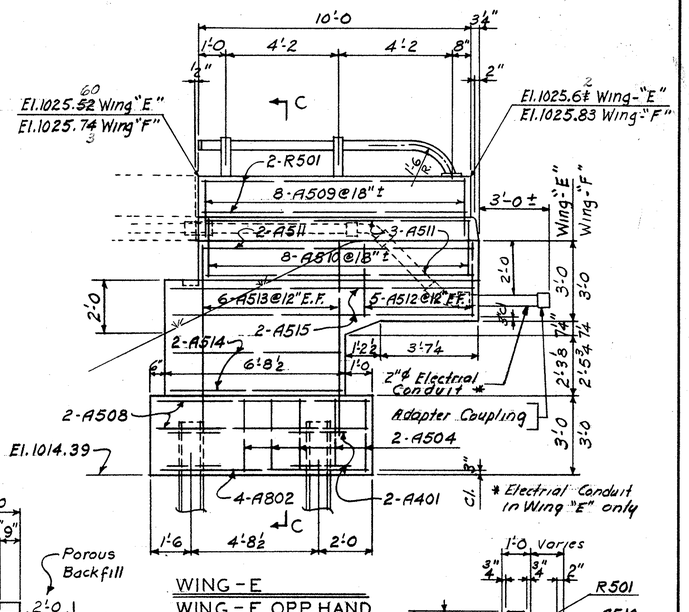
MAHONING COUNTY
MAH-18-15.50



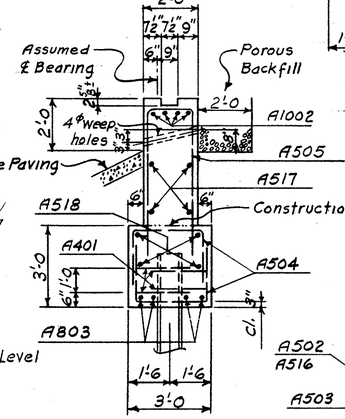

PLAN ABUTMENT-IL

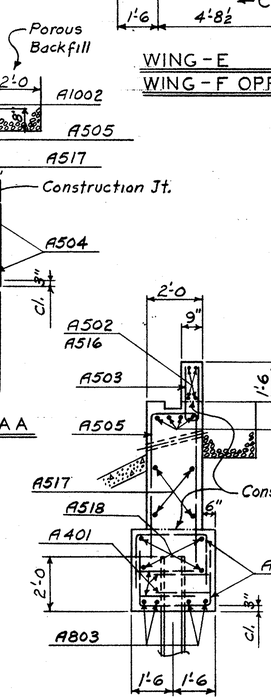


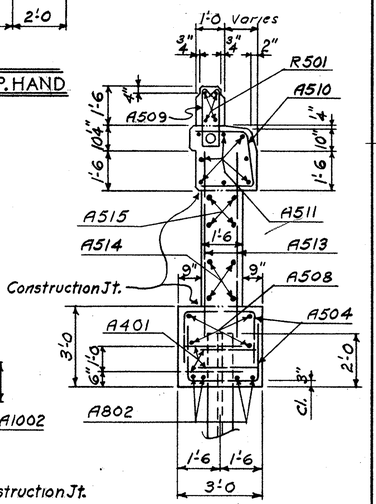

ELEVATION




WING - E
WING - F OPP. HAND




Legend:
E.F. = Each Face

NOTES:
- For Abutment Notes see Sheet No. 211

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENT NO. 1
BRIDGE NO. MAH-18-1552L
OVER MERIDIAN ROAD

Sta. 518+75.40 To Sta. 520+22.90

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F | T.P | | S.J.F | L.G.H 10-15-63 | 2-1-66 |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

210

MAHONING COUNTY
MAH-18-15,50

N

42'-0
℄ Survey S.R. 18

WING - H
Similar to Wing - G

WING - G

P.G. W.B. Lanes

0°-20'-00"

7 Spaces @ 6'-3 = 43'-9

PILE LAYOUT

P.G. Westbound Lanes

Assumed ℄ Bearing

Sta. 520+21.91

6-Weep Holes Spaced @ 9'-0± = 45'-0
36'-0 Approach Slab Width
51'-8
53'-2

PLAN ABUTMENT - 2L

El. 1024.59 (83)
El. 1022.23 (47)
El. 1022.41
El. 1022.37 (5)
El. 1021.72 (1)
El. 1021.63 (2)
El. 1023.98

Level
2-A516
6-A503@1'-6 t
4"ϕ Weep Hole
4-A1002
2-A517
35-A505@1'-6 t
2-A518
4-A803
2-A504
2-A401 (at each pile)
4 equal spa. of 2-A504 between ea. pile
9" 8" Typ. Ea. End
7½" Typ.
2-A502
5-A503@1'-5 t

A
B

El. 1012.85

8-Spaces @ 6'-3 = 50'-0 10BP 42 Steel Piles
44-A504 @ 1'-3 t (Top & Bottom)

ELEVATION

Legend
E.F. = Each Face

El. 1023.98 Wing "G"
El. 1024.52 (.83) Wing "H"
El. 1023.83 (.19) Wing "G"
El. 1024.59 (.83) Wing "H"

2-R501
8-A509@18"±
3-A511
8-A810@18"±
6-A513@12" E.F.
5-A512@12" E.F.
2-A515
2-A514
2"ϕ Electrical conduit
Adopter Coupling
2-A508
2-A504
2-A401
4-A802
* Electrical Conduit in Wing "H" only

SECTION - AA

WING - G
WING - H OPP. HAND

SECTION - CC

Assumed ℄ Bearing
Porous Backfill
4" Weep holes
Slope Paving
A1002
A505
A517
A518
A401
A504
A803
Construction Jt.

SECTION - BB

A509
A510
R501
A511
A515
A514
A513
A508
A502
A516
A503
A802

NOTES:
1. For Abutment Notes see Sheet No. 211

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

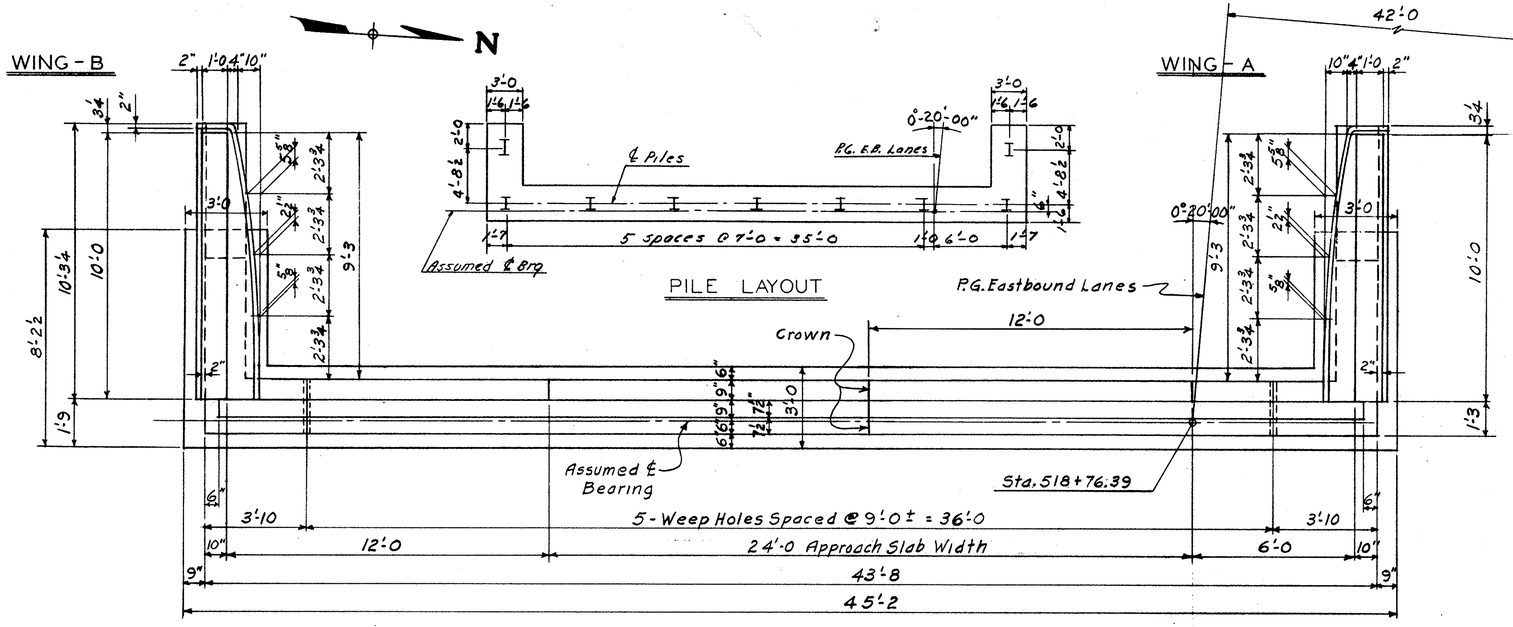
ABUTMENT NO. 2
BRIDGE NO. MAH-18-1552L
OVER MERIDIAN ROAD
Sta. 518+75.40 To Sta. 520+22.90

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F | TP | | S.J.F | LGH 10-15-63 | 2-1-66 |

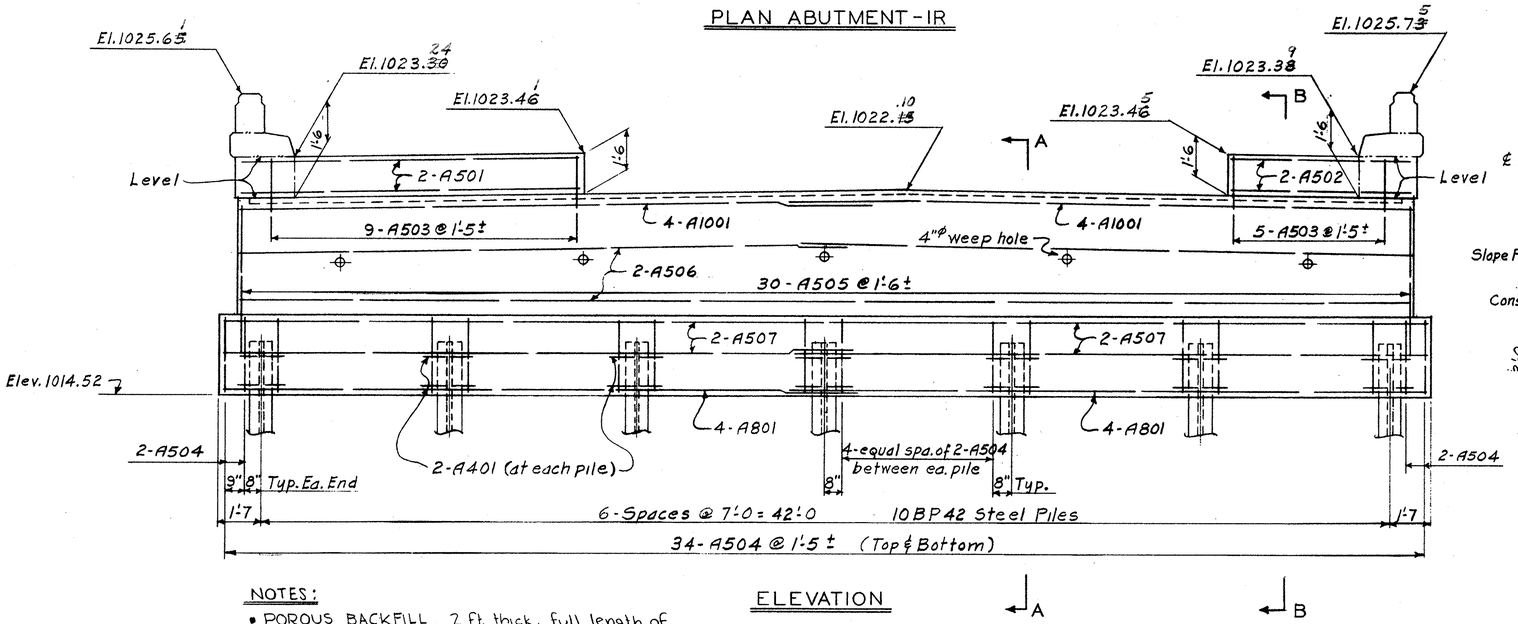
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

211

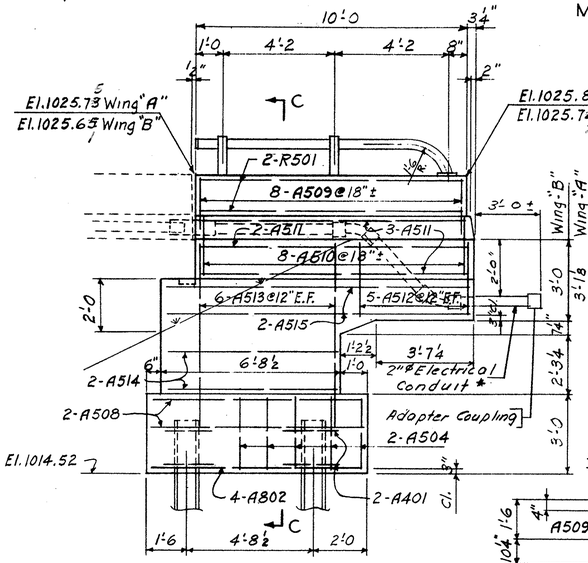
MAHONING COUNTY
MAH-18-15.50



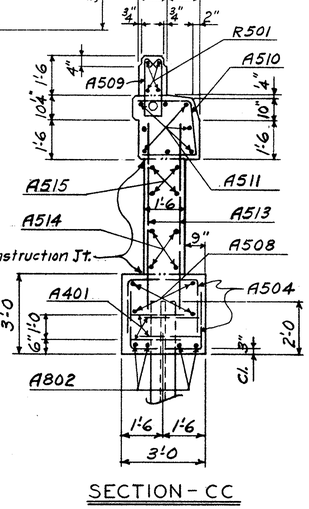

PLAN ABUTMENT - IR



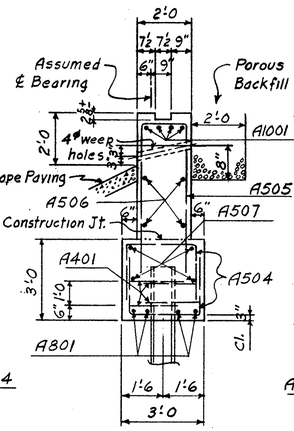

ELEVATION



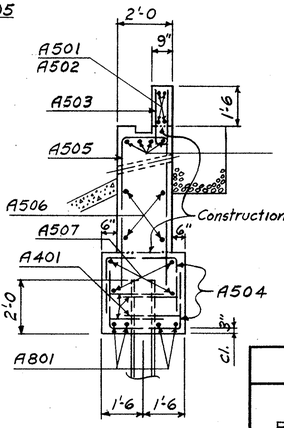

WING - A
WING - B OPP. HAND




SECTION - CC




SECTION - AA




SECTION - BB

NOTES:

- POROUS BACKFILL, 2 ft. thick, full length of abutment, shall extend upward to the approach slab and to the surface of the shoulders. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.
- Concrete shall be class "E" except parapet concrete which shall be class "C"

Legend:
E.F. = Each Face

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENT NO. 1
BRIDGE NO. MAH-18-1552R
OVER MERIDIAN ROAD

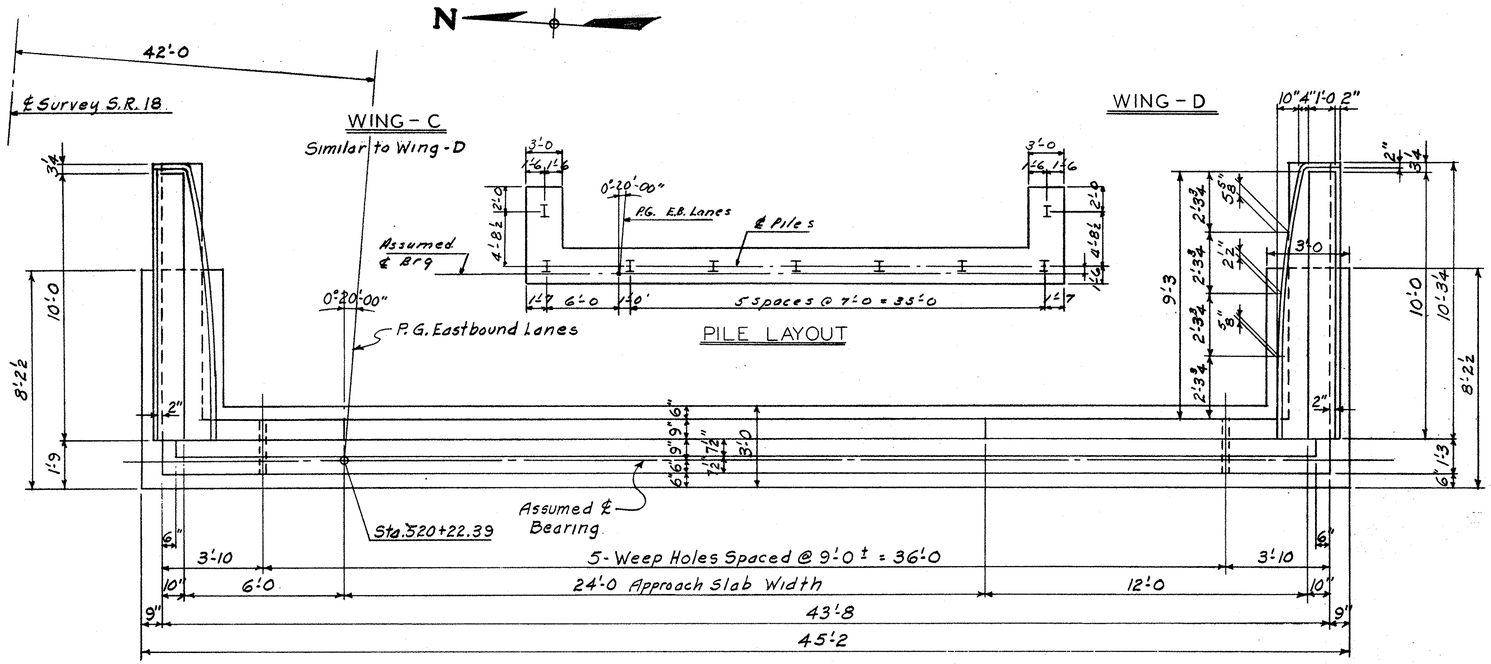
Sta. 518+75.40 To Sta. 520+22.90

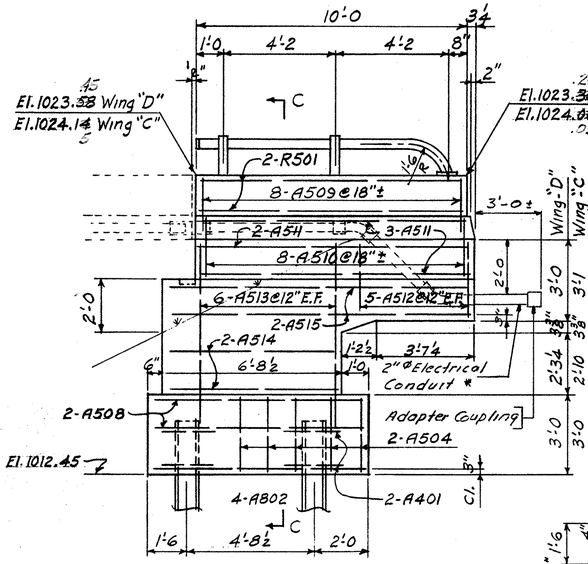
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | TP | | SJF | L.G.H. 10-15-63 | 2-1-66 |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

212

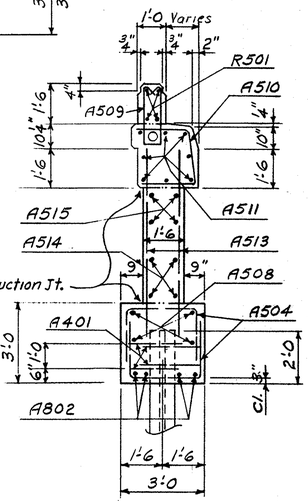
MAHONING COUNTY
MAH-18-15.50



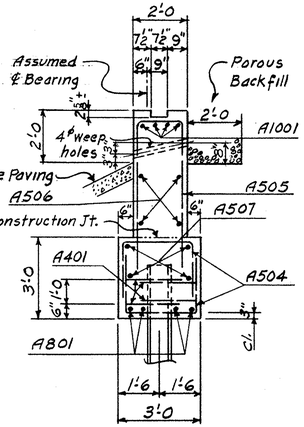




WING - D
WING - C OPP. HAND

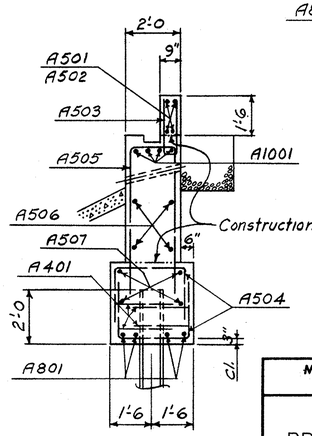
* Electrical Conduit in Wing "D" only




SECTION - CC




SECTION - AA

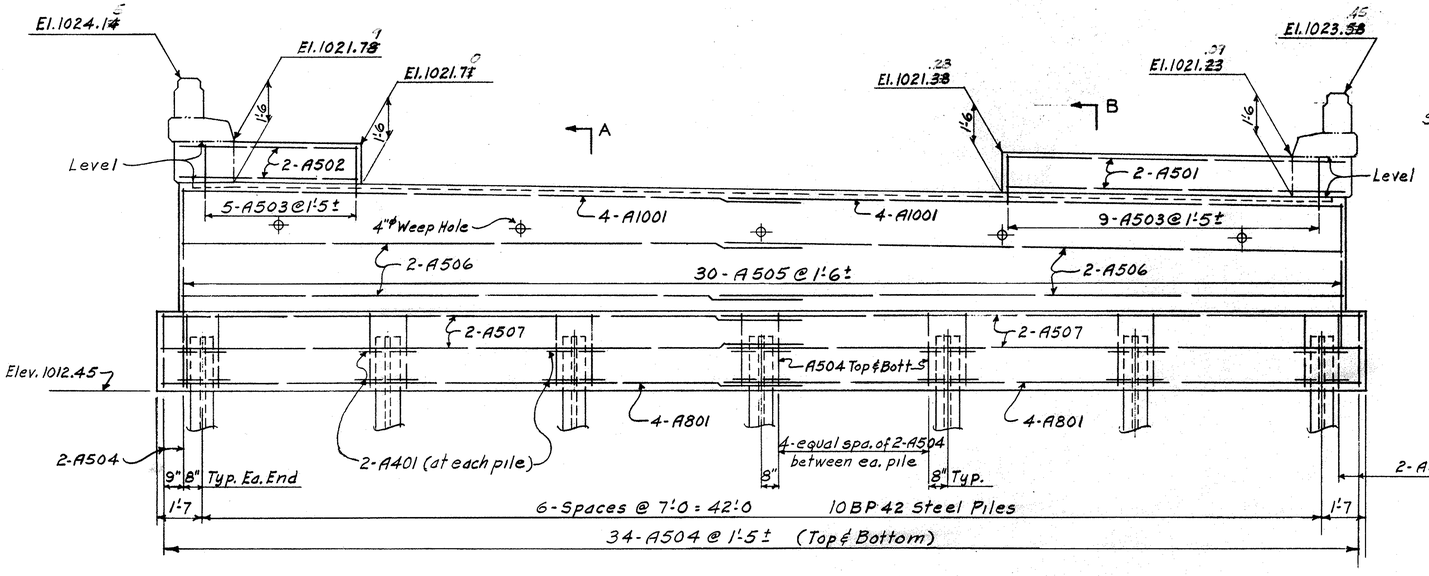



SECTION - BB

Notes

- For Abutment notes see sht # 211

PLAN ABUTMENT - 2R




ELEVATION

Legend:
E.F. = Each Face

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENT NO. 2
BRIDGE NO. MAH-18-1552R
OVER MERIDIAN ROAD

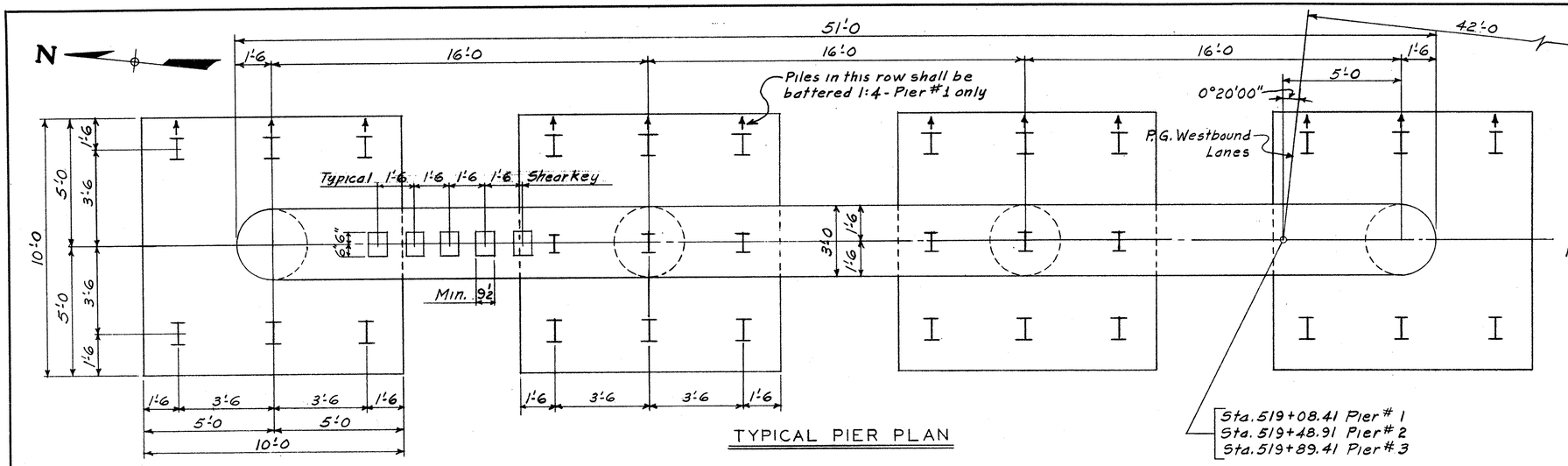
Sta. 518+75.40 To Sta. 520+22.90

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | TP | | S.J.F. | L.G.H. 10-15-63 | 2-1-66 |

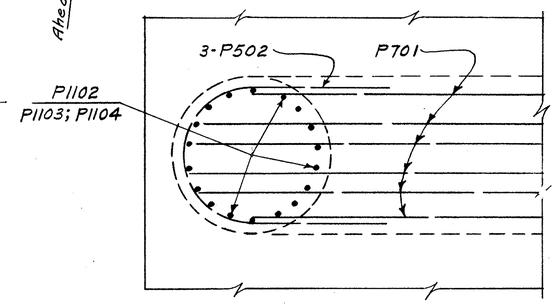
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

213

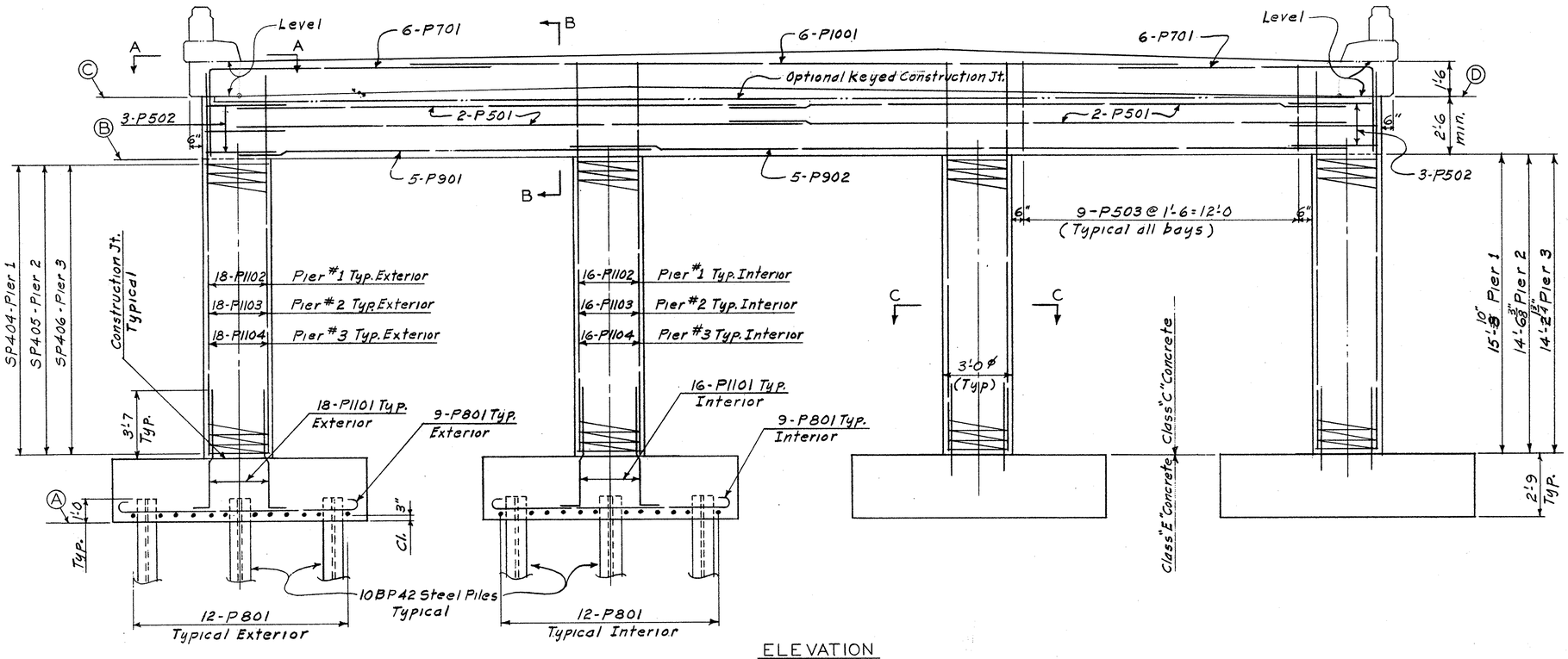
MAHONING COUNTY
MAH-18-15.50



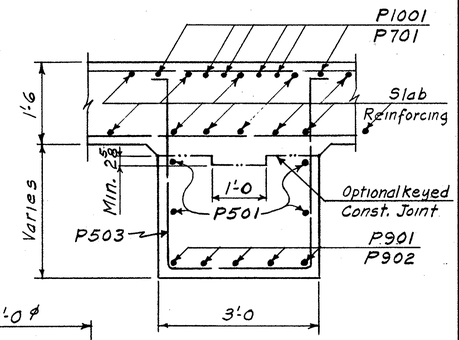

TYPICAL PIER PLAN



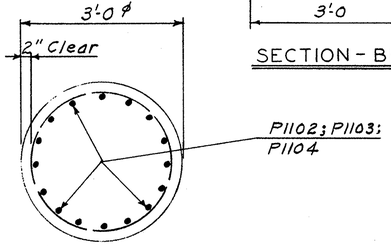

SECTION-AA
Typical




ELEVATION




SECTION - BB




SECTION - CC

| ELEVATIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| | A | ~~B~~ | ~~C~~ | ~~D~~ | B | C | D |
| Pier 1 | 1000.47 | ~~1018.89~~ | ~~1021.39~~ | ~~1021.56~~ | 1019.05 | 1021.63 | 1021.55 |
| Pier 2 | 1001.31 | ~~1018.56~~ | ~~1021.06~~ | ~~1021.11~~ | 1018.59 | 1021.44 | 1021.09 |
| Pier 3 | 1001.18 | ~~1018.10~~ | ~~1020.85~~ | ~~1020.60~~ | 1018.08 | 1021.19 | 1020.53 |

See "Electrical Details" sheet for electrical ground wire embedded in columns of Pier #2 (Sheet 217 ).

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# PIER DETAILS
## BRIDGE NO. MAH-18-1552L
## OVER MERIDIAN ROAD

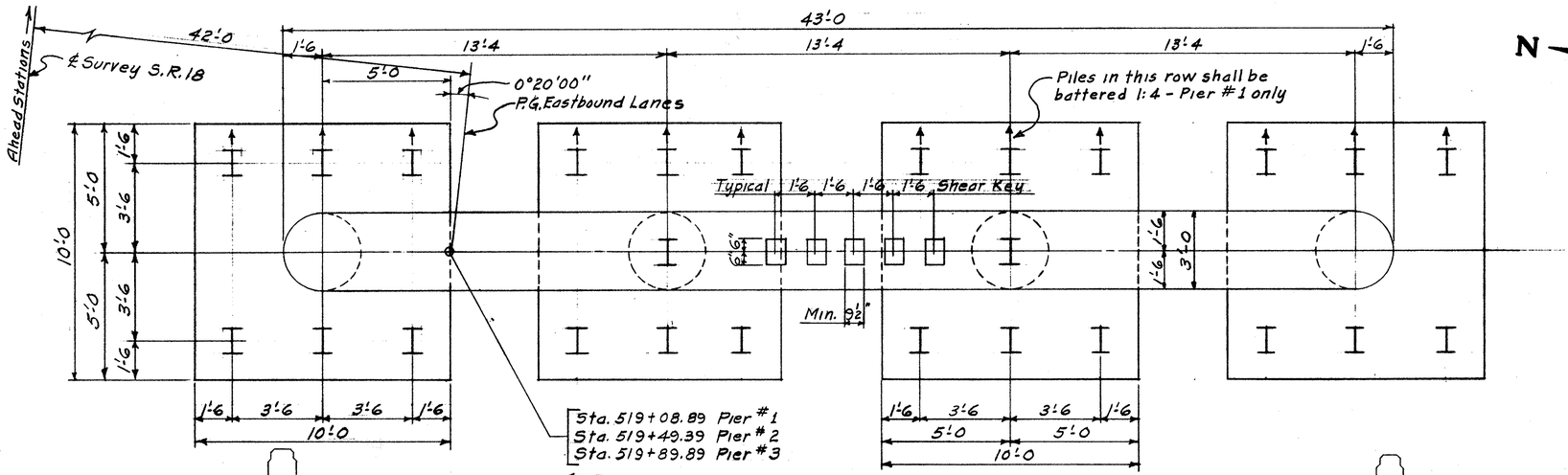
Sta. 518+75.40 To Sta. 520+22.90

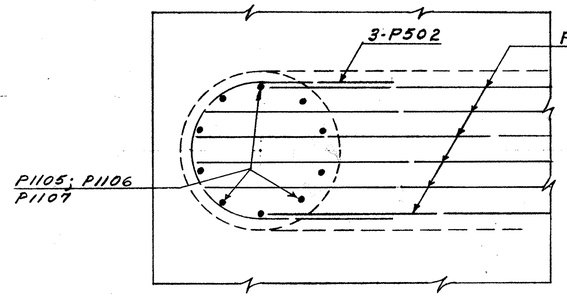
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| SJF | TP | | AA | LGH 10-15-63 | 2-1-66 |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

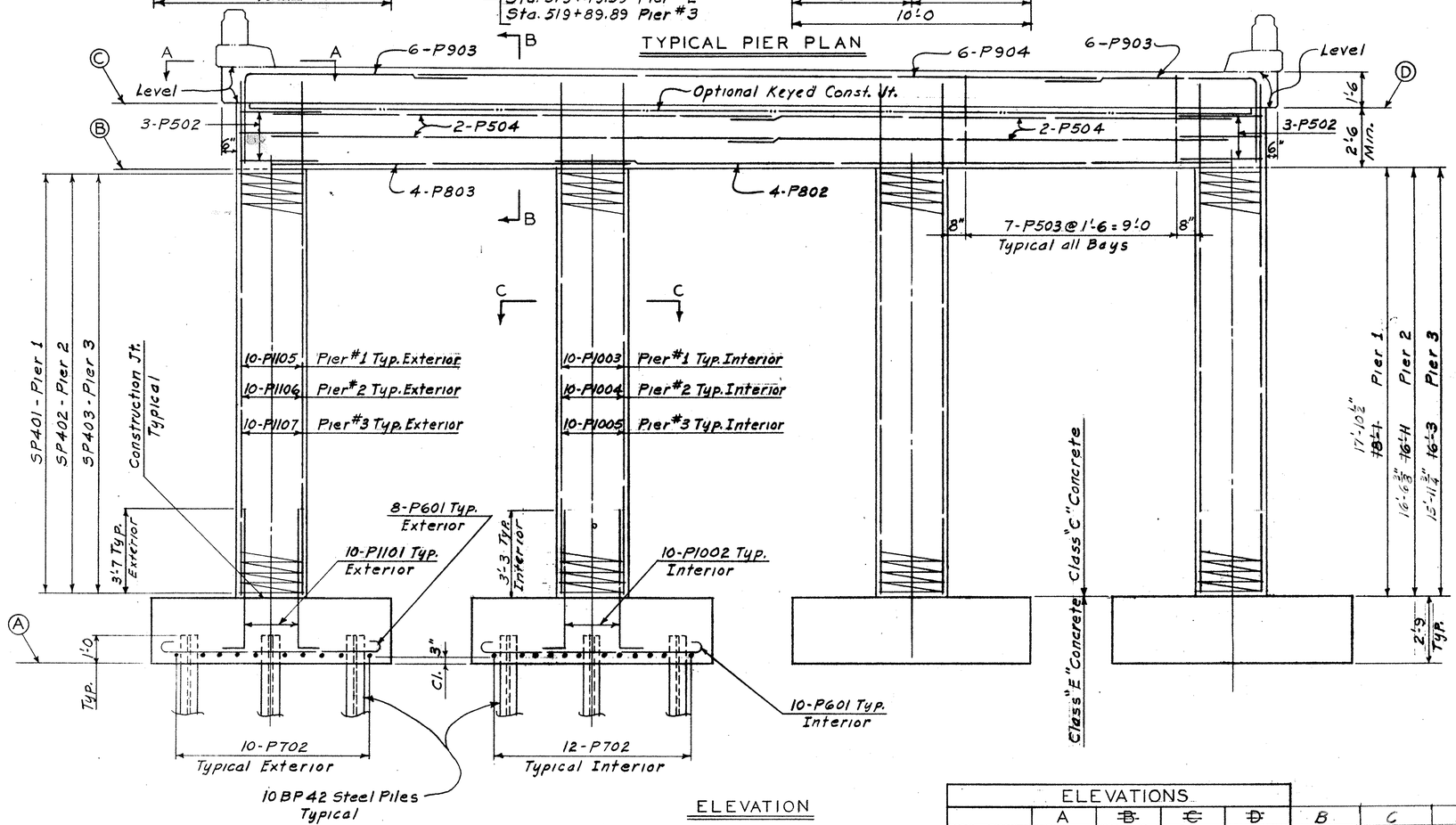
214

MAHONING COUNTY
MAH-18-15.50

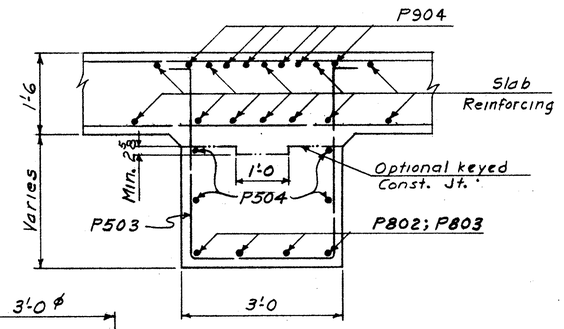



SECTION-AA
Typical




ELEVATION




SECTION - BB

SECTION - CC

See "Electrical Details" sheet for electrical ground wire embedded in columns of Pier #2 (Sheet 217 ).

| ELEVATIONS | A | ~~B~~ | ~~C~~ | ~~D~~ | B | C | D |
|---|---|---|---|---|---|---|---|
| Pier 1 | 998.20 | ~~1019.03~~ | ~~1021.58~~ | ~~1021.53~~ | 1018.33 | 1021.39 | 1021.33 |
| Pier 2 | 998.99 | ~~1018.66~~ | ~~1021.17~~ | ~~1021.16~~ | 1018.27 | 1021.13 | 1020.77 |
| Pier 3 | 998.93 | ~~1017.93~~ | ~~1020.71~~ | ~~1020.43~~ | 1017.66 | 1020.71 | 1020.16 |

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIER DETAILS
BRIDGE NO. MAH-18-1552R
OVER MERIDIAN ROAD
Sta. 518+75.40 To Sta. 520+22.90

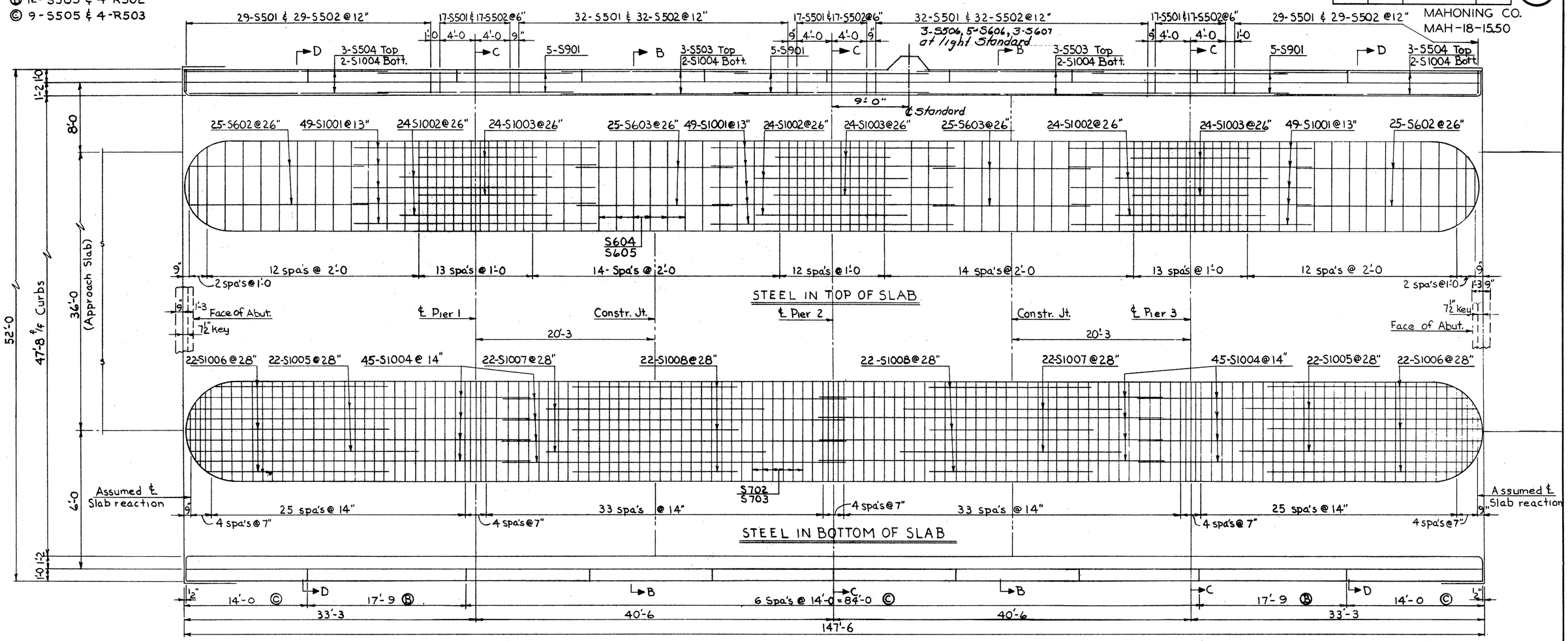
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F | TP | | A.A. | LGH 10-15-63 | 2-1-66 |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

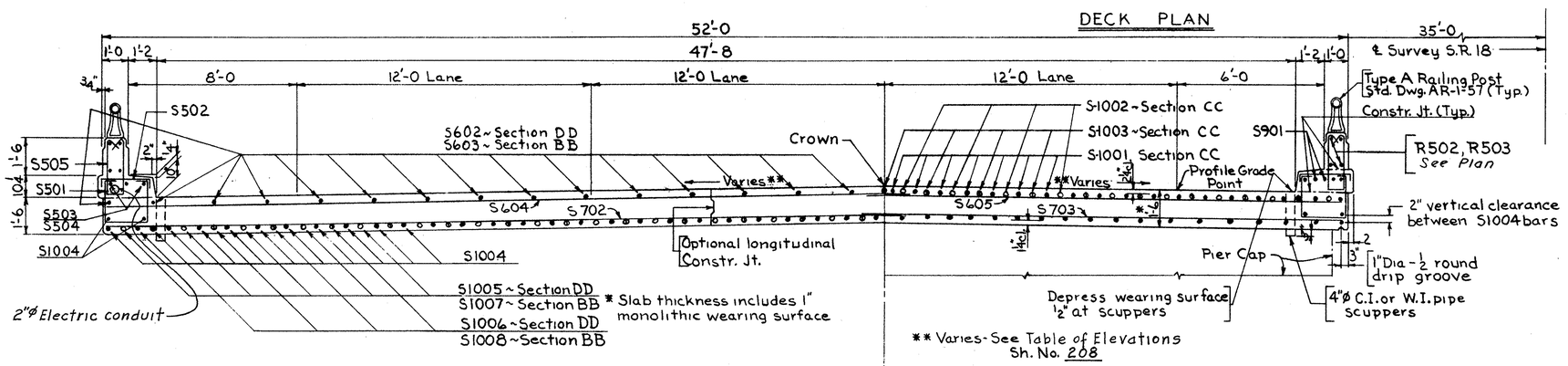
215

MAHONING CO.
MAH-18-15.50

Ⓑ 12-S505 & 4-R502
Ⓒ 9-S505 & 4-R503




DECK PLAN




PARTIAL SECTION BB & DD

PARTIAL SECTION - C C

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

DECK PLAN
BRIDGE NO MAH-18-1552L
OVER MERIDIAN ROAD

Sta. 518+75.40 To Sta. 520+22.90

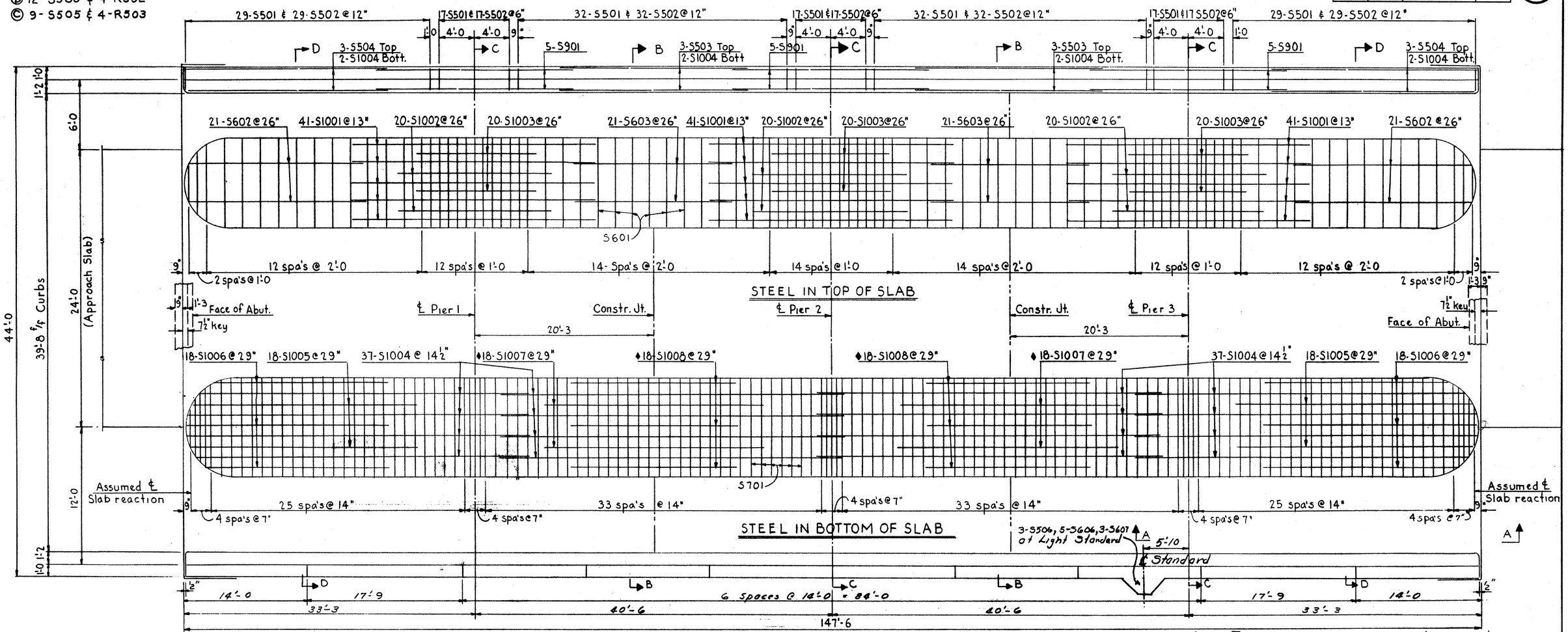
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| C.J.M. | bo | | L.E.D. S.J.F. | L.G.H. 10-15-63 | |

MAHONING COUNTY
MAH-18-15.50

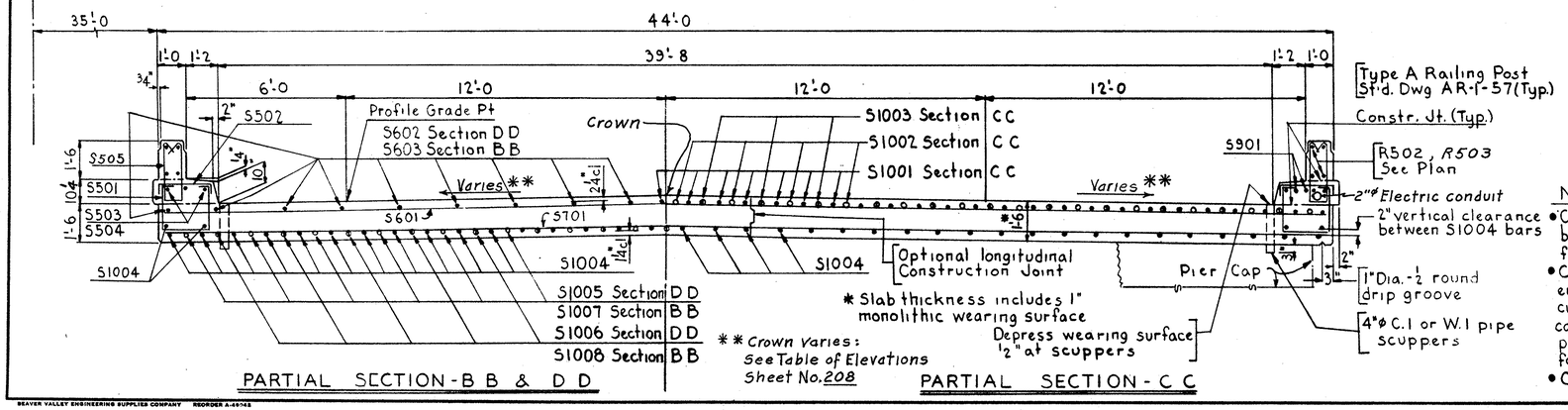
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

216

Ⓑ 12-S505 & 4-R502
Ⓒ 9-S505 & 4-R503

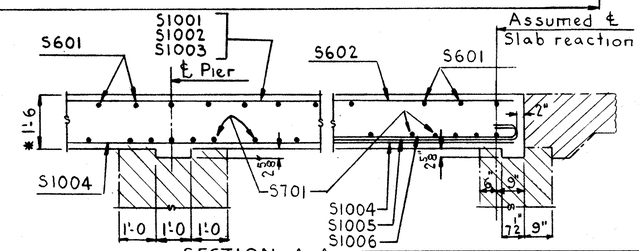



DECK PLAN




PARTIAL SECTION - B B & D D

PARTIAL SECTION - C C




SECTION - A A

NOTES:

- Curbs shall be placed after the shoring under the slab has been released sufficiently to permit the slab spans to attain full dead load deflection
- Camber: Loaded falsework shall have a camber of ½" for end spans and ¾" for the middle spans to allow for vertical curve and dead load deflection. This is the amount of camber required before falsework is released. To obtain this proper allowance shall be made for the deflection of falsework members.
- Concrete shall be class "C"

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

DECK PLAN
BRIDGE NO MAH-18-1552R
OVER MERIDIAN ROAD
Sta. 518+75.40 To Sta. 520+22.90

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| C.J.M. | bo | | L.R.D. S.J.F. | L.G.H. 10-15-63 | |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

217

MAHONING COUNTY
MAH-18-15.50

## NOTES

Bar size is indicated in the bar mark. The first digit, where three digits are used, indicate the bar size number. For example S701 is a No. 7 in size.

Spiral Reinforcing Bars: The "length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "length" divided by the pitch, plus three turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle steel spacers, weighing approximately 0.68 lbs. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number pounds of these spacers, based on 0.68 lbs. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

## ELECTRICAL NOTES:

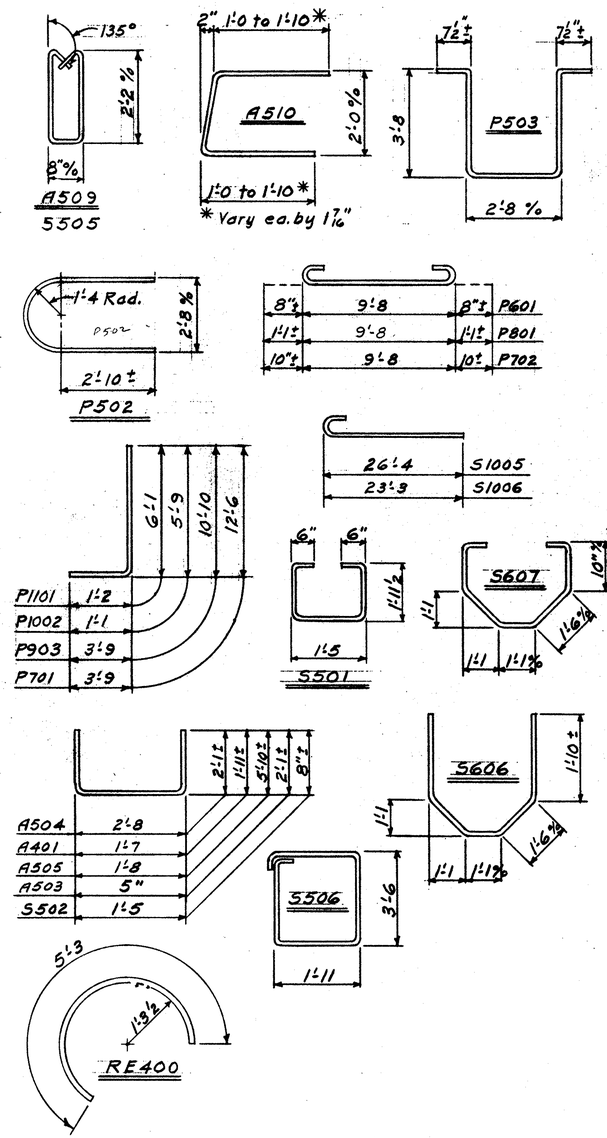
Electrical Ground: Use No. 4/0 AWG 7 strand, soft annealed bare copper cable encased in the outside column of Pier No. 3 right and Pier No. 2 left. The lower end of the cable shall be exothermic welded to one of the steel piles in the footing and the upper end shall extend far enough so that it may be exothermic welded to a light pole anchor rod.

For bridge lighting details, see Details-Bridge Lighting, Sheet No. 203.

# REINFORCING STEEL LIST

| MARK | No. Lt. | No. Rt. | Length | Weight Lt. | Weight Rt. | Sh'p |
|---|---|---|---|---|---|---|
| **SUPERSTRUCTURE** | | | | | | |
| S1001 | 147 | 123 | 27'-11 | 17659 | 14777 | S |
| S1002 | 72 | 60 | 12'-11 | 4002 | 3335 | S |
| S1003 | 72 | 60 | 9'-4 | 2892 | 2409 | S |
| S1004 | 196 | 164 | 37'-8 | 31768 | 26581 | S |
| S1005 | 44 | 36 | 27'-9 | 5254 | 4298 | B |
| S1006 | 44 | 36 | 24'-8 | 4670 | 3821 | B |
| S1007 | 44 | 36 | 24'-10 | 4702 | 3847 | S |
| S1008 | 44 | 36 | 19'-2 | 3629 | 2969 | S |
| S901 | 30 | 30 | 22'-6 | 2295 | 2295 | S |
| S701 | | 137 | 43'-8 | | 12227 | S |
| S702 | 137 | | 34'-0 | 9521 | | S |
| S703 | 137 | | 20'-0 | 5600 | | S |
| S601 | | 95 | 43'-8 | | 6231 | S |
| S602 | 50 | 42 | 20'-11 | 1371 | 1320 | S |
| S603 | 50 | 42 | 17'-8 | 1327 | 1115 | S |
| S604 | 95 | | 33'-10 | 4828 | | S |
| S605 | 95 | | 19'-10 | 2830 | | S |
| S606 | 5 | 5 | 7'-6 | 56 | 56 | B |
| S607 | 3 | 3 | 6'-6 | 29 | 29 | B |
| S501 | 346 | 346 | 5'-10 | 2105 | 2105 | B |
| S502 | 346 | 346 | 2'-6 | 902 | 902 | B |
| S503 | 12 | 12 | 21'-8 | 271 | 271 | S |
| S504 | 12 | 12 | 23'-8 | 296 | 296 | S |
| S505 | 192 | 192 | 5'-7 | 1118 | 1118 | B |
| S506 | 3 | 3 | 11'-6 | 36 | 36 | B |
| R501 | 16 | 16 | 9'-8 | ** | ** | S |
| R502 | 16 | 16 | 17'-5 | ** | ** | S |
| R503 | 64 | 64 | 13'-8 | ** | ** | S |
| **ABUTMENTS** | | | | | | |
| A1001 | | 16 | 23'-3 | | 1600 | S |
| A1002 | 16 | | 27'-4 | 1882 | | S |
| A801 | | 16 | 23'-8 | | 1012 | S |
| A802 | 16 | 16 | 7'-10 | 334 | 334 | S |
| A803 | 16 | | 27'-8 | 1182 | | S |
| A501 | | 8 | 12'-6 | | 104 | S |
| A502 | 8 | 8 | 6'-6 | 54 | 54 | S |
| A503 | 22 | 28 | 4'-4 | 100 | 126 | B |
| A504 | 216 | 176 | 6'-7 | 1484 | 1208 | B |
| A505 | 70 | 60 | 13'-1 | 956 | 818 | B |
| A506 | | 16 | 22'-5 | | 374 | S |
| A507 | | 16 | 23'-2 | | 386 | S |
| A508 | 16 | 16 | 7'-10 | 130 | 130 | S |
| A509 | 32 | 32 | 5'-7 | 186 | 186 | B |
| * A510 | 45 of 8 | 45 of 8 | 3'-9 to 3'-5 | 152 | 152 | B |
| A511 | 32 | 32 | 9'-10 | 328 | 328 | S |
| A512 | 40 | 40 | 3'-0 | 126 | 126 | S |
| A513 | 48 | 48 | 7'-9 | 388 | 388 | S |
| A514 | 16 | 16 | 6'-4 | 106 | 106 | S |
| A515 | 16 | 16 | 11'-2 | 186 | 186 | S |
| A516 | 8 | | 8'-6 | 70 | | S |
| A517 | 16 | | 26'-6 | 442 | | S |
| A518 | 16 | | 27'-3 | 454 | | S |
| A401 | 88 | 72 | 5'-3 | 308 | 252 | B |

## BENDING DIAGRAMS

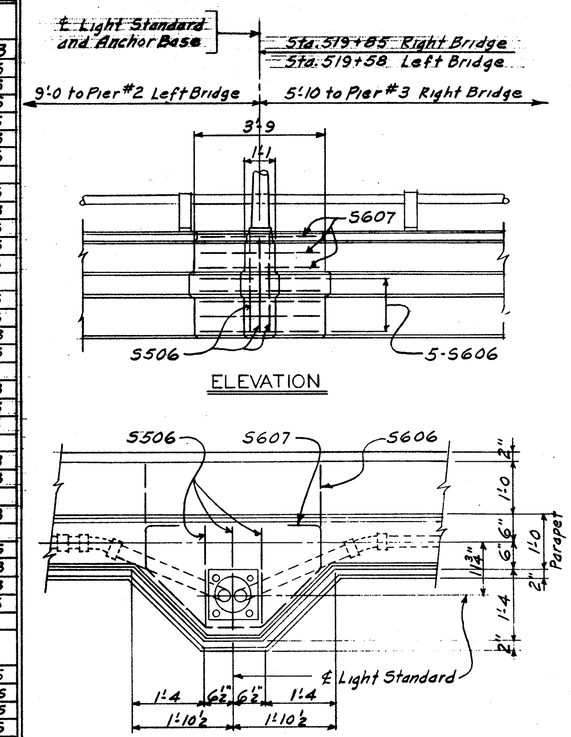



| MARK | No. Lt. | No. Rt. | Length | Weight Lt. | Weight Rt. | Sh'p |
|---|---|---|---|---|---|---|
| **PIERS** | | | | | | |
| P1101 | 204 | 60 | 6'-11 | 7497 | 2205 | B |
| P1102 | 68 | | 19'-3 | 6955 | | S |
| P1103 | 68 | | 18'-1 | 6533 | | S |
| P1104 | 68 | | 17'-9 | 6413 | | S |
| P1105 | | 20 | 21'-8 | | 2302 | S |
| P1106 | | 20 | 20'-6 | | 2178 | S |
| P1107 | | 20 | 19'-10 | | 2107 | S |
| P1001 | 18 | | 32'-0 | 2479 | | S |
| P1002 | | 60 | 6'-6 | | 1678 | B |
| P1003 | | 20 | 21'-4 | | 1836 | S |
| P1004 | | 20 | 20'-2 | | 1736 | S |
| P1005 | | 20 | 19'-6 | | 1678 | S |
| P901 | 15 | | 17'-5 | 888 | | S |
| P902 | 15 | | 33'-5 | 1704 | | S |
| P903 | | 36 | 14'-4 | | 1754 | B |
| P904 | | 18 | 26'-8 | | 1632 | S |
| P801 | 252 | | 11'-10 | 7962 | | B |
| P802 | | 12 | 27'-11 | | 894 | S |
| P803 | | 12 | 14'-7 | | 467 | S |
| P701 | 36 | | 16'-1 | 1183 | | B |
| P702 | | 132 | 11'-4 | | 3058 | B |
| P601 | | 108 | 11'-0 | | 1784 | B |
| P501 | 24 | | 24'-10 | 622 | | S |
| P502 | 18 | 18 | 9'-10 | 185 | 185 | B |
| P503 | 81 | 63 | 10'-9 | 908 | 706 | B |
| P504 | | 24 | 20'-10 | | 522 | S |
| **REPLACEMENT BARS** | | | | | | |
| RE1100 | 2 | 1 | 7'-7 | 81 | 40 | S |
| RE1000 | 4 | 4 | 7'-3 | 125 | 125 | S |
| RE900 | 1 | 1 | 6'-10 | 23 | 23 | S |
| RE800 | 1 | 1 | 6'-6 | 17 | 17 | S |
| RE700 | 1 | 1 | 6'-3 | 13 | 13 | S |
| RE600 | 1 | 1 | 5'-11 | 9 | 9 | S |
| RE500 | 1 | 1 | 5'-7 | 6 | 6 | S |
| RE400 | 1 | 1 | 5'-3 | 4 | 4 | B |

## SPIRAL REINFORCING LIST

| Mark | No. Lt. | No. Rt. | Core Dia. | Length | No. Turns | Pitch | Weigth Left | Weigth Right |
|---|---|---|---|---|---|---|---|---|
| SP401 | | 4 | 32" | 18'-1 | 51 | 4½" | | 1321 |
| SP402 | | 4 | 32" | 16'-11 | 48 | | | 1242 |
| SP403 | | 4 | 32" | 16'-3 | 46 | | | 1190 |
| SP404 | 4 | | 32" | 15'-8 | 45 | | 1162 | |
| SP405 | 4 | | 32" | 14'-6 | 42 | | 1083 | |
| SP406 | 4 | | 32" | 14'-2 | 41 | 4½" | 1058 | |

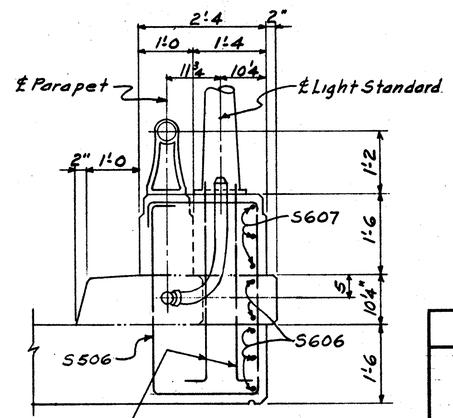
** Included with railing for payment (Item S-14)




ELEVATION




PLAN




SECTION

2-Light Standard Anchor Rods (1" ø or 1¼" x 40") Galvanize nuts & exposed ends 2" beyond threads

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

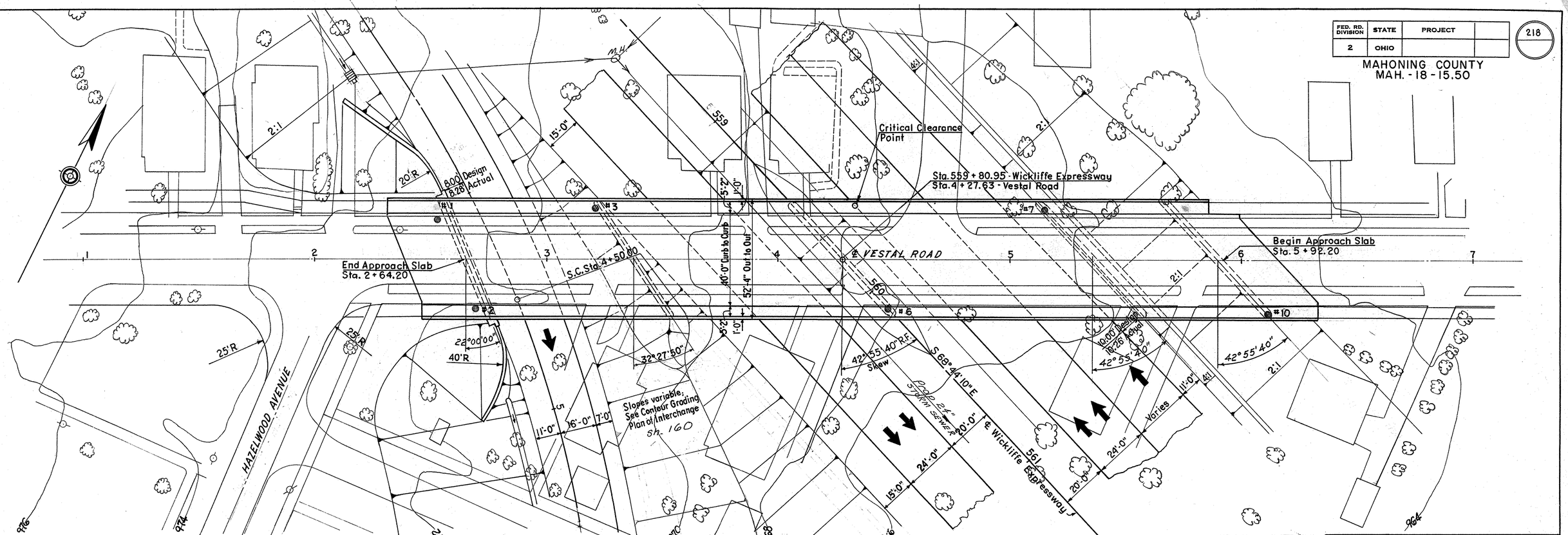
REINFORCING STEEL LIST & ELECTRICAL DETAILS
BRIDGE NO. MAH-18-1552L&R
OVER MERIDIAN ROAD
Sta. 518+75.40 To Sta. 520+22.90

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| SJF | TP | | SJF | LGH 10-15-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

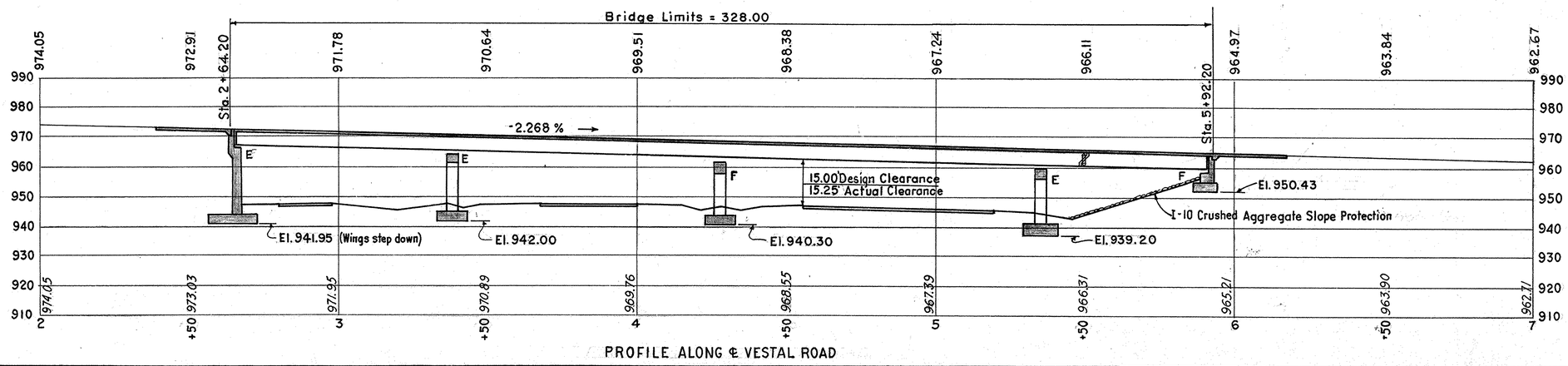
218

MAHONING COUNTY
MAH. - 18 - 15.50




See Sh. 159 for temporary run-around

FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of borings and soil sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office but the State assumes no responsibility for the accuracy thereof.




PROFILE ALONG ℄ VESTAL ROAD

B.M. 214: Top stem of hydrant at 2615 Vestal Road (65'-0" East of Hazelwood Avenue)
Elevation: 975.526

B.M. 209: Bolt on top of hydrant at 2434 Vestal Rd. (135'-0" East of Hazelwood Avenue)
Elevation: 958.902

ADT 10,090 (1975)

PROPOSED STRUCTURE

TYPE: Continuous Steel Girders with reinforced concrete deck and superstructure.
SPANS: 71'-0", 90'-0", 107'-6" & 54'-0" (along ℄ Vestal Rd.)
ROADWAY: 40' f/f 5'-2" Sidewalks
LOAD FREQUENCY: C.F. 400 (57)
SKEW: 42°55'40" R.F. except as shown
WEARING SURFACE: Monolithic Concrete
APPROACH SLAB: A.S.-1-54 (25' Long)
ALIGNMENT: Tangent

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

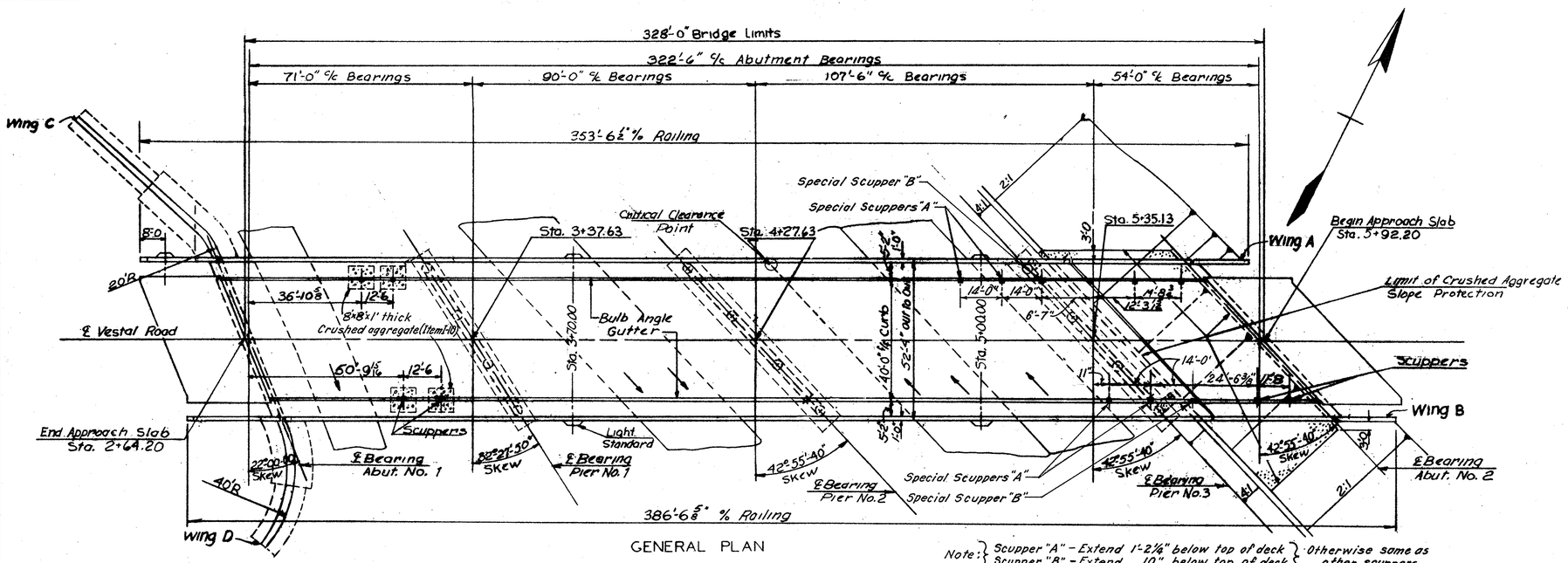
SITE PLAN
BRIDGE NO. MAH.-18-1629
UNDER VESTAL ROAD
MAHONING COUNTY
STA. 559 + 80.95

| PRESENT TOPOGRAPHY | | PROPOSED WORK | | | |
|---|---|---|---|---|---|
| SURVEYED | DRAWN | DESIGNED | DRAWN | CHECKED | REVIEWED |
| Aurilio | MMM | DJK | DJK | E.F.R. | L.G.H. 7-18-63 |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

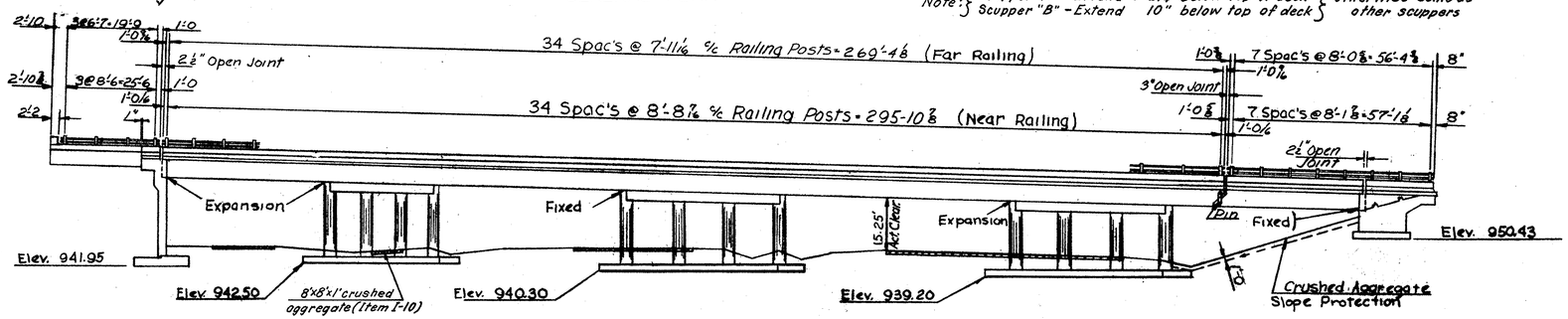
219

MAHONING COUNTY
MAH-18-15.50




GENERAL PLAN

Note: Scupper "A" - Extend 1'-2⅛" below top of deck; Scupper "B" - Extend 10" below top of deck } Otherwise same as other scuppers




## ESTIMATED QUANTITIES

| Item | Total | Unit | Description | Superstr. | Abut. 1 | Abut. 2 | Piers | Wings C&D | General | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E-2 | Lumpsum | lump sum | Cofferdams, cribs and sheeting | | | | | | lump sum | | |
| E-2 | 2173 | cu. yd | Unclassified excavation | | 793 | 242 | 386 | 752 | | | |
| S-1 | 581 | cu. yd. | Class "C" concrete, superstructure | 581 | | | | | | | |
| S-1 | 145 | cu. yd. | Class "C" concrete, pier caps & columns | | | | 145 | | | | |
| S-1 | 372 | cu. yd. | Class "E" concrete, footings | | 97 | | 159 | 116 | | | |
| S-1 | 151 | cu. yd. | Class "E" concrete, abutment #2 | | | 151 | | | | | |
| S-1 | 313 | cu. yd. | Class "E" concrete, abutment #1 & Wings | | 166 | | | 147 | | | |
| S-3 | 137 | lin. ft. | Waterproofing, premould Sealing Strip | | 125 | 12 | | | | | |
| S-4 | 270,473 | lbs. | Reinforcing steel | 147091 | 35724 | 7015 | 63,006 | 17637 | | | |
| S-7 | 588,800 | lbs. | Structural steel | 588,800 | | | | | | | |
| S-8 | 588,800 | lbs. | Field painting of structural steel | 588,800 | | | | | | | |
| S-9 | 152 | sq. ft. | 1" preformed expansion joint filler | | 152 | | | | | | |
| S-14 | 739.18 | lin. ft. | Railing Type C (Aluminum railing and supports and concrete parapet and end posts) | 648.98 | 52.95 | 37.25 | | | | | |
| S-25 | | | * Electrical - Lighting System | | | | | | | | |
| S-29 | 249 | cu. yd. | Porous backfill | | 111 | 33 | | 105 | | | |
| S-29 | 14 | each | Scuppers (8 standard plus 6 Special) | 14 | | | | | | | |
| S-29 | 36 | lin. ft. | 8" ϕ bituminous coated corrugated metal pipe | | 36 | | | | | | |
| S-29 | 58.5 | lin. ft. | 6" ϕ standard pipe horizontal conductors. Wrought Iron or hot dip galvanized steel including specials | 58.5 | | | | | | | |
| S-29 | 42.5 | lin. ft. | 6" ϕ standard pipe down spout. Wrought Iron or hot dip Galv. Steel, including specials | 42.5 | | | | | | | |
| S-101 | 581 | each | Water-reducing, set-retarding admixture | 581 | | | | | | | |
| I-10 | 368 | sq. yd. | Crushed aggregate slope protection | | | | | | 368 | | |

* See Sheets 195 to 206 for Item S-25 Specifications, Details & Quantities.

GENERAL NOTES:
Design Loading - CF 400 (57)
Concrete Class C - basic unit stress 1,333 p.s.i.
Concrete Class E - basic unit stress 1,333 p.s.i.
Structural Steel - ASTM A36 - basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted).
Reinforcing Steel - ASTM A15, A16, A160, deformed, intermediate or hard grade, Basic unit stress 20,000 p.s.i. except, spiral reinforcement may be plain, structural grade with basic unit stress of 18000 p.s.i.

REFERENCE shall be made to Standard Drawings AS-1-54, revised 7-5-62; CSB-2-56, sheets 2 and 3 of 6, revised 2-2-59; AR-1-57, revised 4-2-62; FSB-1-62, revised 1-15-63 and Supplemental Specifications S-101 dated 7-12-62, and S-307 revised 10-1-64.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of OHIO, Department of Highways, Dated 9-1-57, together with current revisions thereof.

FOUNDATION BEARING PRESSURE: Rear abutment and pier footings are designed for a maximum bearing pressure of 2.9 tons per square foot. Wing walls C and D are designed for a maximum bearing pressure of 2.5 tons per square foot. Forward abutment footing is designed for a maximum bearing pressure of 2.2 tons per square foot.

WELDING of structual steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

SURFACE FINISH OF CONCRETE: The requirements of Section S-1.22, Rubbed Finish, shall apply to the following concrete surfaces:
(a) The entire superstructure except top and bottom surfaces of sidewalks and roadways.
(b) The entire exposed surface of piers, abutments and wing walls except bearing seats, backwalls, top of rear abutment wing walls and face of forward abutment between outside girders.

MACHINE FINISH: The concrete deck shall be finished by the use of a finishing machine.

S-7.10 High STRENGTH STEEL BOLTS: High strength bolts that are used as fitting up bolts may be used in the final assembly if, after all bolts are placed and tightened, the fitting up bolts are subsequently loosened and retightened by the turn of nut method.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

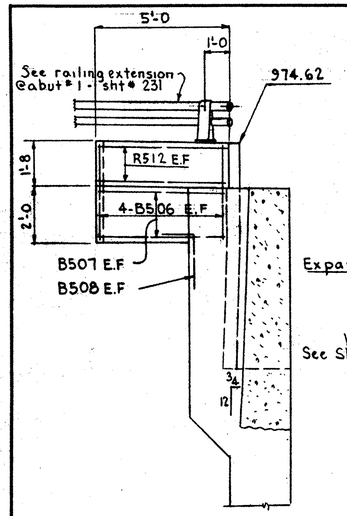
GENERAL PLAN, ELEVATION, NOTES
ESTIMATED QUANTITIES
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD
MAHONING COUNTY STA.

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| SJF | LRD | | DWP | L.G.H. 9-18-63 | |

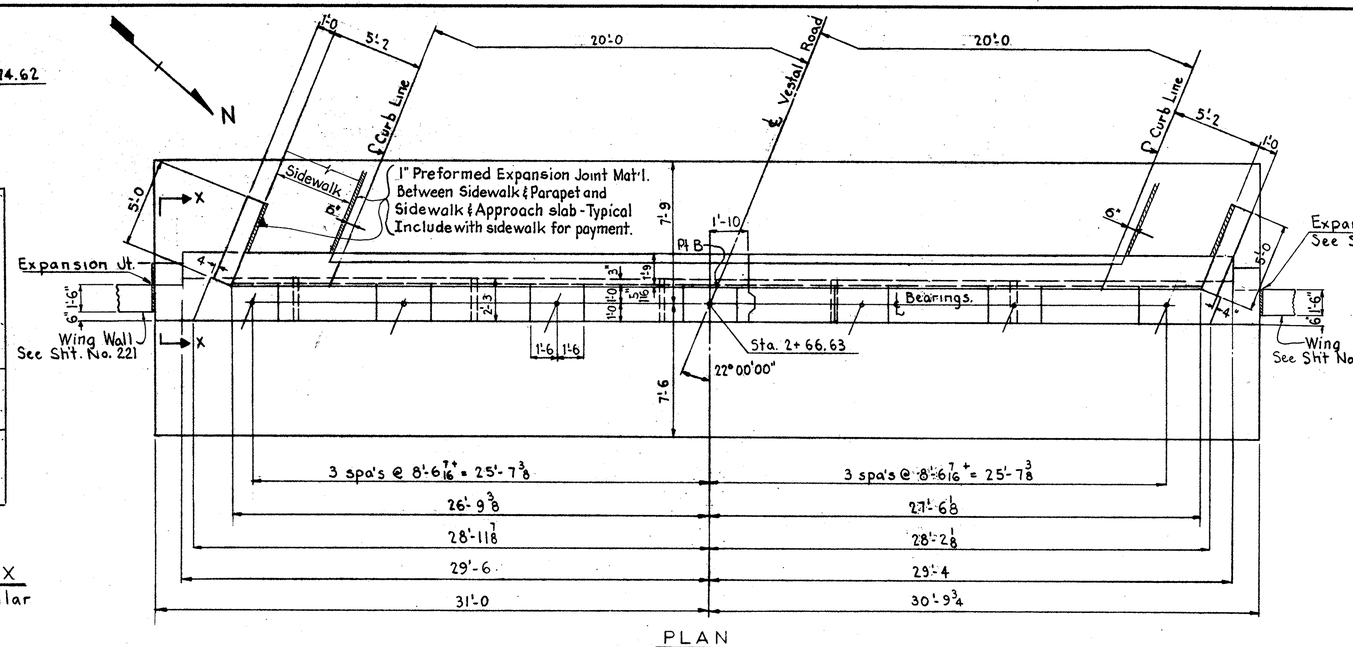
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

220

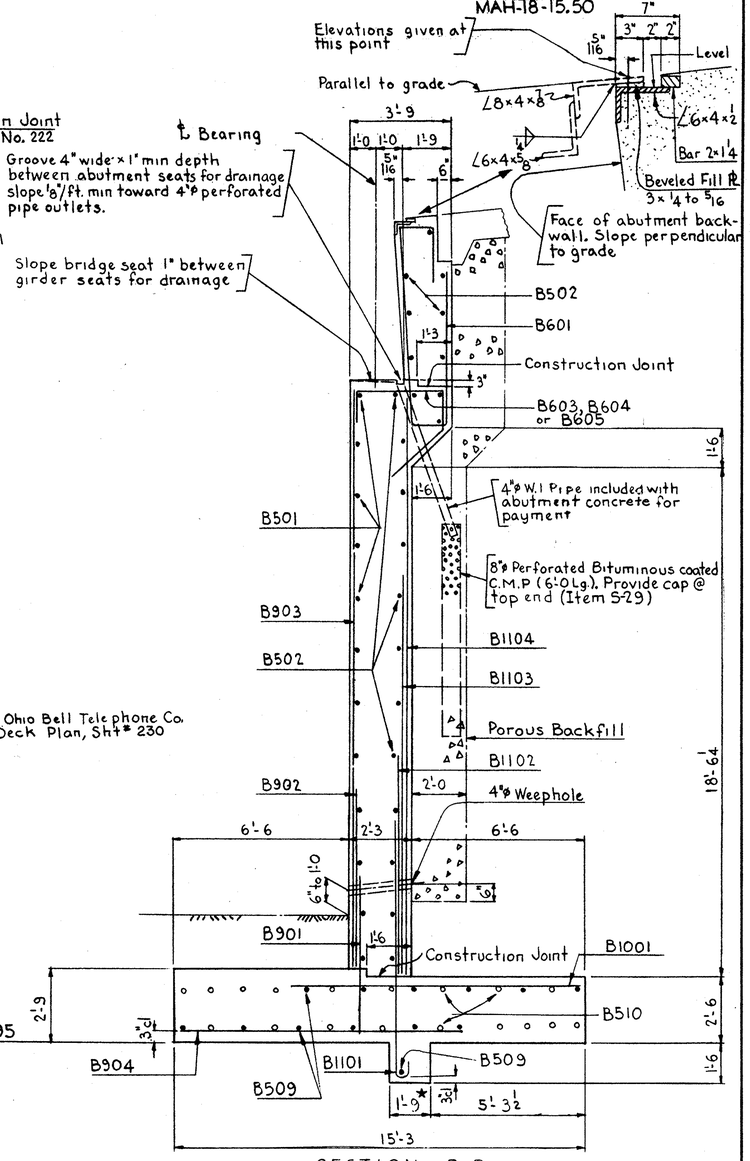
MAHONING COUNTY
MAH-18-15.50



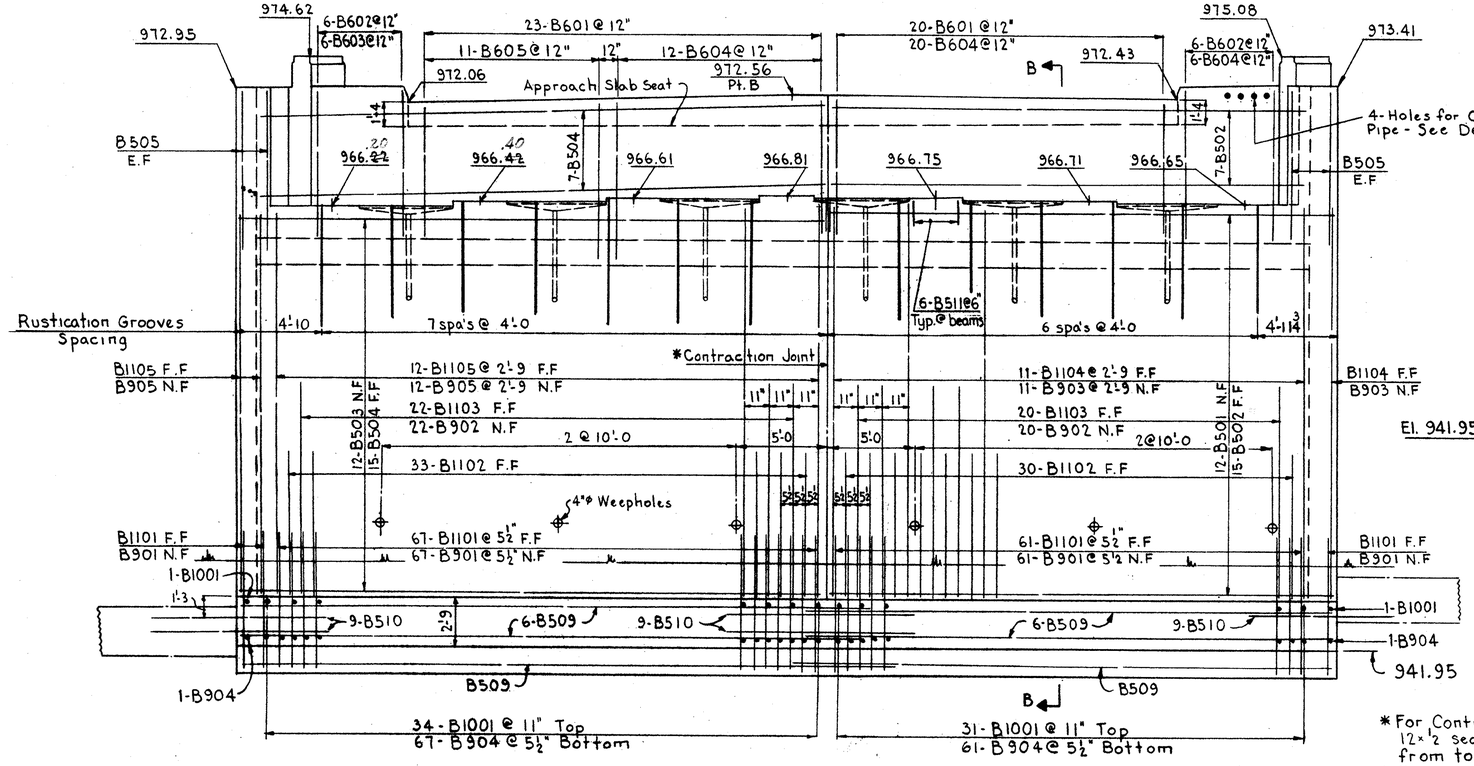

SECTION - X X
Far side parapet, similar




PLAN




SECTION - B B




ELEVATION

• N.F = Near Face
E.F = Each Face
F.F = Far Face

* For Contraction Joint Detail See Sht # 222 12"x 1/2 seal strip at Contraction Joint shall be from top of footing to approach slab seat.

★ Excavation for shear key shall be neat.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

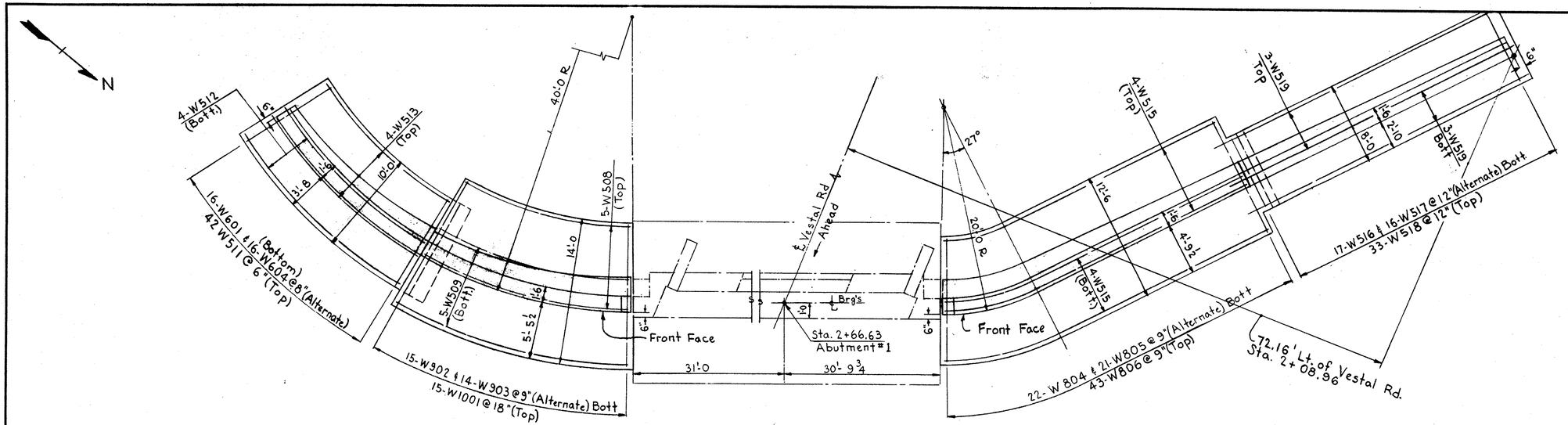
# ABUTMENT #1 DETAILS
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD
MAHONING COUNTY STA. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | bo | | LRD. | L.G.H. 9-18-63 | 12-22-65 |

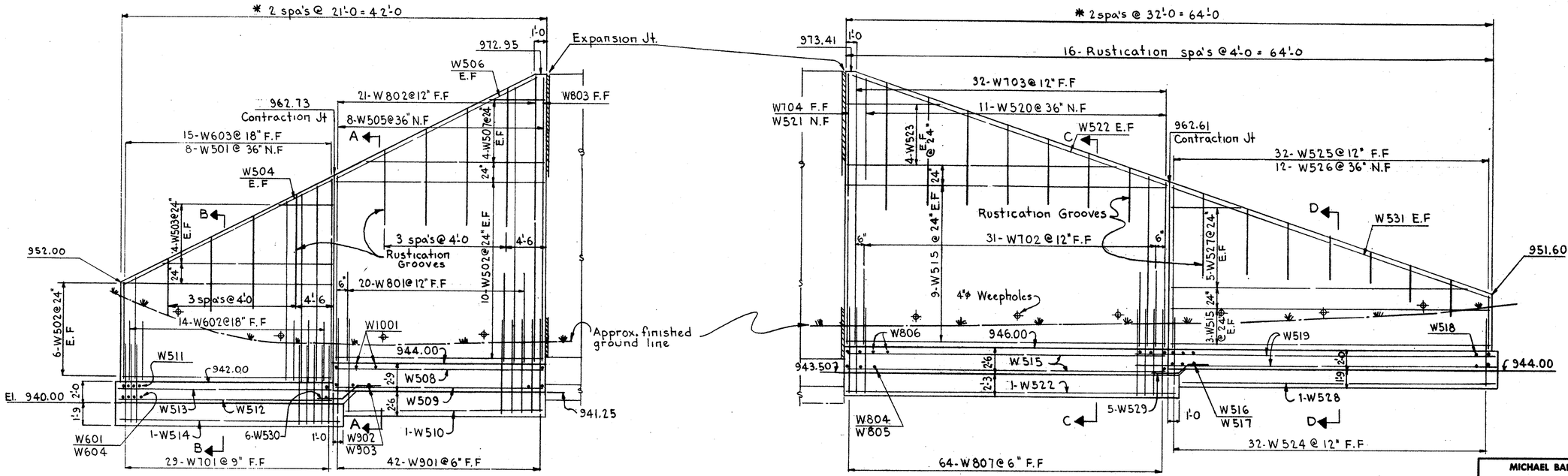
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

221

MAHONING COUNTY
MAH-18-15.50




WING - C PLAN WING - D




ELEVATION

* Dimensions measured along front face of wall

Note:
- Excavation for shear keys shall be neat
- N.F = Near Face
  F.F = Far Face
  E.F = Each Face
- For Wing C and Wing D Sections, Contraction and Expansion Joint details, See Sht. #222

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENT 1 WINGWALLS
BRIDGE NO MAH-18-1629
UNDER VESTAL ROAD

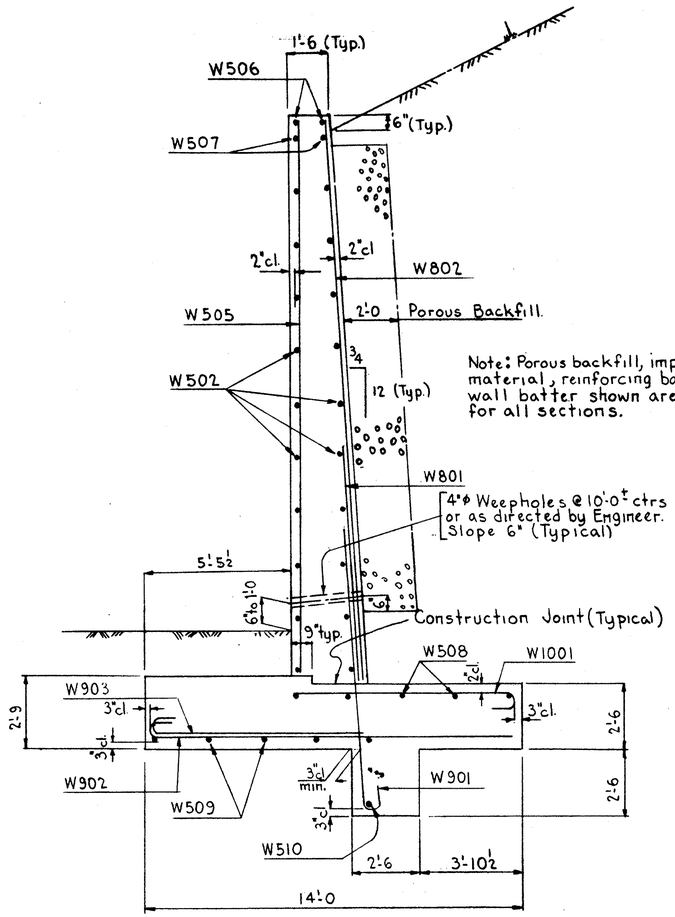
MAHONING CO. STA 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F | bo | | LRD | L.G.H. 9-18-63 | |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

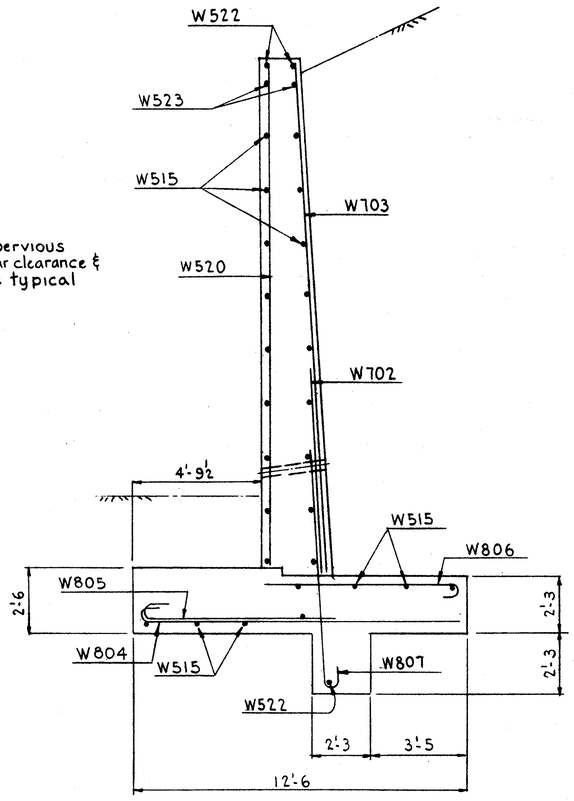
222

MAHONING COUNTY
MAH-18-15.50

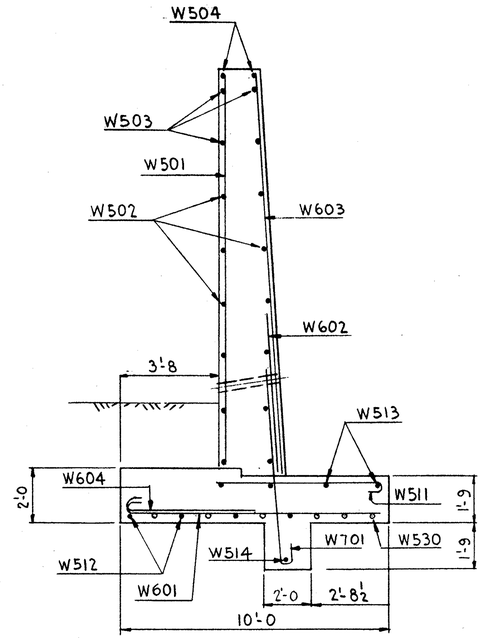



Note: Porous backfill, impervious material, reinforcing bar clearance & wall batter shown are typical for all sections.

SECTION – A A 221/222




SECTION – C C 221/222

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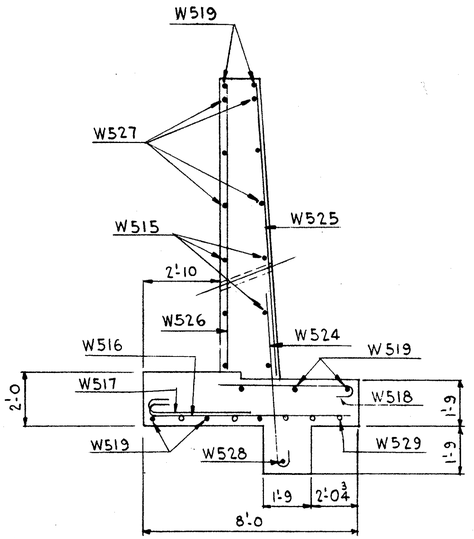
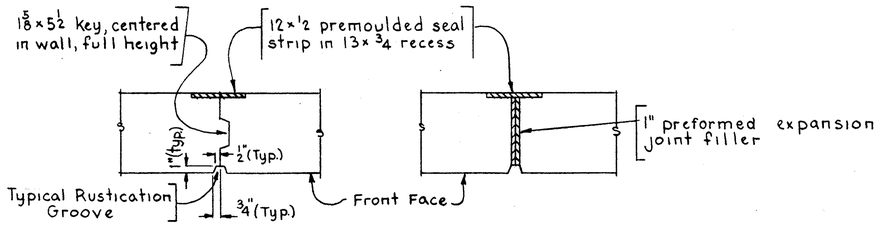



SECTION – D D 221/222




CONTRACTION JOINT

EXPANSION JOINT

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENT 1 WINGWALLS
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD

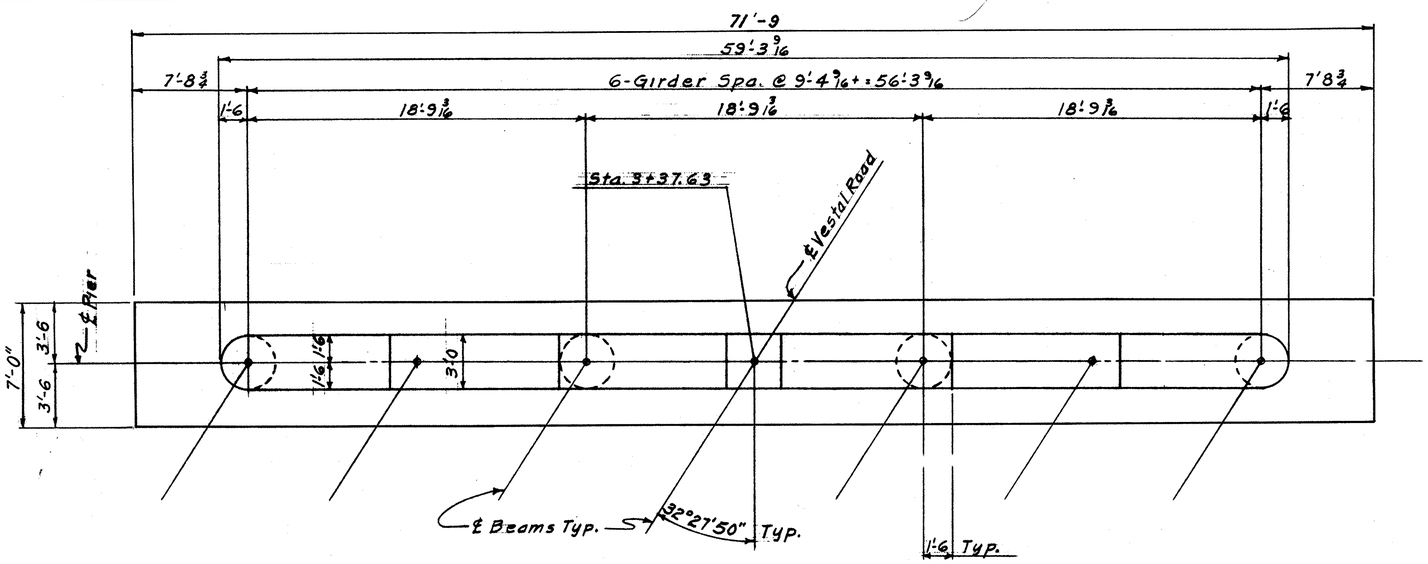
MAHONING CO. STA 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | bo | | LRD | L.G.H. 9-18-63 | |

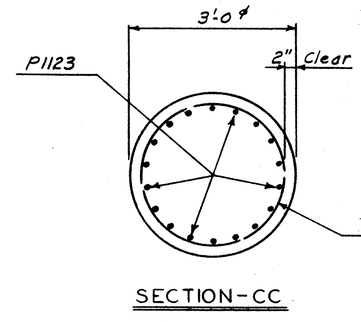
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

223

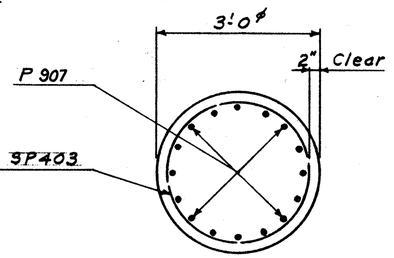
MAHONING COUNTY
MAH-18-15.50



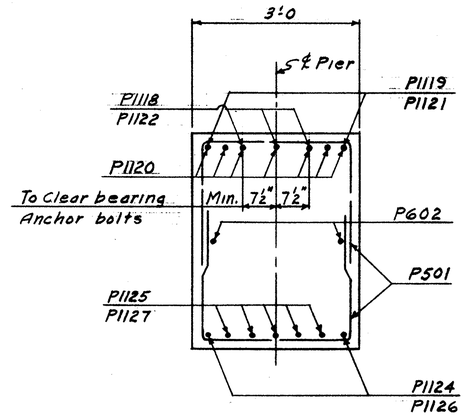

PLAN PIER 1



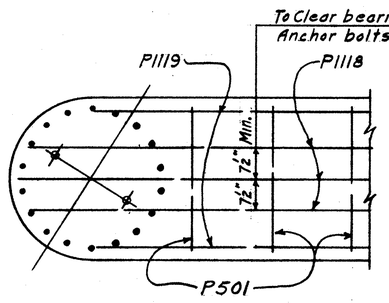

SECTION-CC



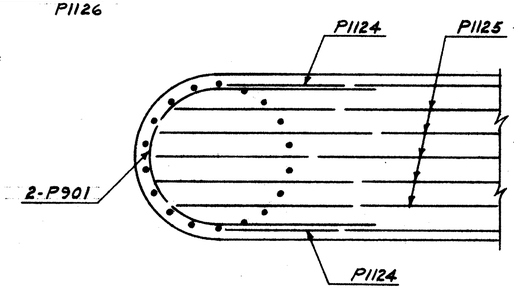

SECTION-EE



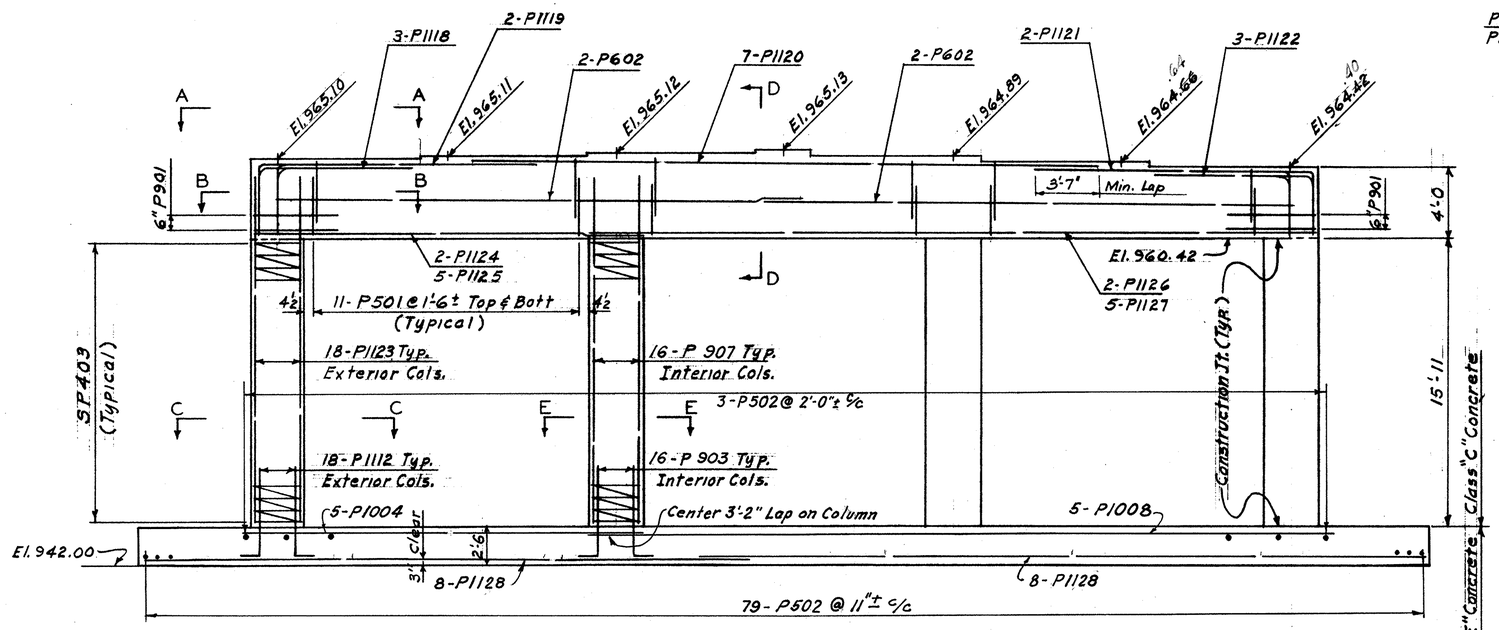

SECTION - DD




SECTION - AA




SECTION - BB




ELEVATION

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIER NO. 1
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD

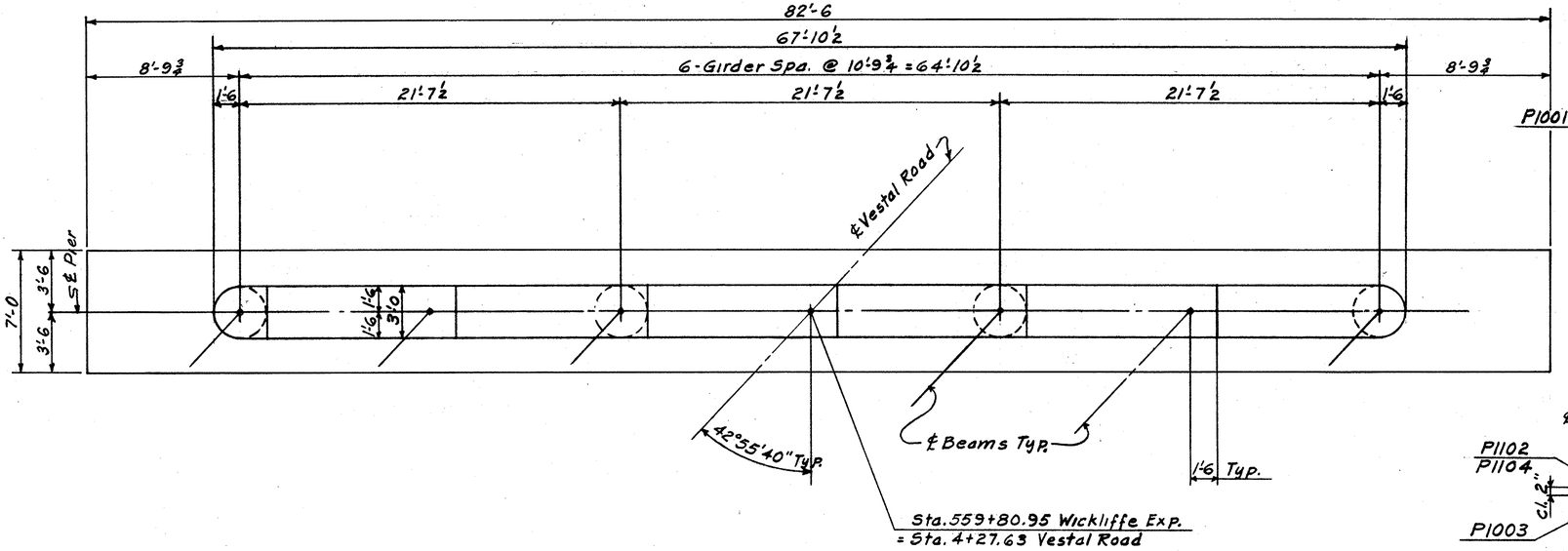
MAHONING CO. Sta. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| SJF | TP | | DWP | L.G.H. 9-18-63 | 12-22-65 |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

224

MAHONING COUNTY
MAH-18-15.50

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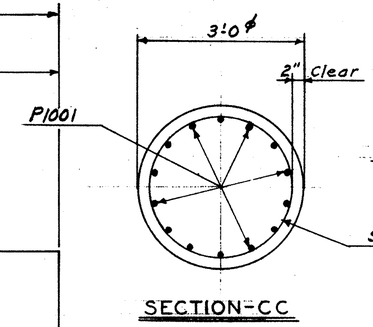
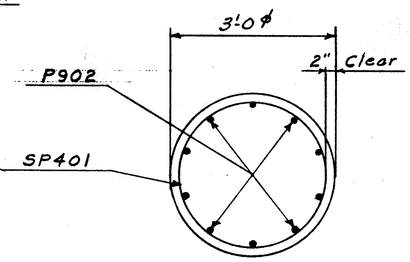



SECTION-CC

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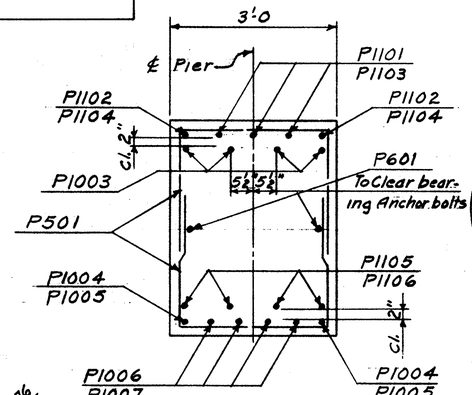
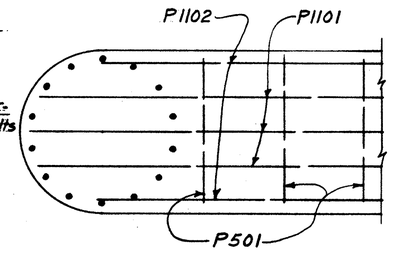
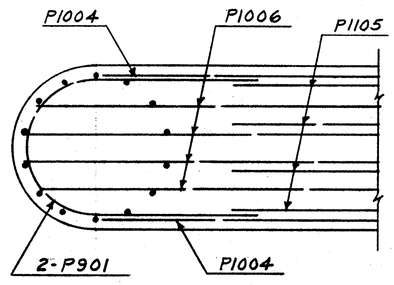


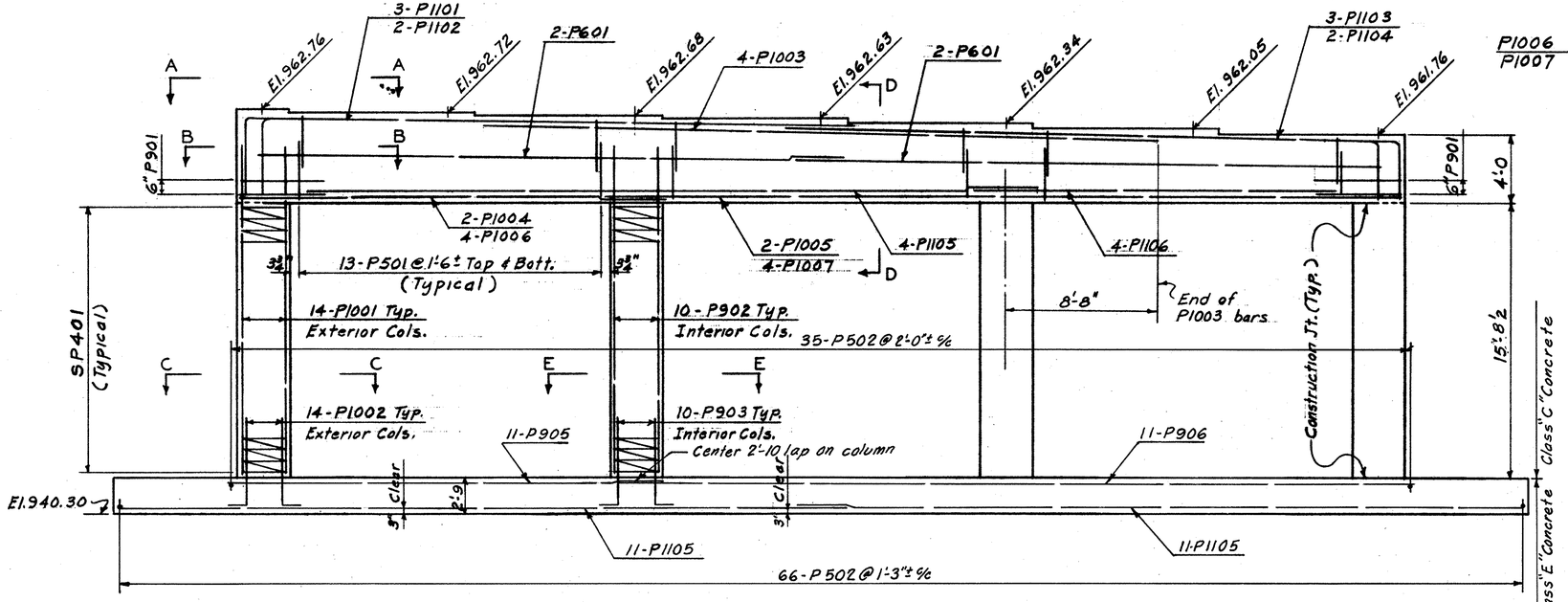

SECTION-DD




SECTION-AA




SECTION-BB




ELEVATION

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIER NO. 2
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD

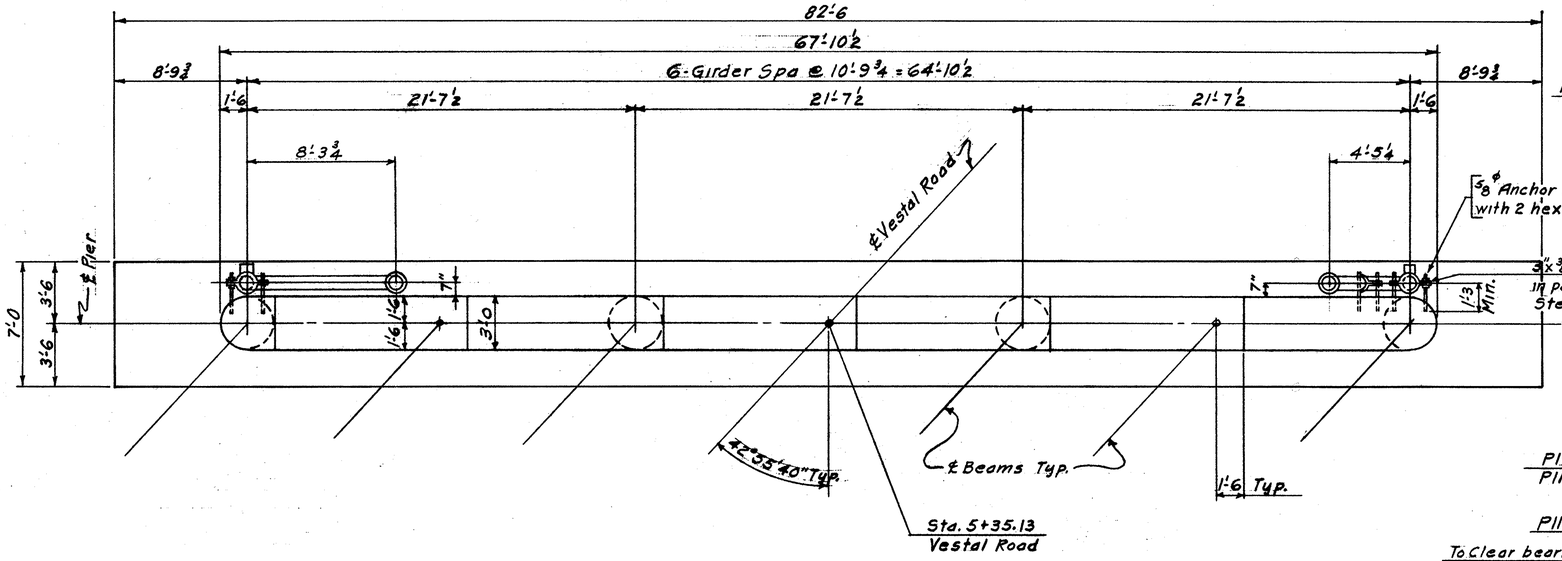
MAHONING CO. Sta. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| SJF | TP | | DWP | LQH 9-18-63 | |

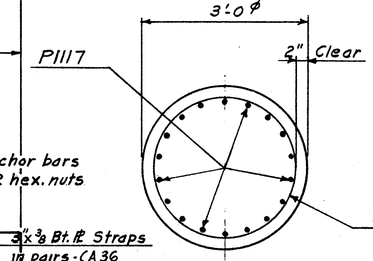
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

225

MAHONING COUNTY
MAH-18-15.50




PLAN PIER 3

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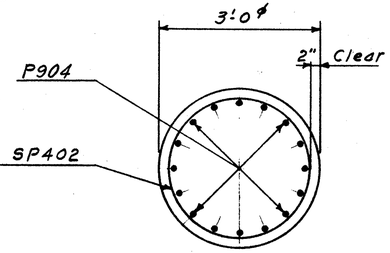
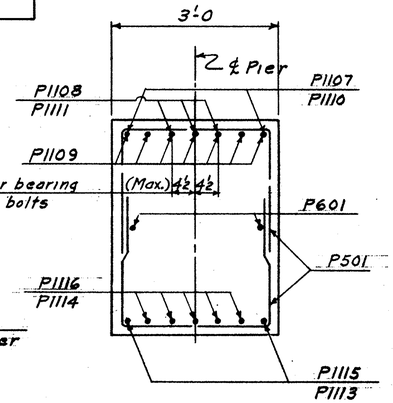
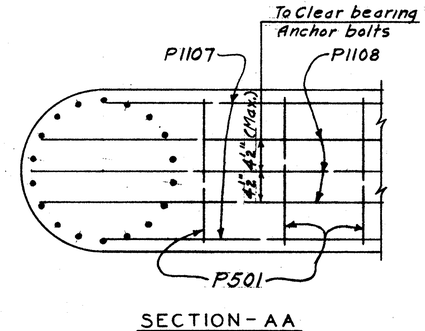
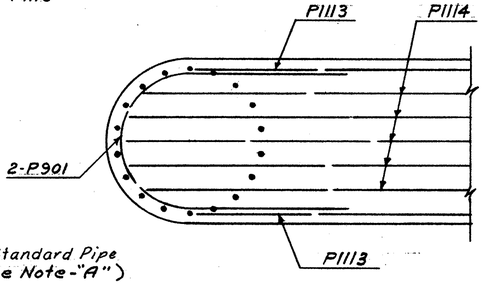



SECTION-EE

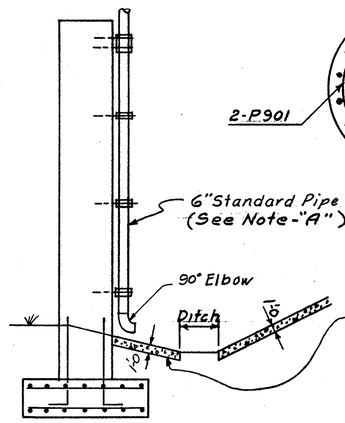



SECTION-AA




SECTION-BB

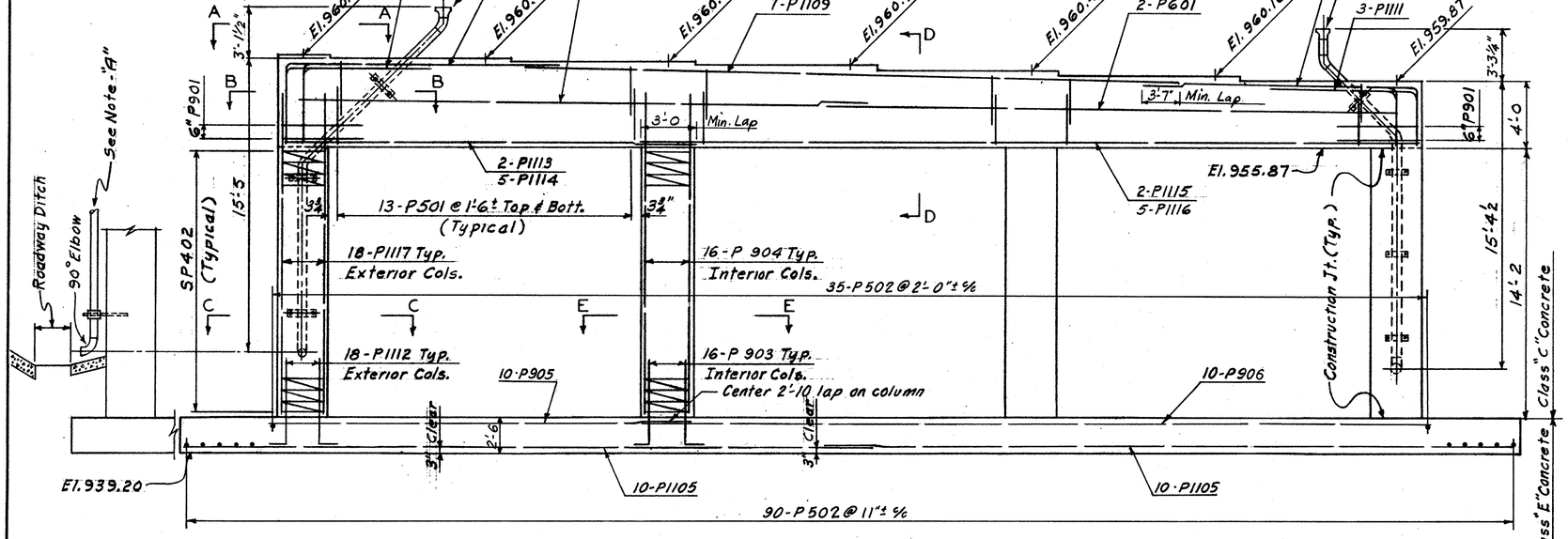



SECTION-DD

1'0 Crushed Aggregate 3'0 wide, placed normal to roadway ditch included with Item I-10 (Bridge Quantity) for Payment.

NOTE-"A"

6"ϕ Pipe including specials, and supporting bolts and straps are included with Item 5-29, 6" Standard pipe downspout, for payment.




ELEVATION

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

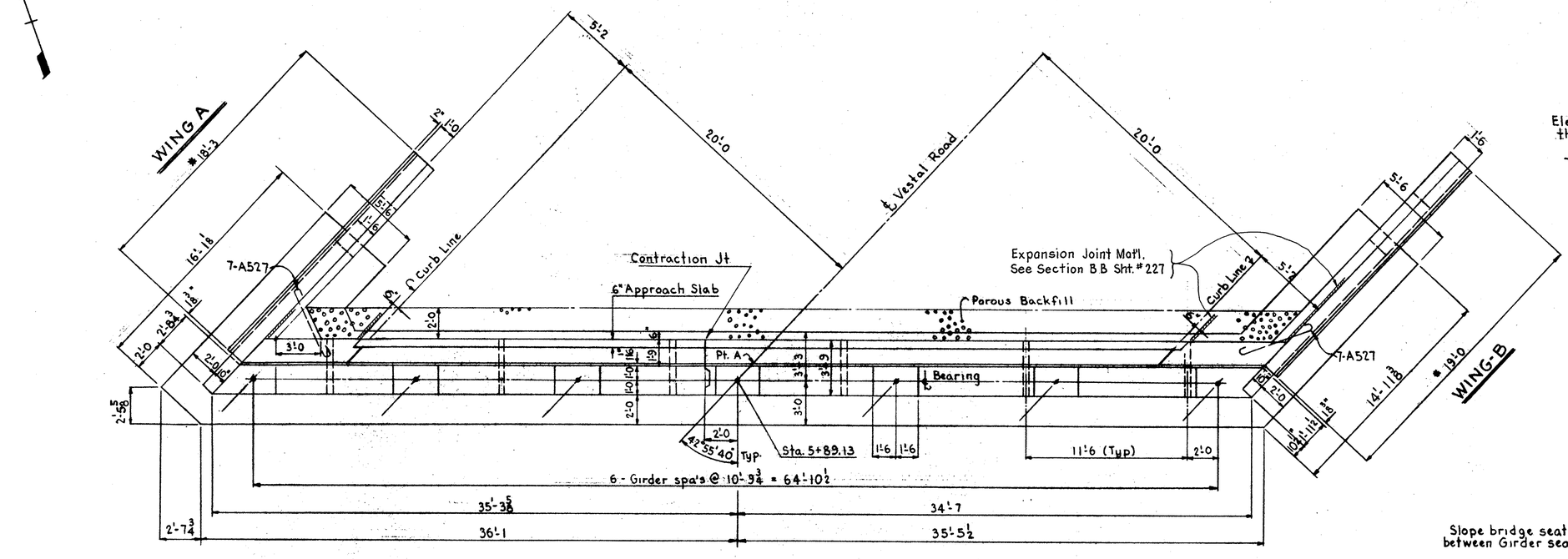
PIER NO. 3
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD
MAHONING CO. Sta. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| SJF | TP | | DWP | J.G.H. 9-18-63 | |

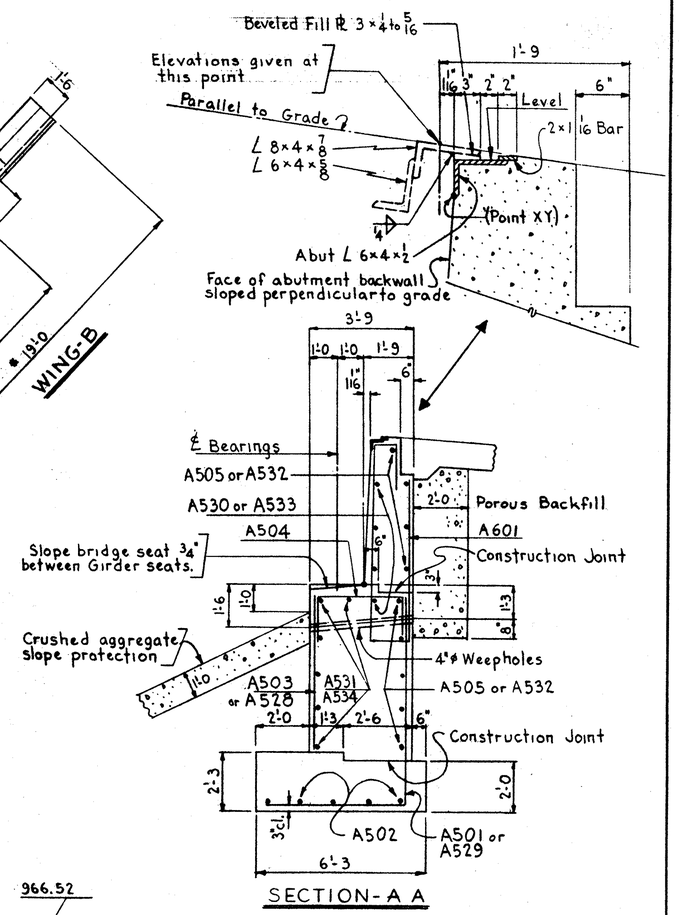
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

226

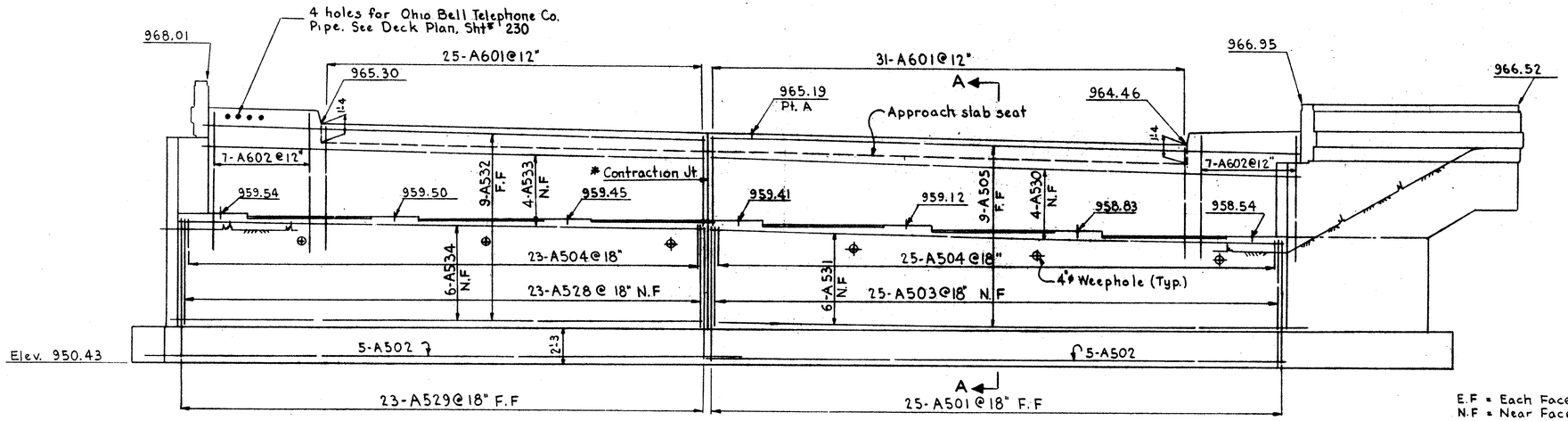
MAHONING COUNTY
MAH-18-15.50




PLAN




SECTION-A A




ELEVATION

E.F = Each Face
N.F = Near Face
F.F = Far Face

* For Contraction Joint Detail, See Sht # 222 12 x 1/2 seal strip at Contraction Joint shall be from top of footing to approach slab seat.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENT 2 DETAILS
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD

MAHONING COUNTY STA. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | bo | | LRD | L.G.H. 9-18-63 | |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

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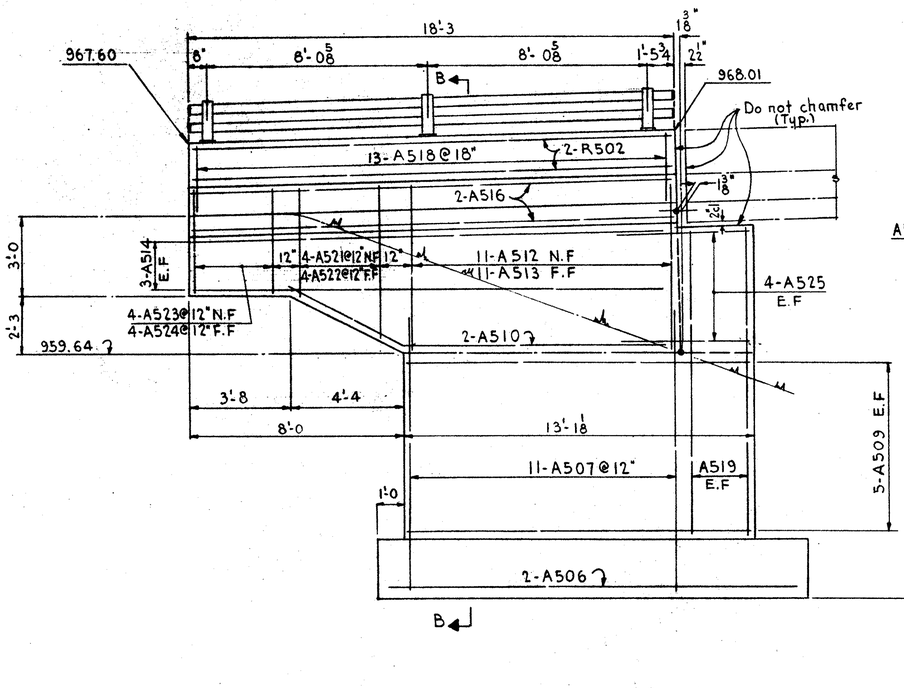
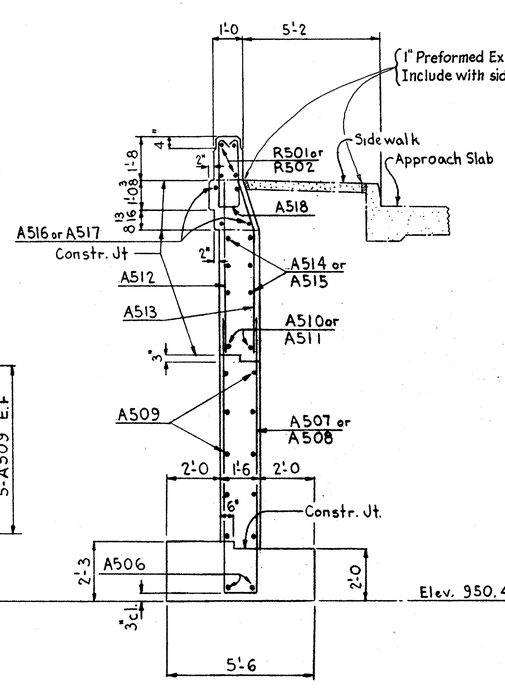
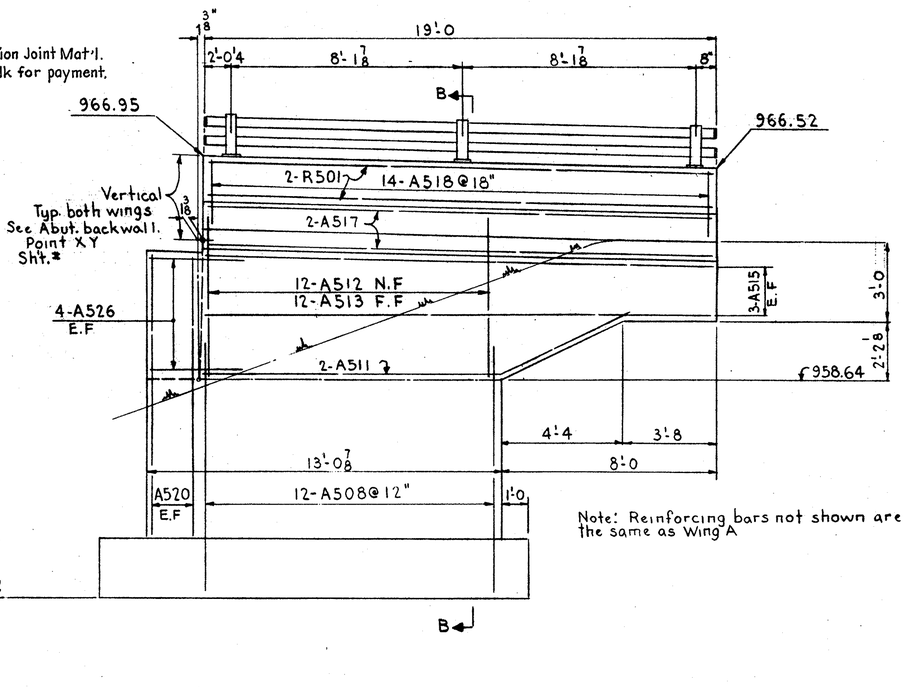
MAHONING COUNTY
MAH-18-15.50




WING A ELEVATION




SECTION B B




WING B ELEVATION

Note: Reinforcing bars not shown are the same as Wing A

N.F = Near Face
E.F = Each Face
F.F = Far Face

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENT 2 WINGWALLS
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD

MAHONING COUNTY STA. 559+80.95

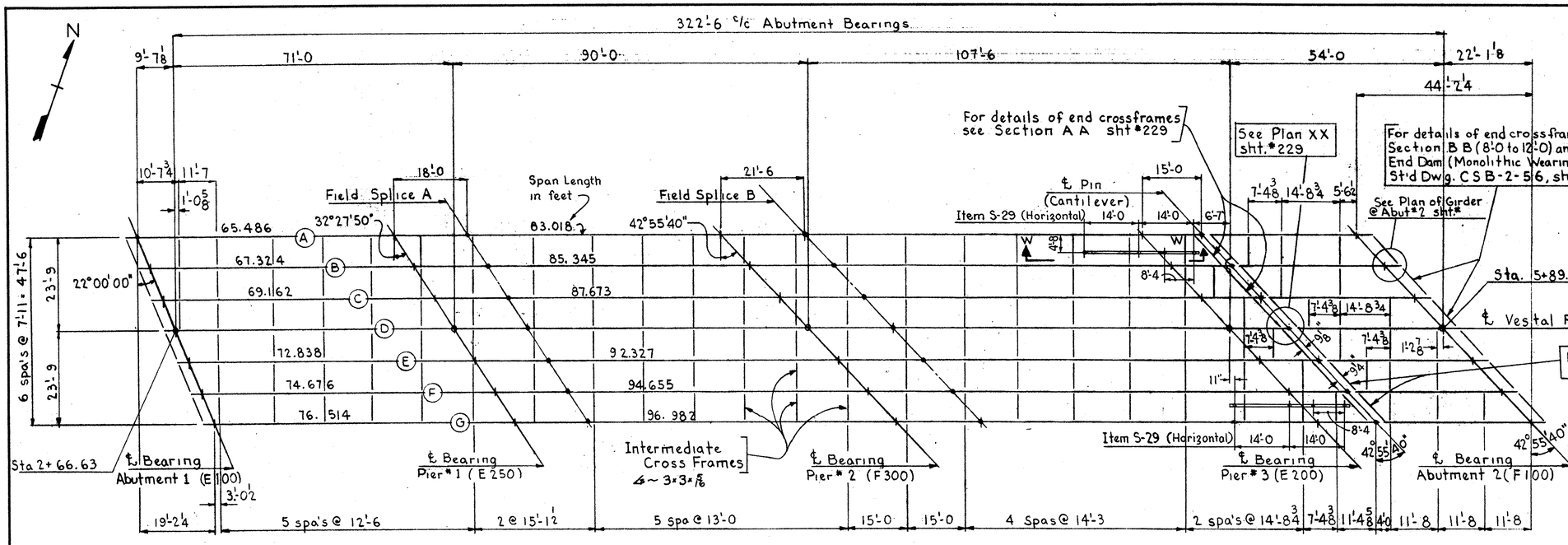
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | bo | | LRD | L.G.H. 9-18-63 | |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

228

MAHONING COUNTY
MAH-18-15.50

322'-6 ℄ Abutment Bearings.

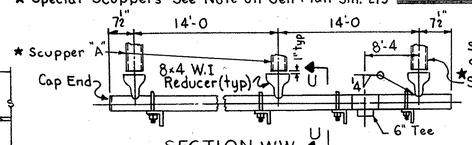



2½ Min.
Chamfer before welding
60°
T" (Over 1")
80°
0"
2½ Min.
60°
1"
12"

Note:
- Contractor shall submit to the Director for approval, 3 prints showing proposed erection procedure for the plate girders.

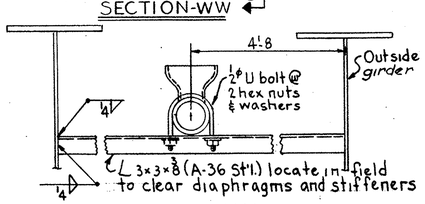
## FRAMING PLAN

★ Special Scuppers - See Note on Gen Plan Sht. #219

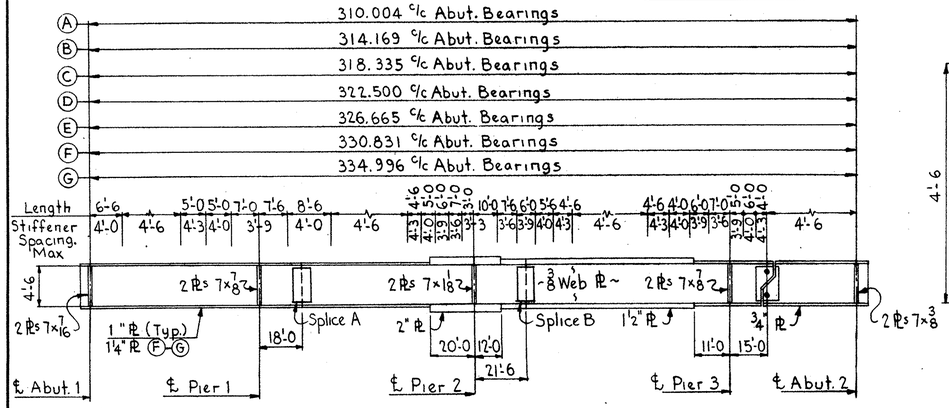



SECTION-WW

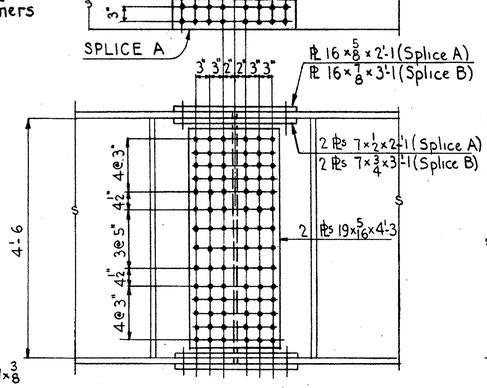
Pipe including specials, U-bolts and supporting ℄s are included with Item S-29 drainage collection system, for payment




SECTION-UU



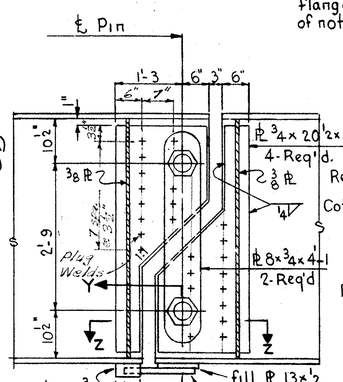

GIRDER ELEVATION



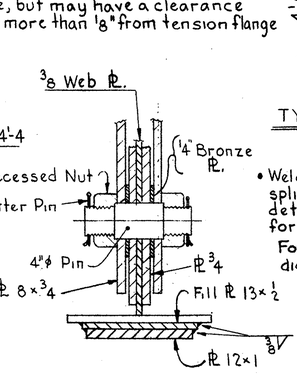

FIELD SPLICE — A

FIELD SPLICE — B

*High Strength Bolts 7/8" ϕ*

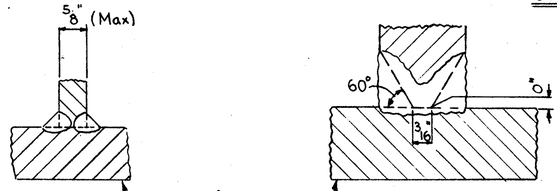



PIN DETAIL



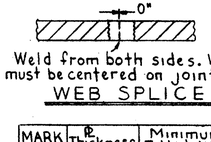

SECTION-Y Y

## UNEQUAL FLANGE PLATES



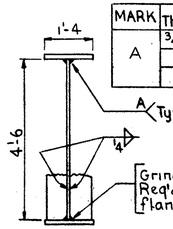

BEARING STIFFENER BUTT WELD

* Weld after placing at least one pass on other side.




WEB SPLICE

| MARK | ℞ Thickness | Minimum size of Fillet Weld |
|---|---|---|
| A | ¾ to 1 | ¼ |
| | 1½ | 5/16 |
| | 2 | ⅜ |




TYPICAL CROSS SECTION

- Intermediate stiffeners shall have contact bearing with the compression flange, but may have a clearance of not more than ⅛" from tension flange

- Welded Plate Girders: If additional shop splices are necessary, their locations and detail shall be submitted to the Director for approval

For deflection curve and camber diagram, See sht #231

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

FRAMING PLAN
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD
MAHONING COUNTY STA. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F | bo | | LRD | L.G.H. 9-18-63 | 8-19-65 |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

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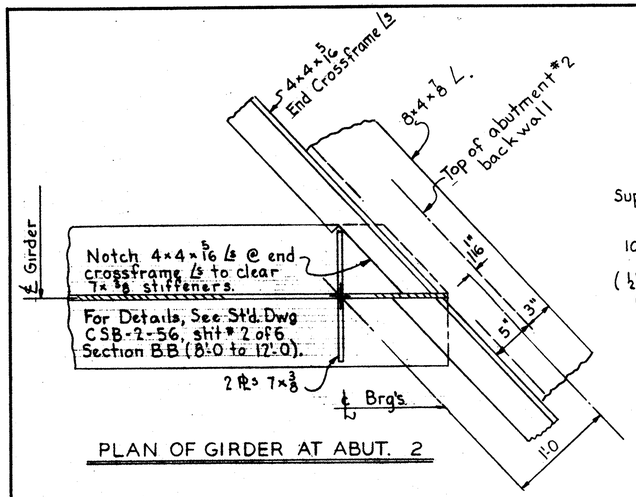
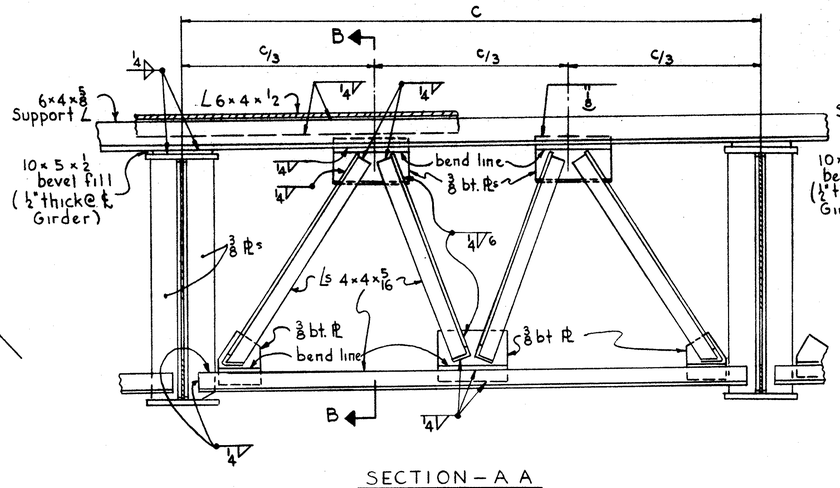
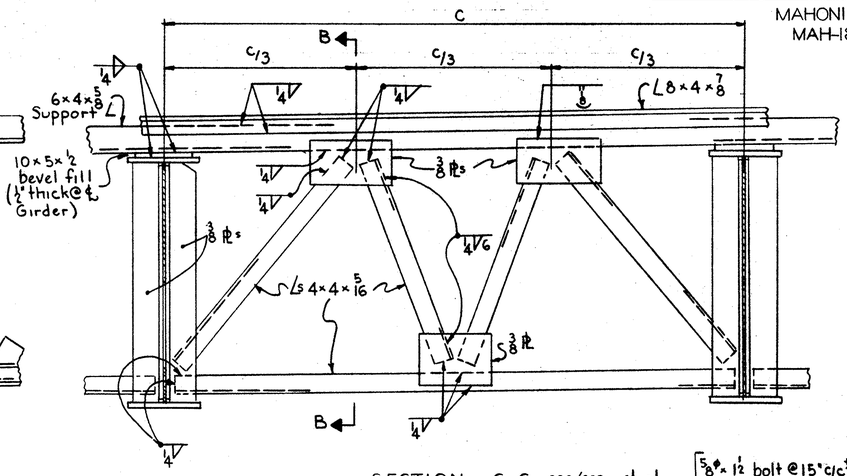
MAHONING COUNTY
MAH-18-15.50

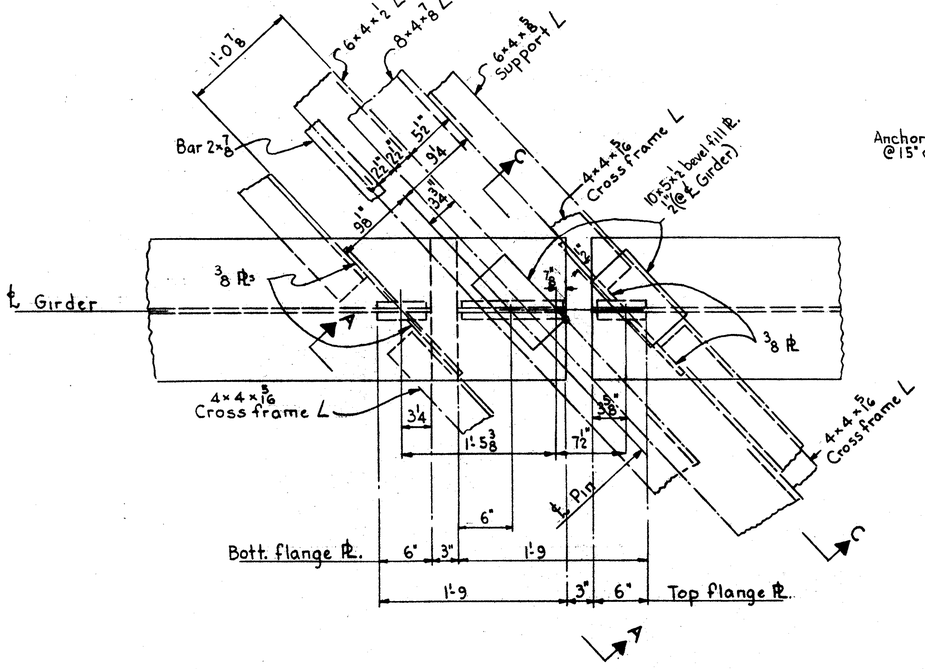



PLAN OF GIRDER AT ABUT. 2

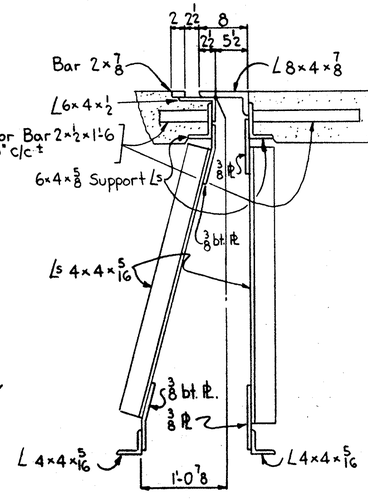



SECTION – A A

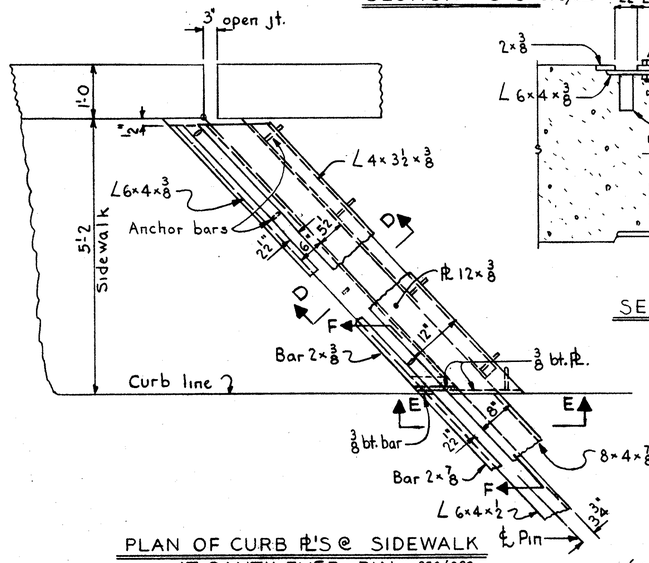



PLAN – X X 228/229

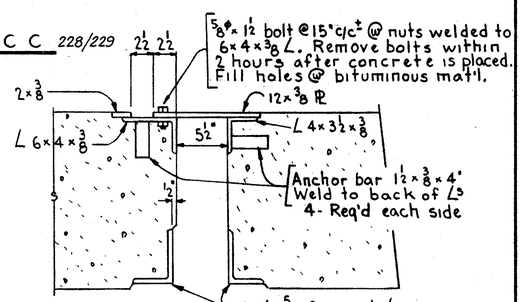



SECTION – B B 230/229

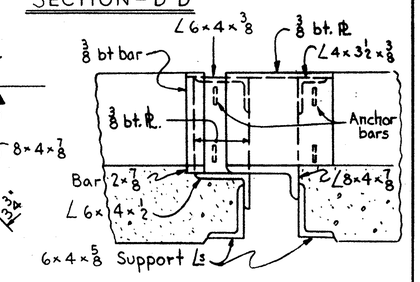



PLAN OF CURB Pl'S @ SIDEWALK AT CANTILEVER PIN 230/229

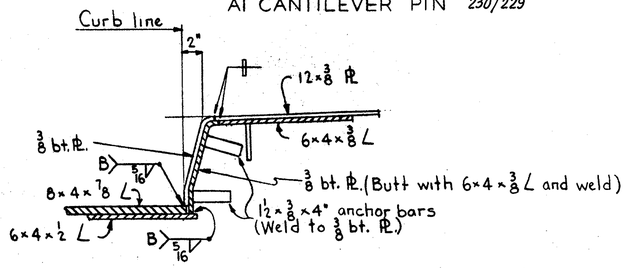
SECTION – C C 228/229




SECTION – D D




SECTION – E E




SECTION – F F

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

END DAM & CURB DETAILS AT CANTILEVER PIN
BRIDGE NO MAH-18-1629
UNDER VESTAL ROAD
MAHONING CO. STA 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | bo | | LRD | L.G.H. 9-18-63 | |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

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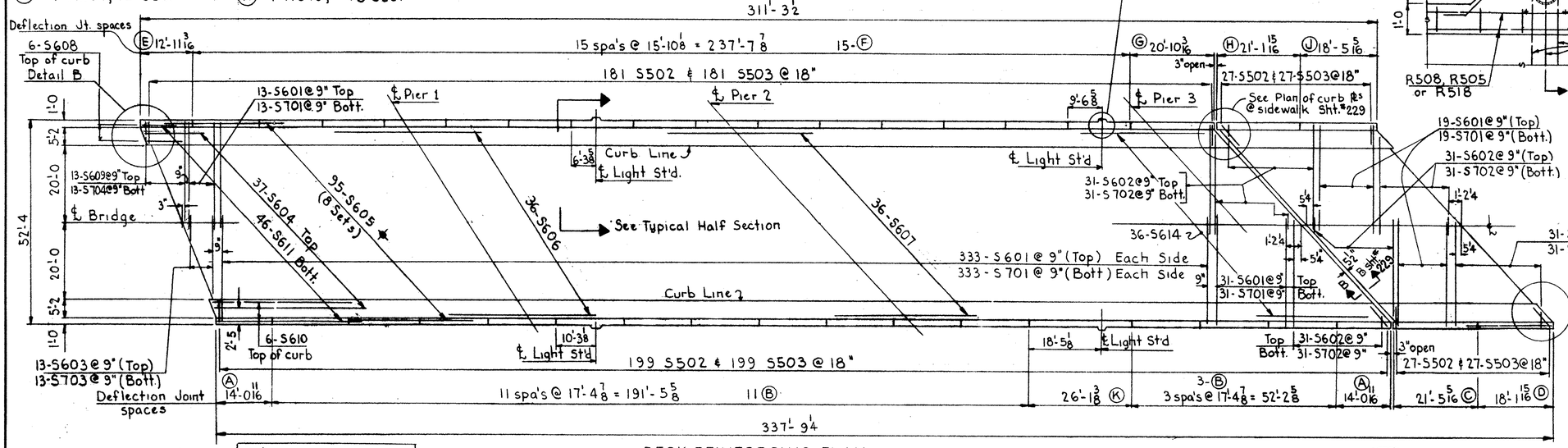
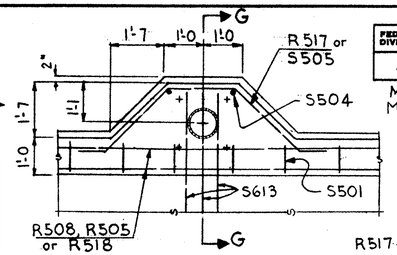
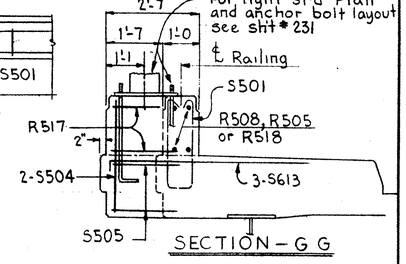
MAHONING COUNTY
MAH-18-15.50

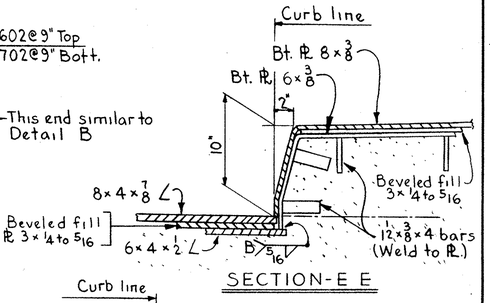
Ⓐ-4 R506, 10 S501
Ⓑ-4 R505, 12 S501
Ⓒ-4 R503, 15 S501
Ⓓ-4 R504, 12 S501
Ⓔ-4 R507, 9 S501
Ⓕ-4 R508, 11 S501
Ⓖ-4 R509, 14 S501
Ⓗ-4 R510, 15 S501
Ⓙ-4 R511, 13 S501
Ⓚ 4 R518, 18 S501



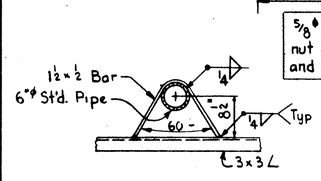




SECTION – G G

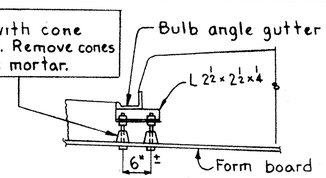



SECTION-E E




SECTION "A-A

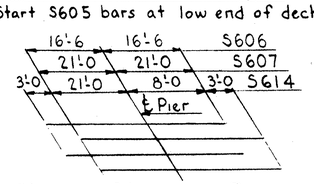
Not Required for Special Scuppers
See Sheets #219 & 228



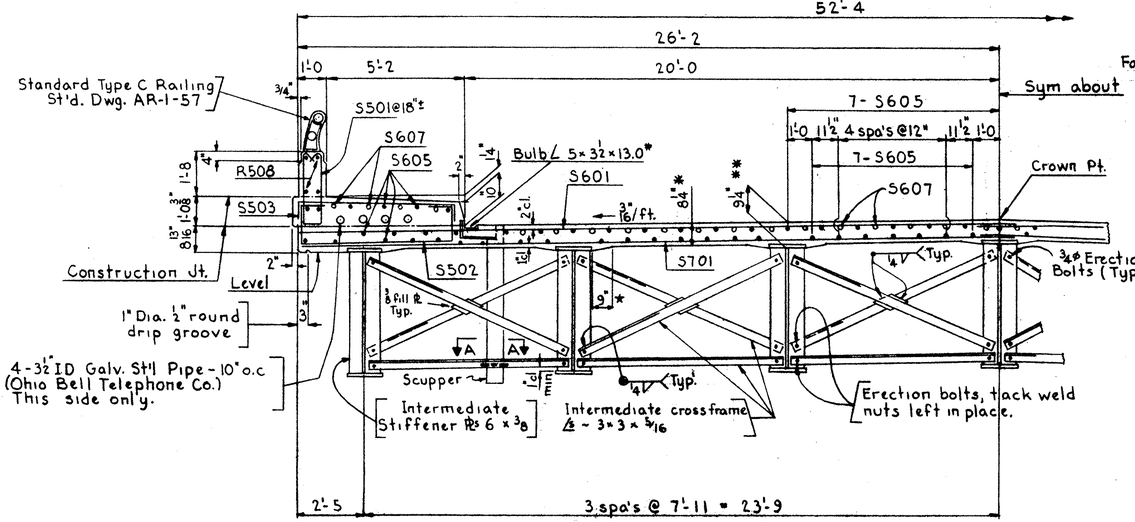

GUTTER SUPPORT DETAIL

DECK REINFORCING PLAN

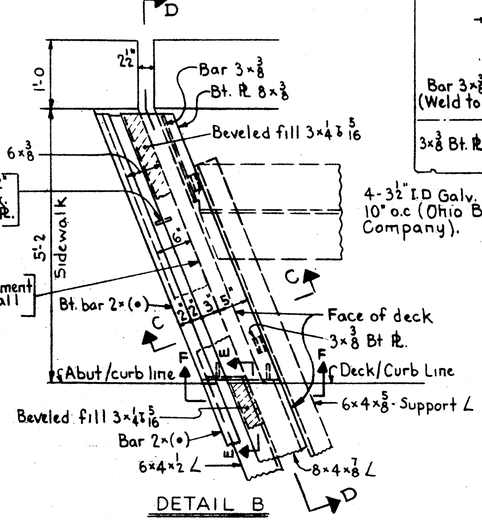
✦ Start S605 bars at low end of deck first



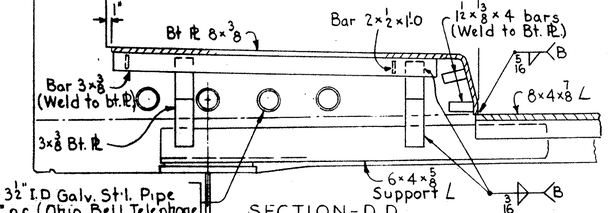

Stagger of bars over Piers




TYPICAL HALF SECTION

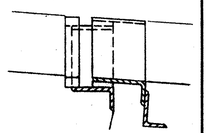



DETAIL B

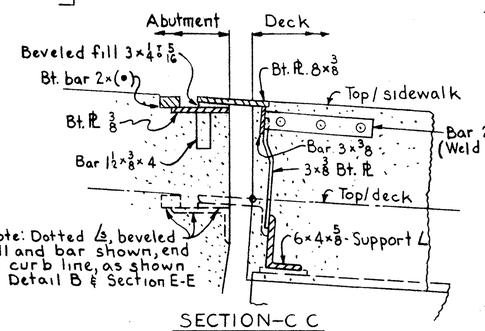



4-3½" I.D Galv. St'l. Pipe 10" o.c (Ohio Bell Telephone Company).

SECTION-D D



SECTION-F F




Note: Dotted ℄, beveled fill and bar shown, end at curb line, as shown in Detail B & Section E-E

SECTION-C C

* Slab thickness shown includes 1" monolithic wearing surface

★ Deck Slab Haunch : The haunch in the deck slab adjacent to the top of steel girders, which is shown as 9" wide may vary from this dimension between the limits of 6" and 12", except that the maximum slope shall not exceed 3" per ft. Payment for deck slab concrete shall be based on 9" width.

** This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade.

(•) For bar size see abutment No 1 & No 2 backwall sketches

Refer to St'd Dwg CSB-2-56 sheet 3 of 6 for details of bulb angle gutter and Scupper

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

DECK REINFORCING PLAN
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD

MAHONING COUNTY STA. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
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| S.J.F. | bo | | LRD | L.G.H. 9-18-63 | |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

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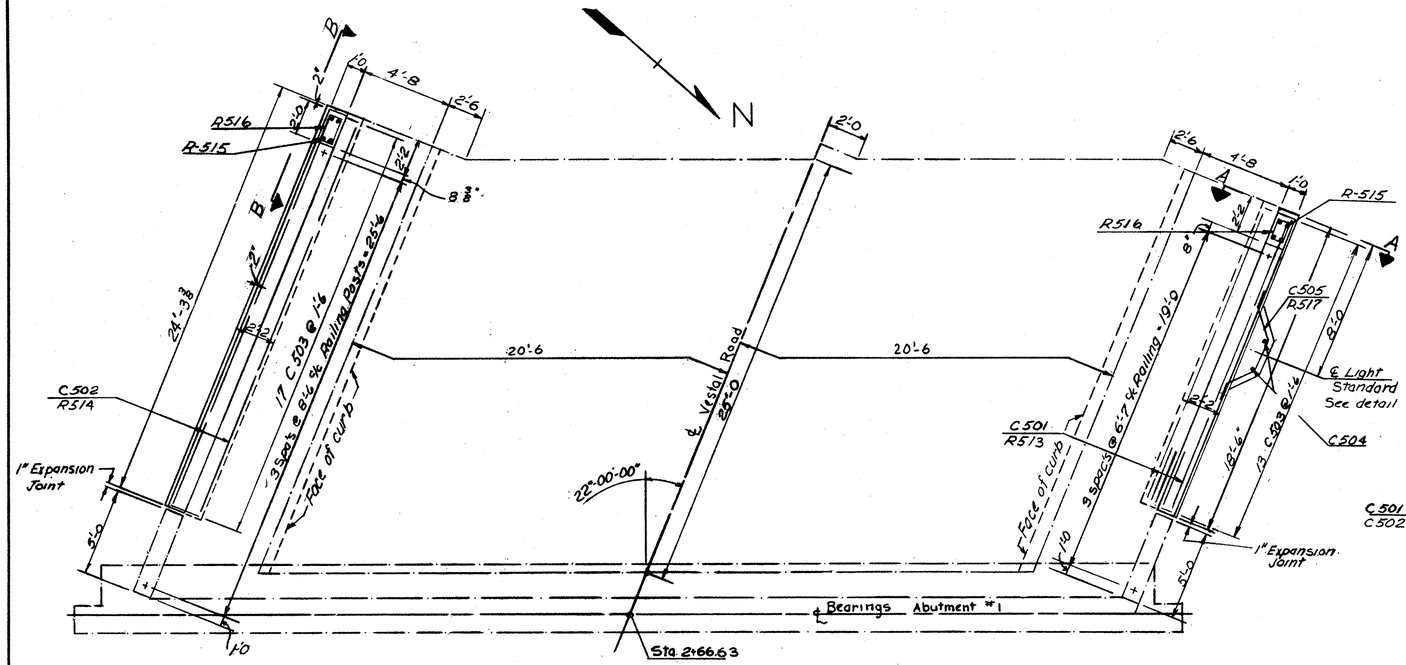
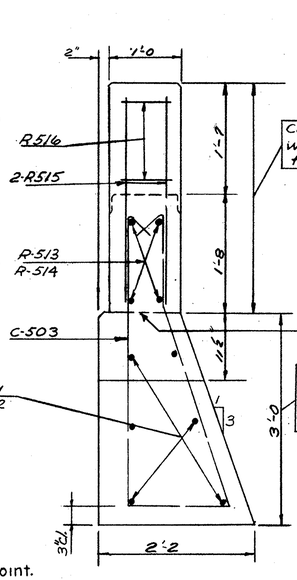
MAHONING COUNTY
MAH-18-15.50

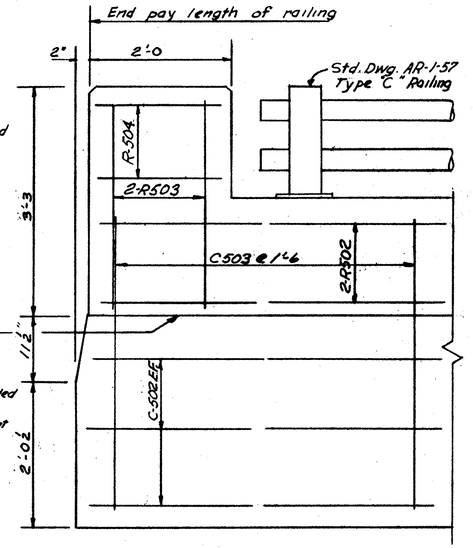



RAILING PLAN AT ABUTMENT # 1

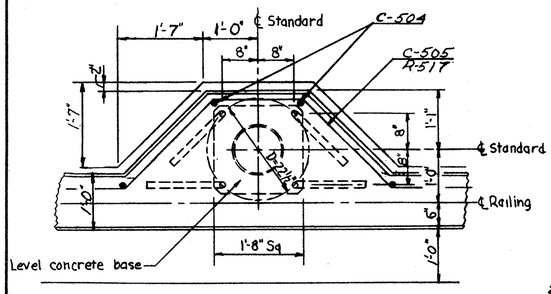
Note: Concrete shall be Class "E" up to construction joint.



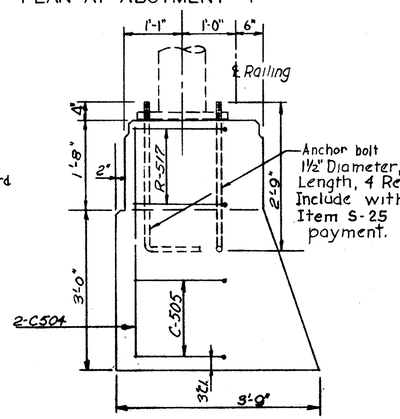

VIEW - A A



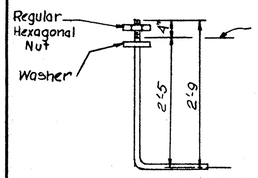

VIEW - B B




LIGHT STANDARD PLAN




LIGHT STANDARD ELEVATION




ANCHOR BOLT

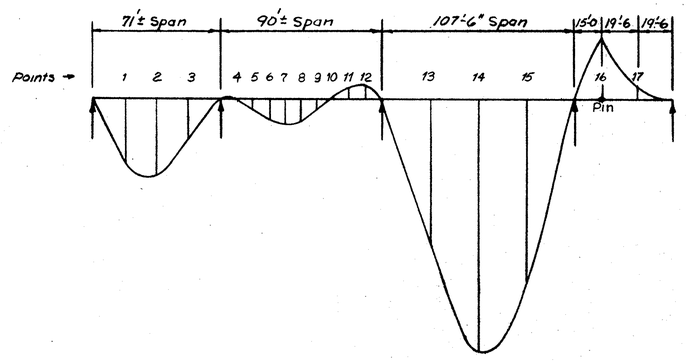
Note: Provide electrical ground as per Item S-25.10.

DEFLECTION & CAMBER

| Point | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Beam No. & Avg. | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | A | Avg | G | – |
| Deflection due to weight of steel | .05 | .06 | .07 | .06 | .07 | .08 | .03 | .04 | .04 | .00 | .00 | .00 | .00 | .01 | .02 | .00 | .02 | .04 | .00 | .02 | .05 | -.01 | .02 | .05 | -.02 | .01 | .03 | -.03 | .00 | .02 | -.03 | -.01 | .01 | -.02 | -.02 | -.01 | .17 | .16 | .15 | .30 | .28 | .27 | .22 | .22 | .21 | -.11 | -.10 | -.10 | -.03 |
| Deflection due to remaining dead load | .17 | .19 | .20 | .22 | .26 | .29 | .12 | .13 | .15 | -.01 | .00 | .02 | .00 | .04 | .07 | .01 | .07 | .13 | .01 | .10 | .17 | .00 | .09 | .17 | -.03 | .05 | .13 | -.06 | .00 | .07 | -.07 | -.03 | .01 | -.06 | -.04 | -.02 | .98 | .45 | .43 | .84 | .81 | .77 | .62 | .59 | .57 | -.25 | -.24 | -.22 | -.06 |
| Total deflection | .22 | .25 | .27 | .28 | .33 | .37 | .15 | .17 | .19 | -.01 | .00 | .02 | .00 | .05 | .09 | .01 | .09 | .17 | .01 | .12 | .22 | -.01 | .11 | .22 | -.05 | .06 | .16 | -.09 | .00 | .09 | -.10 | -.04 | .02 | -.08 | -.06 | -.03 | .65 | .61 | .58 | 1.14 | 1.09 | 1.04 | .84 | .81 | .78 | -.36 | -.34 | -.32 | -.09 |
| Required camber | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 1/8 | 1 1/16 | 1 1/16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

◥ Average deflection for interior beams is 0.07" less than average shown for exterior beams.
Beam A is on short side - Beam G on long side

AVERAGE DEFLECTION CURVE




MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

RAILING EXTENSION AT ABUT # 1
DEFLECTION & CAMBER DIAGRAM
BRIDGE NO. MAH-18-1629
UNDER VESTAL ROAD

MAHONING CO. STA. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.J.F. | LRD. | | D.W.P. | L.G.A. 9-18-63 | |

# REINFORCING STEEL LIST

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

232

MAHONING COUNTY
MAH - 18 - 15.50

## SUPERSTRUCTURE

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| S701 | 748 | 27'-2" | 41,535 | S |
| S702Ⓐ | 65 & 31 | 26'-4" & 2'-1" | 5,402 | S |
| S703Ⓑ | 13 | 25'-5" & 3'-3" | 381 | S |
| S704Ⓑ | 13 | 26'-5" & 4'-1" | 405 | S |
| | | | | |
| S601 | 748 | 27'-0" | 30,334 | S |
| S602Ⓐ | 65 & 31 | 26'-4" & 2'-1" | 3,969 | S |
| S603Ⓑ | 13 | 25'-3" & 3'-1" | 277 | S |
| S604Ⓒ | 37 | 10'-0" & 35'-0" | 1,250 | S |
| S605 | 760 | 34'-10" | 39,763 | S |
| S606 | 36 | 36'-0" | 1,947 | S |
| S607 | 36 | 45'-0" | 2,433 | S |
| S608 | 6 | 9'-0" | 81 | S |
| S609Ⓑ | 13 | 26'-5" & 4'-1" | 298 | S |
| S610 | 6 | 35'-0" | 315 | S |
| S611Ⓓ | 46 | 8'-6" & 36'-0" | 1,537 | S |
| S612 | 95 | 38'-4" | 5,470 | S |
| S613 | 12 | 6'-11" | 125 | B |
| S614 | 36 | 32'-0" | 1,730 | S |
| | | | | |
| S501 | 449 | 6'-2" | 2,888 | B |
| S502 | 434 | 8'-8" | 3,923 | B |
| S503 | 434 | 6'-5" | 2,905 | B |
| S504 | 8 | 3'-4" | 28 | S |
| S505 | 8 | 11'-4" | 95 | B |
| | | | | |
| R503 | 4 | 24'-1" | * | S |
| R504 | 4 | 17'-10" | | S |
| R505 | 56 | 17'-1" | | S |
| R506 | 8 | 13'-9" | | S |
| R507 | 4 | 12'-7" | | S |
| R508 | 60 | 15'-6" | | S |
| R509 | 4 | 20'-6" | | S |
| R510 | 4 | 20'-10" | | S |
| R511 | 4 | 18'-1" | | S |
| R517 | 8 | 11'-4" | | B |
| R518 | 4 | 25'-9" | * | S |

## REAR ABUTMENT

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| B1101 | 130 | 10'-5" | 7,195 | B |
| B1102 | 63 | 8'-5" | 2,817 | S |
| B1103 | 42 | 15'-9" | 3,515 | S |
| B1104 | 12 | 21'-9" | 1,387 | S |
| B1105 | 13 | 21'-4" | 1,473 | S |
| | | | | |
| B1001 | 67 | 10'-8" | 3,075 | S |
| | | | | |
| B901 | 130 | 5'-4" | 2,357 | S |
| B902 | 42 | 6'-0" | 857 | S |
| B903 | 12 | 24'-9" | 887 | S |
| B904 | 130 | 10'-5" | 4,604 | S |
| B905 | 13 | 21'-4" | 943 | S |
| | | | | |
| B601 | 43 | 16'-11" | 1,093 | B |
| B602 | 12 | 17'-4" | 312 | B |
| B603 | 6 | 8'-9" | 79 | B |
| B604 | 38 | 9'-2" | 523 | B |
| B605 | 11 | 8'-11" | 147 | B |
| | | | | |
| B501 | 12 | 28'-8" | 359 | S |
| B502 | 22 | 27'-2" | 623 | S |
| B503 | 12 | 32'-6" | 407 | S |
| B504 | 22 | 31'-0" | 711 | S |
| B505 | 8 | 7'-4" | 61 | S |
| B506 | 16 | 3'-4" | 56 | S |
| B507 | 8 | 4'-8" | 39 | S |
| B508 | 4 | 4'-6" | 19 | B |
| B509 | 26 | 34'-6" | 854 | S |
| B510 | 45 | 10'-0" | 469 | S |

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| B511 | 42 | 5'-2 | 226 | B |
| | | | | |
| R512 | 8 | 4'-8 | * | S |

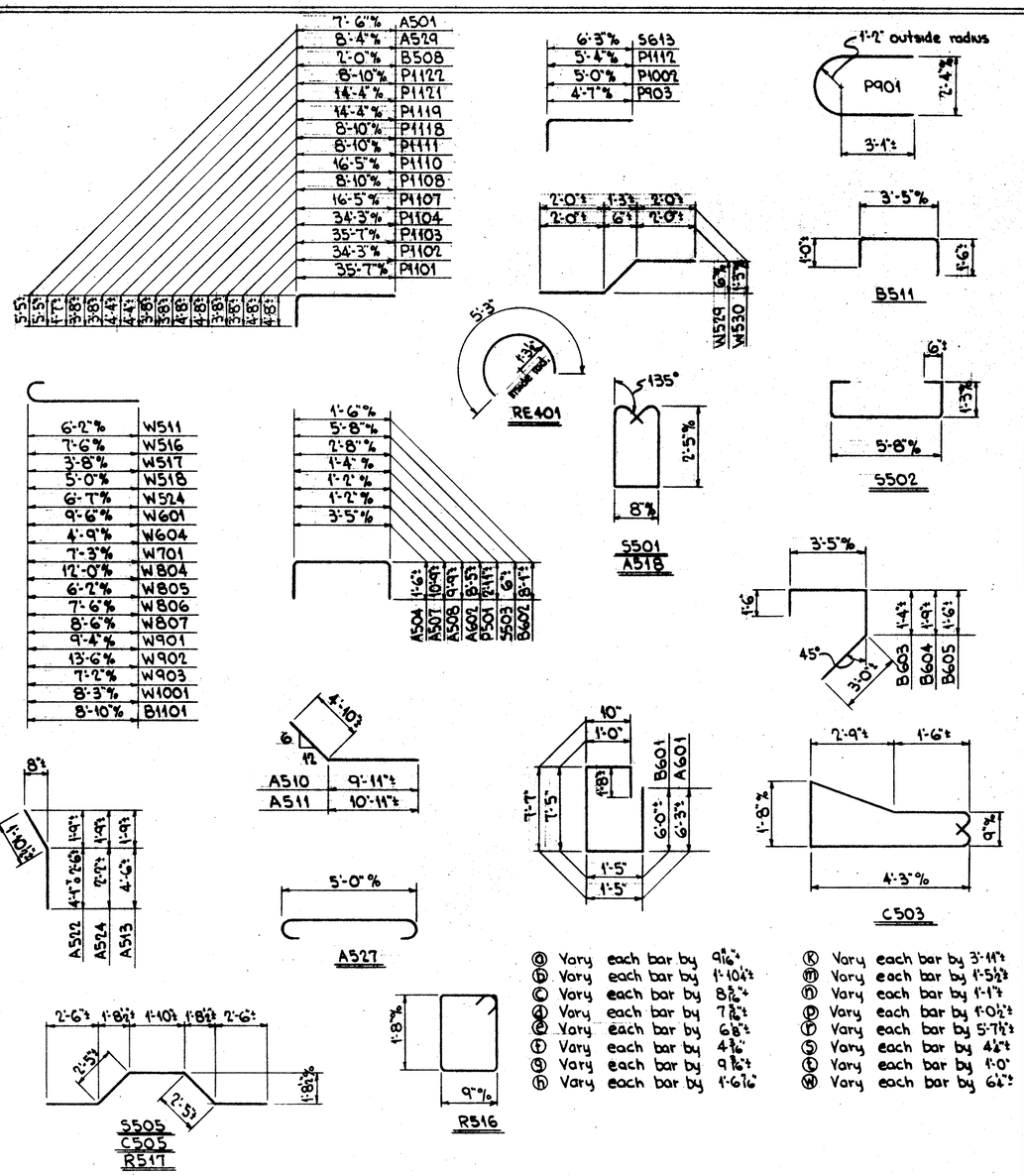
## RAILING EXTENSION

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| C501 | 6 | 18'-7" | 114 | S |
| C502 | 6 | 23'-11" | 150 | S |
| C503 | 30 | 10'-10" | 339 | B |
| C504 | 2 | 4'-3" | 9 | S |
| C505 | 2 | 11'-4" | 24 | B |
| | | | | |
| R513 | 4 | 18'-0" | * | S |
| R514 | 4 | 23'-9" | | S |
| R515 | 8 | 2'-11" | | S |
| R516 | 4 | 5'-3" | | B |
| R517 | 2 | 11'-4" | | B |

## WINGWALLS "C" & "D"

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| W1001 | 15 | 9'-8" | 624 | B |
| | | | | |
| W901 | 42 | 10'-7" | 1,511 | B |
| W902 | 15 | 14'-9" | 752 | B |
| W903 | 14 | 8'-5" | 401 | B |
| | | | | |
| W801 | 20 | 8'-11" | 476 | S |
| W802Ⓔ | 21 | 18'-10 & 29'-1" | 1,343 | S |
| W803 | 1 | 29'-1" | 78 | S |
| W804 | 22 | 13'-1" | 769 | B |
| W805 | 21 | 7'-3" | 407 | B |
| W806 | 43 | 8'-7" | 985 | B |
| W807 | 64 | 9'-7" | 1,638 | B |
| | | | | |
| W701 | 29 | 8'-1" | 479 | B |
| W702 | 31 | 7'-9" | 491 | S |
| W703Ⓕ | 32 | 27'-6" & 16'-8" | 1,444 | S |
| W704 | 1 | 27'-6" | 56 | S |
| | | | | |
| W601 | 16 | 10'-2" | 244 | B |
| W602 | 14 | 6'-0" | 126 | S |
| W603Ⓖ | 15 | 10'-1" & 20'-10" | 348 | S |
| W604 | 16 | 5'-5" | 130 | B |
| | | | | |
| W501Ⓗ | 8 | 9'-10" & 20'-7" | 127 | S |
| W502 | 32 | 20'-8" | 690 | S |
| W503Ⓚ | 2S & 4 | 16'-9" & 5'-0" | 91 | S |
| W504 | 2 | 23'-3" | 48 | S |
| W505Ⓜ | 8 | 18'-7 & 28'-10" | 198 | S |
| W506 | 2 | 22'-2" | 46 | S |
| W507Ⓚ | 2S & 4 | 18'-0" & 6'-2" | 101 | S |
| W508Ⓝ | 5 | 16'-3" & 20'-7" | 96 | S |
| W509Ⓟ | 5 | 23'-4" & 19'-2" | 111 | S |
| W510 | 1 | 19'-6" | 20 | S |
| W511 | 42 | 6'-9" | 296 | B |
| W512Ⓟ | 4 | 23'-0" & 19'-10" | 89 | S |
| W513Ⓟ | 4 | 17'-11" & 21'-1" | 81 | S |
| W514 | 1 | 22'-2" | 23 | S |
| W515 | 32 | 31'-8" | 1057 | S |
| W516 | 17 | 8'-1" | 143 | B |
| W517 | 16 | 4'-3" | 71 | B |
| W518 | 33 | 5'-7" | 192 | B |
| W519 | 6 | 34'-1" | 213 | S |
| W520Ⓟ | 11 | 16'-5" & 26'-11" | 249 | S |
| W521 | 1 | 27'-3" | 28 | S |
| W522 | 3 | 32'-8" | 102 | S |
| W523Ⓕ | 2S & 4 | 27'-1" & 10'-3" | 156 | S |
| W524 | 32 | 7'-2" | 239 | B |
| W525Ⓔ | 32 | 5'-8" & 16'-8" | 373 | S |
| W526Ⓒ | 12 | 5'-5" & 16'-5" | 137 | S |

## BENDING DIAGRAMS




Ⓐ Vary each bar by 9⅛"
Ⓑ Vary each bar by 1'-10½"
Ⓒ Vary each bar by 8⅝"
Ⓓ Vary each bar by 7⅞"
Ⓔ Vary each bar by 6⅜"
Ⓕ Vary each bar by 4⅞"
Ⓖ Vary each bar by 9⅞"
Ⓗ Vary each bar by 1'-6⅛"

Ⓚ Vary each bar by 3'-11½"
Ⓜ Vary each bar by 1'-5⅛"
Ⓝ Vary each bar by 1'-1"
Ⓟ Vary each bar by 1'-0½"
Ⓡ Vary each bar by 5'-7½"
Ⓢ Vary each bar by 4½"
Ⓣ Vary each bar by 1'-0"
Ⓦ Vary each bar by 6¼"

2S of 4 means 2 sets of 4 bars each.
2S of 5 means 2 sets of 5 bars each.
6S of 31 means 6 sets of 31 bars each.
* Included with railing for payment (Item S-14).

## SPIRAL REINFORCING LIST

| Mark | No. | Core Dia. | Lenght | No. Turns | Pitch | Weight |
|---|---|---|---|---|---|---|
| SP401 | 4 | 32"% | 14'-8½" | 42 | 4½ | 1086 |
| SP402 | 4 | 32"% | 14'-2" | 41 | 4½ | 1058 |
| SP403 | 4 | 32"% | 15'-1i" | 45 | 4½ | 1165 |

## REPLACEMENT BARS

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| RE1101 | 2 | 7'-7" | — | S |
| RE1001 | 1 | 7'-3" | — | S |
| RE901 | 1 | 6'-10" | — | S |
| RE801 | 1 | 6'-6" | — | S |
| RE701 | 3 | 6'-3" | — | S |
| RE601 | 5 | 5'-11" | — | S |
| RE501 | 2 | 5'-7" | — | S |
| RE401 | 1 | 5'-3 | — | B |

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| W527Ⓣ | 2S & 5 | 7'-5" & 30'-0" | 195 | S |
| W528 | 1 | 31'-2" | 33 | S |
| W529 | 5 | 4'-8" | 24 | B |
| W530 | 6 | 5'-9" | 36 | B |
| W531 | 2 | 33'-6" | 70 | S |

## PIERS

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| P1101 | 5 | 39'-11" | 636 | B |
| P1102 | 2 | 38'-7" | 410 | B |
| P1103 | 3 | 38'-11" | 620 | B |
| P1104 | 1 | 37'-7" | 399 | B |
| P1105 | 46 | 42'-7" | 10,402 | S |
| P1106 | 4 | 21'-0" | 446 | S |
| P1107 | 2 | 20'-9" | 220 | B |
| P1108 | 3 | 12'-2" | 194 | B |
| P1109 | 7 | 34'-2" | 1,457 | S |
| P1110 | 2 | 19'-9" | 210 | B |
| P1111 | 3 | 11'-2" | 178 | B |
| P1112 | 72 | 6'-6" | 2,486 | B |
| P1113 | 2 | 23'-2" | 246 | S |
| P1114 | 5 | 24'-4" | 646 | S |
| P1115 | 2 | 44'-9" | 476 | S |
| P1116 | 5 | 45'-11" | 1,220 | S |
| P1117 | 36 | 17'-9" | 3,395 | S |
| P1118 | 3 | 12'-10" | 205 | B |
| P1119 | 2 | 18'-4" | 195 | B |
| P1120 | 7 | 34'-9" | 1,292 | S |
| P1121 | 2 | 17'-8" | 188 | B |
| P1122 | 3 | 12'-2" | 194 | B |
| P1123 | 36 | 19'-6" | 3,730 | S |
| P1124 | 2 | 20'-3" | 215 | S |
| P1125 | 5 | 21'-7" | 573 | S |
| P1126 | 2 | 39'-0" | 414 | S |
| P1127 | 5 | 40'-4" | 1,071 | S |
| P1128 | 16 | 37'-3" | 3,167 | S |
| | | | | |
| P1001 | 28 | 17'-10" | 2,149 | S |
| P1002 | 28 | 6'-1" | 733 | B |
| P1003 | 4 | 39'-0" | 671 | S |
| P1004 | 7 | 23'-2" | 698 | S |
| P1005 | 2 | 44'-9" | 385 | S |
| P1006 | 4 | 24'-0" | 413 | S |
| P1007 | 4 | 45'-9" | 787 | S |
| P1008 | 5 | 41'-6" | 893 | S |
| | | | | |
| P901 | 12 | 9'-8" | 394 | B |
| P902 | 20 | 17'-5" | 1,184 | S |
| P903 | 84 | 5'-7" | 1,595 | B |
| P904 | 32 | 17'-0" | 1,850 | S |
| P905 | 21 | 25'-7" | 1,827 | S |
| P906 | 21 | 47'-3" | 3,374 | S |
| P907 | 32 | 18'-9" | 2,040 | S |
| | | | | |
| P601 | 8 | 33'-1" | 398 | S |
| P602 | 4 | 29'-2" | 175 | S |
| | | | | |
| P501 | 222 | 8'-3" | 1,910 | B |
| P502 | 336 | 6'-8" | 2,336 | S |

## FORWARD ABUTMENT

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| A601 | 56 | 17'-2" | 1,444 | B |
| A602 | 14 | 17'-10" | 375 | B |
| | | | | |
| A501 | 25 | 12'-10" | 335 | B |
| A502 | 10 | 36'-7" | 382 | S |
| A503 | 25 | 5'-8" | 148 | S |
| A504 | 48 | 6'-2" | 309 | B |
| A505 | 9 | 39'-5" | 370 | S |
| A506 | 4 | 15'-9" | 66 | S |

| Mark | No. | Length | Weight | Shp. |
|---|---|---|---|---|
| A507 | 11 | 22'-5" | 257 | B |
| A508 | 12 | 20'-5" | 256 | B |
| A509 | 20 | 17'-9" | 366 | S |
| A510 | 2 | 14'-8" | 31 | B |
| A511 | 2 | 15'-8" | 33 | B |
| A512 | 23 | 6'-3" | 150 | S |
| A513 | 23 | 6'-4" | 152 | B |
| A514 | 6 | 17'-9" | 111 | S |
| A515 | 6 | 18'-7" | 116 | S |
| A516 | 4 | 17'-11" | 75 | S |
| A517 | 4 | 18'-8" | 78 | S |
| A518 | 27 | 6'-2" | 174 | B |
| A519 | 4 | 11'-8" | 49 | S |
| A520 | 4 | 10'-8" | 45 | S |
| A521Ⓠ | 2S & 4 | 5'-10" & 4'-3" | 42 | S |
| A521Ⓢ | 2S & 4 | 5'-11" & 4'-4" | 43 | B |
| A523 | 8 | 3'-11" | 33 | S |
| A524 | 8 | 4'-0" | 33 | B |
| A525 | 8 | 4'-7" | 38 | S |
| A526 | 8 | 3'-5" | 29 | S |
| A527 | 14 | 6'-7" | 90 | B |
| A528 | 23 | 6'-6" | 156 | S |
| A529 | 23 | 13'-8" | 328 | B |
| A530 | 4 | 38'-4" | 160 | S |
| A531 | 6 | 36'-4" | 227 | S |
| A532 | 9 | 29'-8" | 279 | S |
| A533 | 4 | 30'-9" | 128 | S |
| A534 | 6 | 33'-0" | 207 | S |
| | | | | |
| R501 | 4 | 18'-8" | * | S |
| R502 | 4 | 17'-11" | * | S |

## NOTES:

- Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, S701 is a No. 7 size and B1001 is a No. 10 size.
- Spiral Reinforcing Bars: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the top of the vertical reinforcing bars. The "No. of Turns" shown is the "Length" divided by the pitch, plus three turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lbs. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lbs. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

REINFORCING STEEL LIST
BRIDGE NO. MAH - 18 - 1629
UNDER VESTAL ROAD
MAHONING COUNTY STA. 559+80.95

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| S.V.F. | DG | | EED | L.G.H. 7-18-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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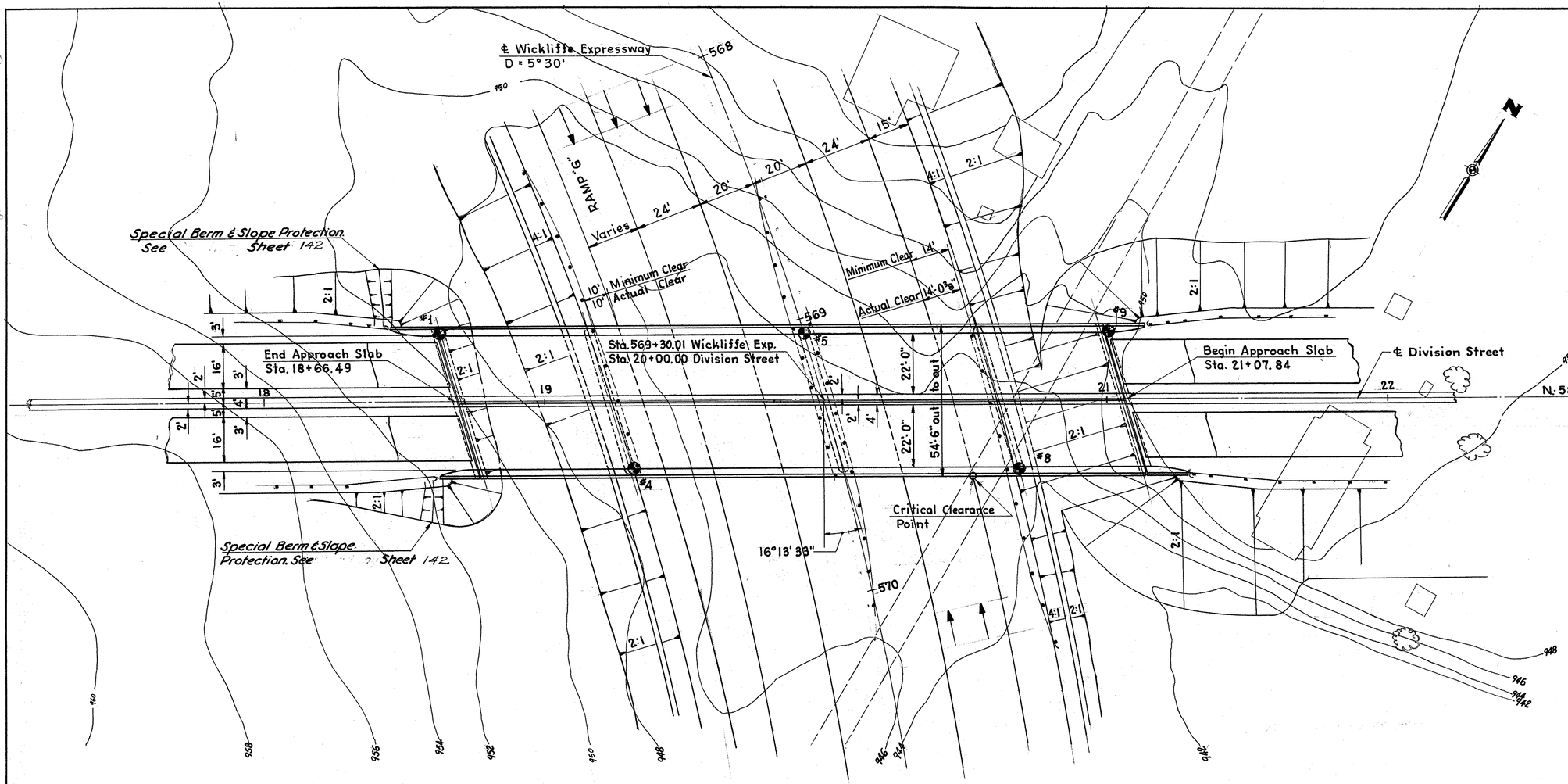
# MAH-18-15.50
# MAHONING COUNTY




● Indicates boring location

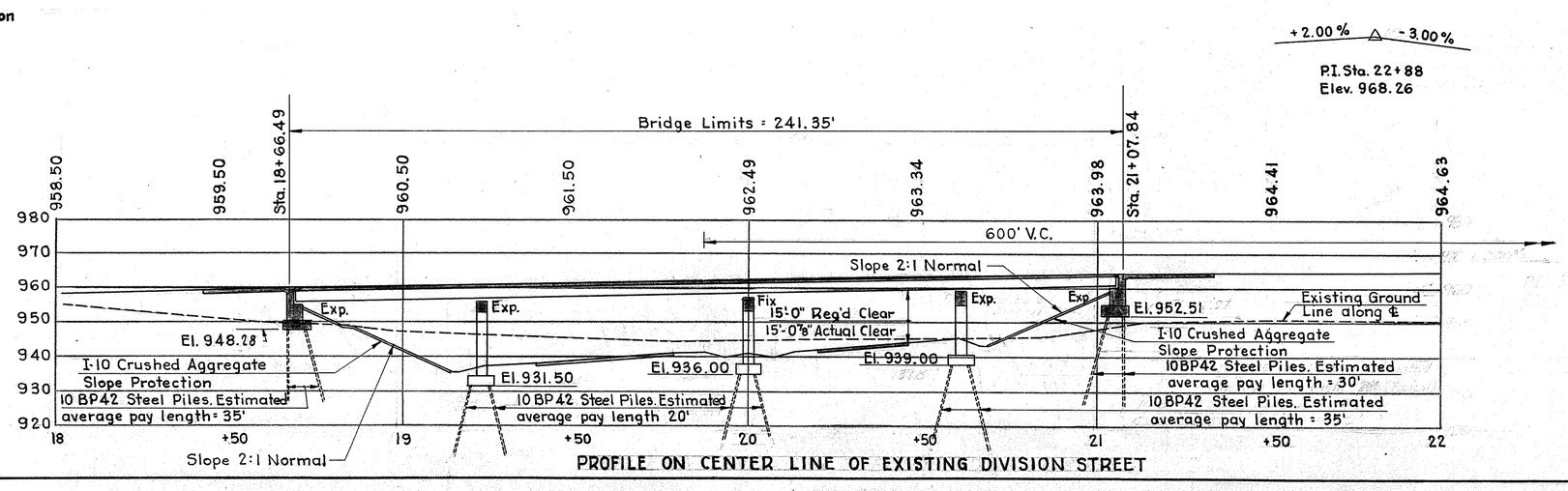
**FOUNDATION SOUNDINGS:** Foundation design and foundation quantities are based on a study of borings and soil sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State assumes no responsibility for the accuracy thereof.

Bench Mark 210: N. Bolt on hydrant of 1206 Argo Road. (110' W. on Argo Street from Brockway Ave). Elev. 961.637.
Bench Mark 211: N. Bolt of hydrant N.E. corner Salt Springs Road and Argo Street (130' East on Argo Street from Salt Springs Road). Elev. 944.401.

ADT (1975) = 10,300 (15% Cl. B & C).

## PROPOSED STRUCTURE

**TYPE:** Continuous Steel Beam with reinforced concrete deck and superstructure.
**SPANS:** 54'-0", 77'-2", 62'-0", 43'-6"
**ROADWAY:** 48'-0" ⅝, 2'-3" Safety Curbs including 4'-0" Raised Median.
**LOAD FREQUENCY:** CF 2000 (57) adequate for alternate A.A.S.H.O. Loading.
**SKEW:** 16° 13' 33" R.F.
**WEARING SURFACE:** 1" Monolithic concrete.
**APPROACH SLAB:** AS-1-54 (25' long)
**ALIGNMENT:** Tangent




PROFILE ON CENTER LINE OF EXISTING DIVISION STREET

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

## SITE PLAN

BRIDGE NO. MAH-18-1649
UNDER DIVISION STREET

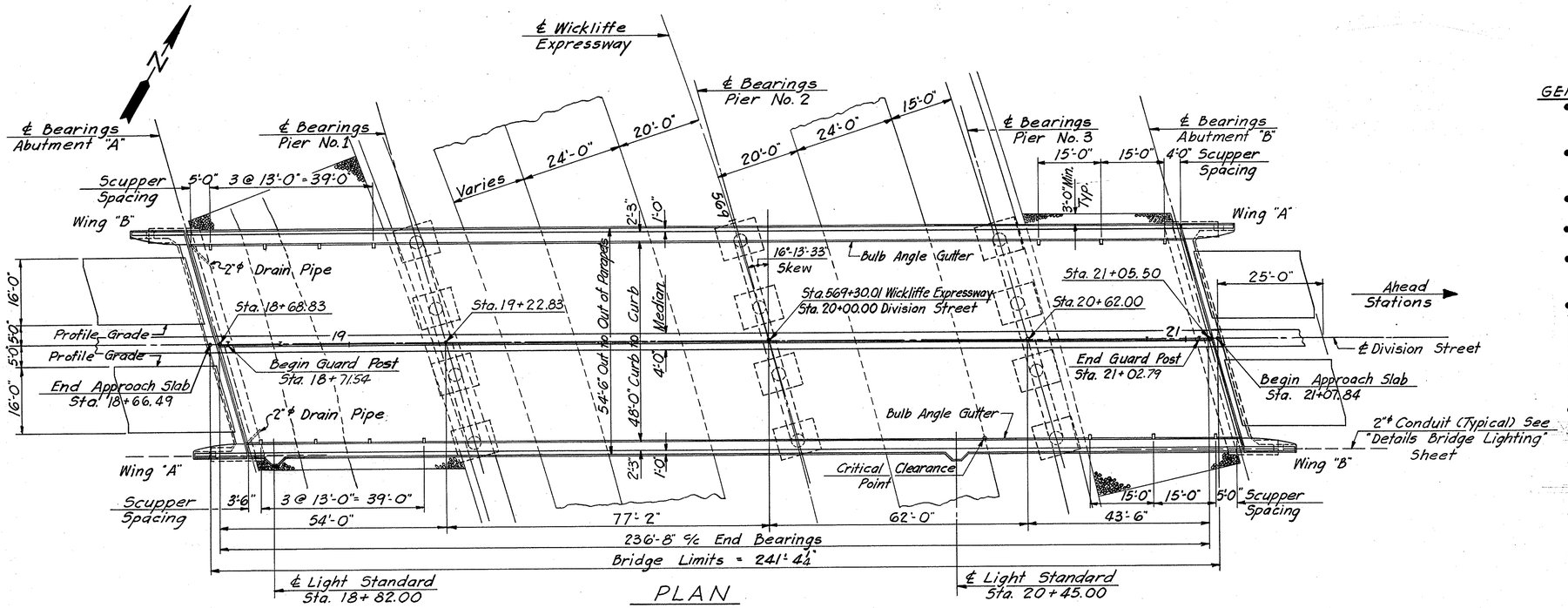
MAHONING COUNTY — STA. 569+30.01

| PRESENT TOPOGRAPHY | | PROPOSED WORK | | | |
|---|---|---|---|---|---|
| SURVEYED | DRAWN | DESIGNED | DRAWN | CHECKED | REVIEWED |
| | MM | GJK | P.T.R. | E.F.R. | GJK 8-26-03 |

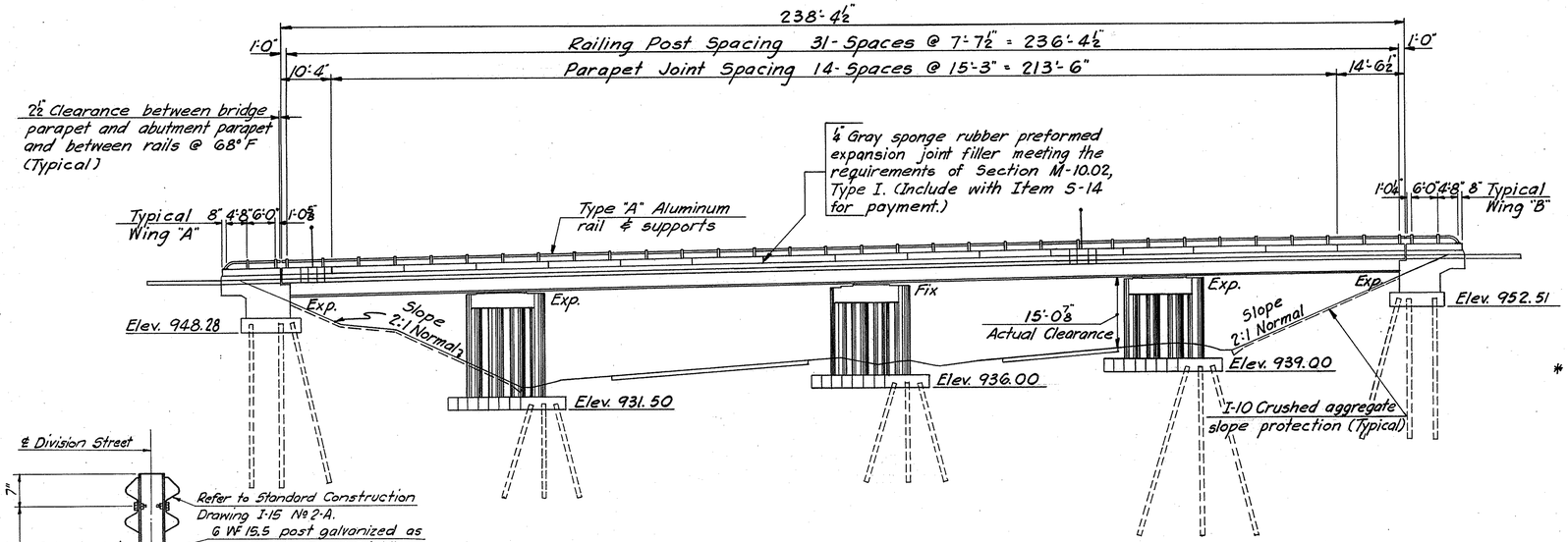
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

234

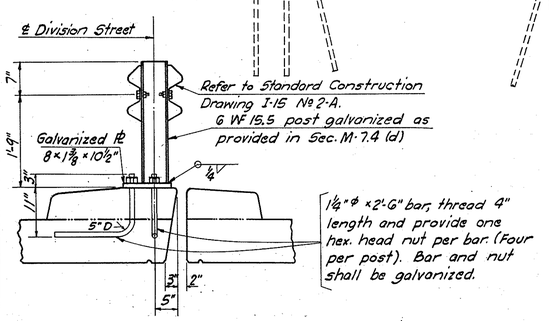
MAHONING COUNTY
MAH - 18 - 15.50




PLAN




ELEVATION




MEDIAN BARRIER GUARD RAIL DETAILS

## GENERAL NOTES:

- DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.
- Reference shall be made to Standard Drawings CSB-2-56, Sheets 2 & 3 of 6, revised 2-2-59, AR-1-57 revised 4-2-62, FSB-1-62 revised 1-15-63, AS-1-54 revised 7-5-62, and Supplemental Specifications S-101 dated 7-12-62.
- EXCAVATION QUANTITY includes the removal of fill material required for the construction of abutments.
- PILES shall be driven to a minimum bearing capacity of 28 tons per pile for the abutments, and 33 tons per pile for the piers.
- WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.
- SURFACE FINISH OF CONCRETE: The requirements of Sec. 511.22, Rubbed Finish, shall apply to the following exposed surfaces:
  a. The entire superstructure except top & bottom surfaces of sidewalks and roadways.
  b. The entire surface of piers, abutments, and parapets except bridge seats and backwalls.
- REFERENCE shall be made to Supplemental Specification S-307 revised 10-1-64 and Standard Drawing SD-2-64 dated 11-25-64.
- DESIGN LOADING: CF 2000 (57)
- CONCRETE CLASS "C": Basic unit stress 1333 p.s.i.
- CONCRETE CLASS "E": Basic unit stress 1133 p.s.i.
- STRUCTURAL STEEL: ASTM A36 - basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted)
- REINFORCING STEEL: ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

## ESTIMATE OF QUANTITIES

| ITEM | TOTAL | UNIT | DESCRIPTION | SUPERSTR. | ABUTS. | PIERS | GENERAL | | |
|---|---|---|---|---|---|---|---|---|---|
| E-2 | 534 | Cu.Yds. | Unclassified excavation | | 294 | 240 | | | |
| S-1 | 431 | Cu.Yds. | Class "C" concrete, superstructure | 431 | | | | | |
| S-1 | 111 | Cu.Yds. | Class "C" concrete, pier caps & columns | | | 111 | | | |
| S-1 | 117 | Cu.Yds. | Class "E" concrete, abutments above footings | | 117 | | | | |
| S-1 | 187 | Cu.Yds. | Class "E" concrete, footings | | 94 | 93 | | | |
| S-14 | 233.79 | Lin.Ft. | Barrier guard rail, steel beam type (deep) including anchorage | 233.79 | | | | | |
| S-9 | 160,879 | Lbs. | Reinforcing steel | 115,350 | 14,749 | 30,780 | | | |
| S-7 | 347,800 | Lbs. | Structural steel | 347,800 | | | | | |
| S-8 | 347,800 | Lbs. | Field painting of structural steel | 347,800 | | | | | |
| S-14 | 526.23 | Lin.Ft. | Railing Type "A" (Alum. railing & supports, & conc. parapets) | 476.75 | 49.48 | | | | |
| S-16 | Lump | Sum | First test pile | | | | L.S. | | |
| S-18 | 2,775 | Lin.Ft. | Steel piles 10 BP 42 | | 975 | 1,800 | | | |
| * S-25 | | | Electric lighting system complete | | | | | | |
| S-29 | 40 | Cu.Yds. | Porous Backfill | | 40 | | | | |
| S-29 | 14 | Each | Scuppers, including supports | 14 | | | | | |
| I-10 | 687 | Sq.Yds. | Crushed aggregate slope protection | | | | 687 | | |
| S-101 | 431 | Each | Water-reducing, set-retarding admixture | 431 | | | | | |

* See General Summary - Lighting Sheet.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# GENERAL PLAN & ELEVATION

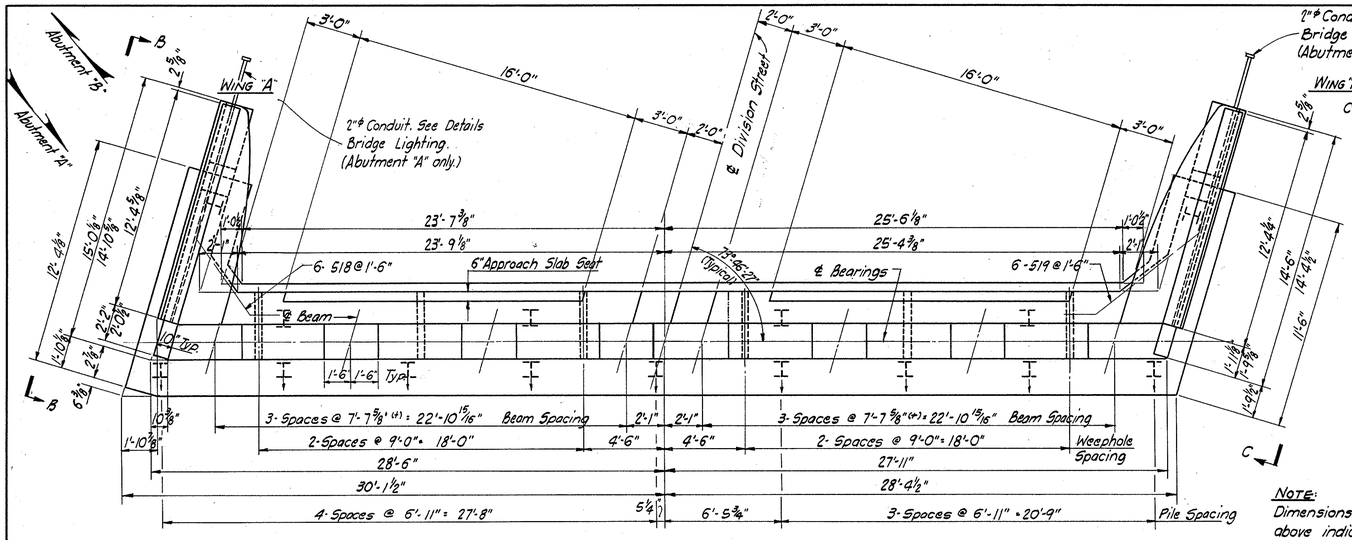
BRIDGE NO. MAH-18-1649
UNDER DIVISION STREET

MAHONING COUNTY STA. 569 + 30.01

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| V.K. | V.K. | R.C. | CMK | TJK | 8-26-63 | |

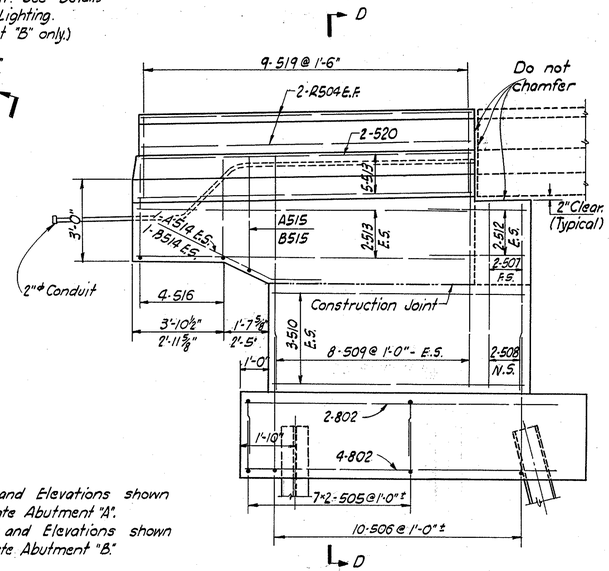
| FED. RD. DIVISION | STATE | PROJECT | | 235 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAHONING COUNTY
MAH-18-15.50




PLAN

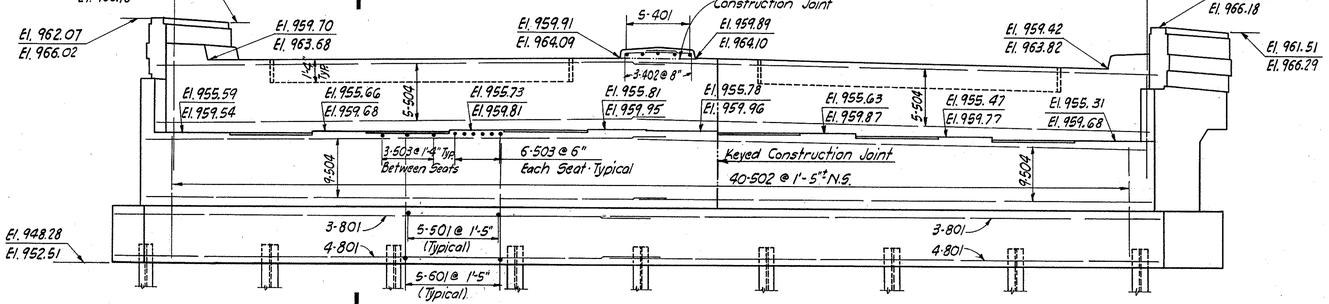
NOTE:
Dimensions and Elevations shown above indicate Abutment "A". Dimensions and Elevations shown below indicate Abutment "B."



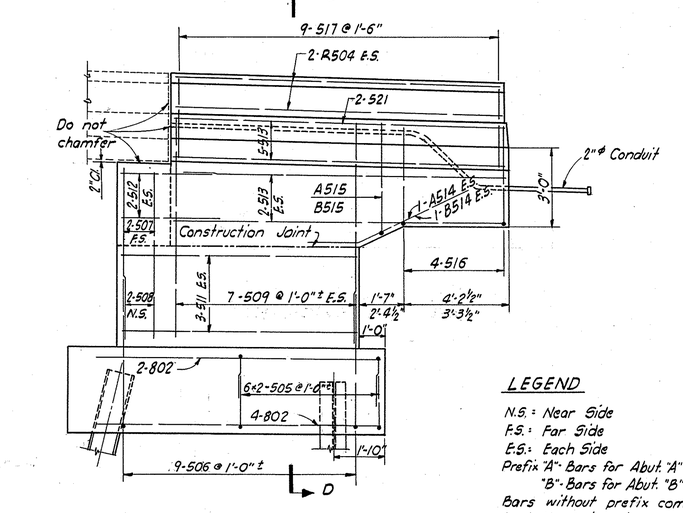

VIEW B-B

NOTES:

- PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope after which excavation shall be made for the abutment and piles driven.
- POROUS BACKFILL, 2 ft. thick, full length of abutment and wings shall extend up to the underside of the approach or to the finished ground surface. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cubic yard paid for porous backfill.
- BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor rod holes.
- Refer to Standard Drawing AR-1-57 (Revised 4-2-62) for details of Type "A" railing and Concrete Parapet.
- All abutment parapet railings shall be continuous through railing posts.
- All abutment concrete shall be Class "E."
- All parapet concrete shall be Class "C."
- Concrete and reinforcing steel above parapet construction joint included with railing 5.14 for payment.



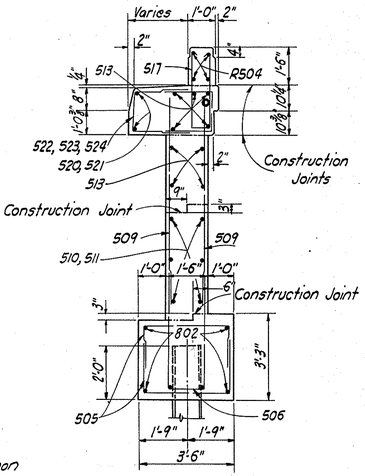

ELEVATION



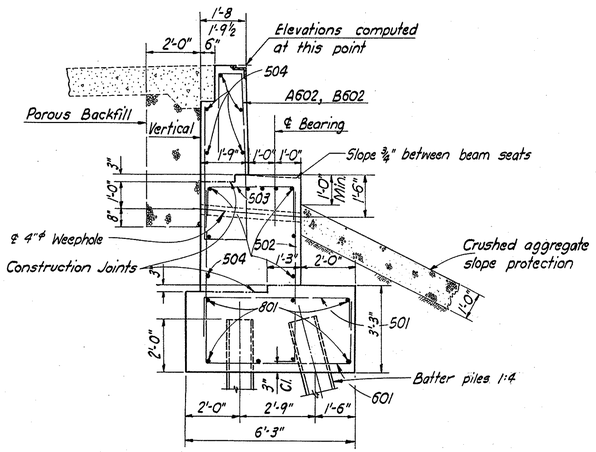

VIEW C-C

LEGEND

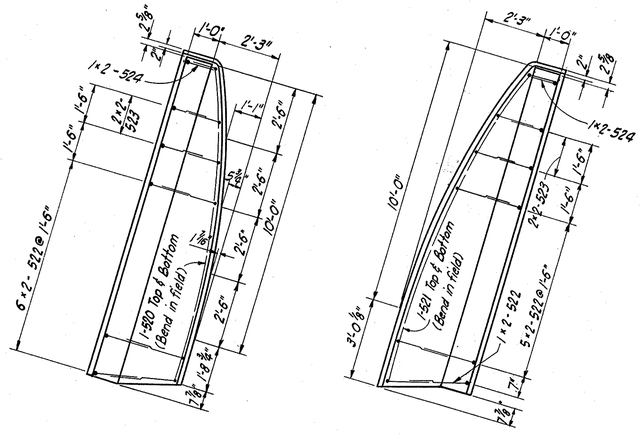
N.S. = Near Side
F.S. = Far Side
E.S. = Each Side
Prefix "A" - Bars for Abut. "A"
"B" - Bars for Abut. "B"
Bars without prefix common to both abutments.



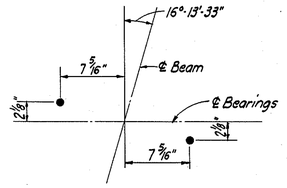

SECTION D-D




SECTION A-A




SAFETY CURB REINFORCEMENT




ANCHOR ROD LAYOUT

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENTS

BRIDGE NO. MAH-18-1649
UNDER DIVISION STREET

MAHONING COUNTY STA. 569+30.01

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| H.L. | E.E. | M.M. | A.A.L. | G.F.K. | 8-26-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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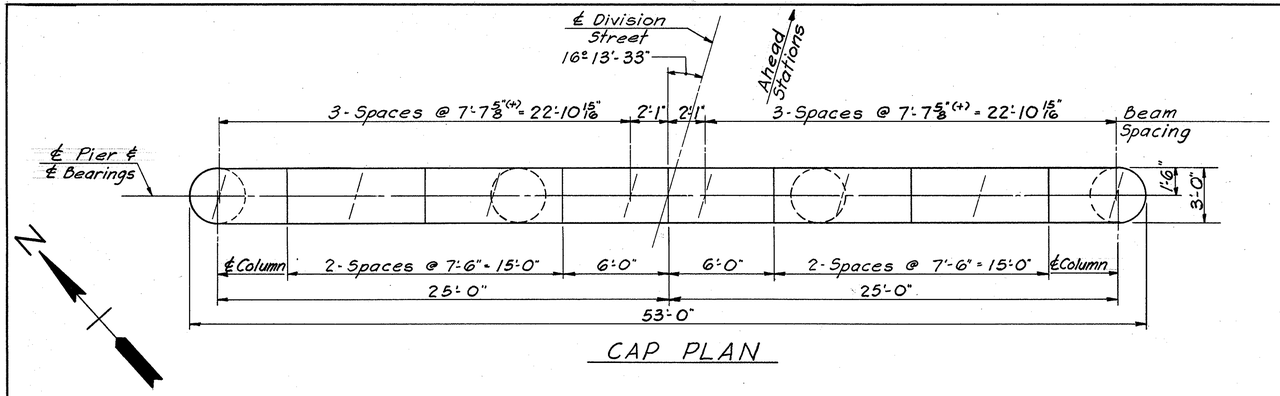
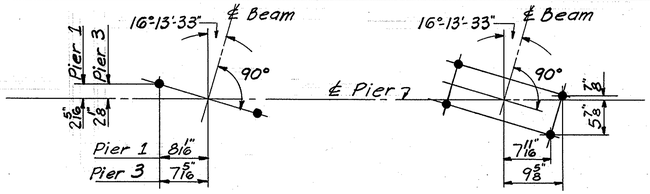
MAHONING COUNTY
MAH-18-15.50



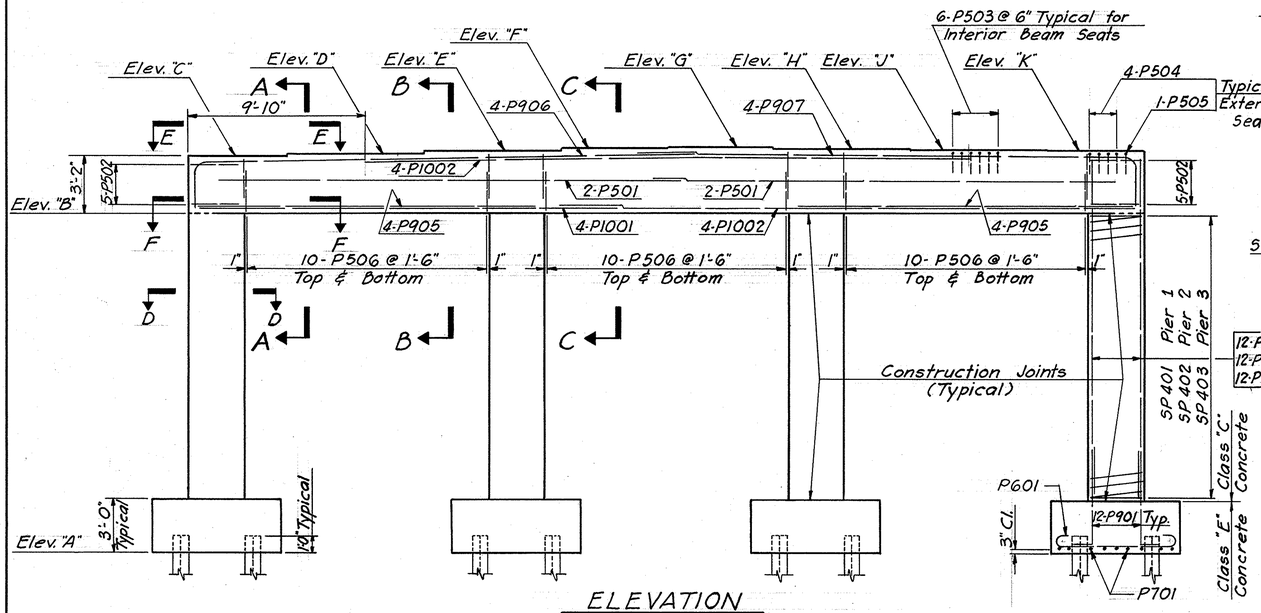

CAP PLAN



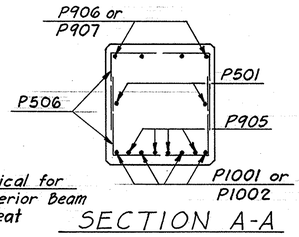

PIERS 1 & 3 PIER 2

ANCHOR ROD LAYOUT

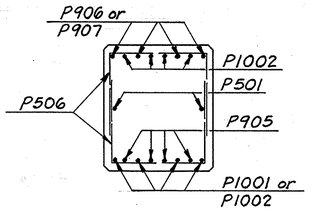
NOTE: Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the drilling of anchor rod holes.



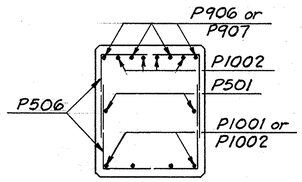

ELEVATION



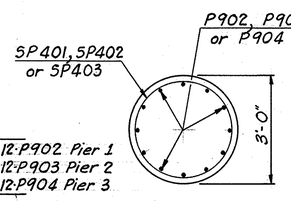

SECTION A-A



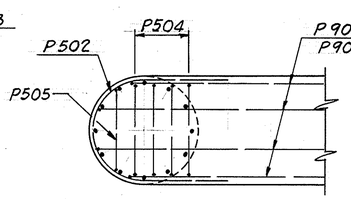

SECTION B-B



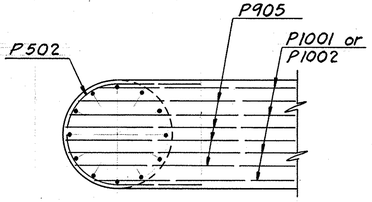

SECTION C-C



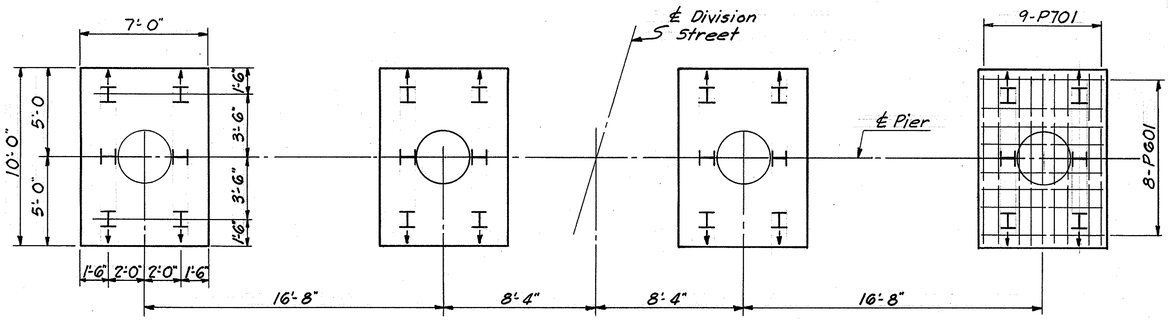

SECTION D-D




VIEW E-E




SECTION F-F




FOOTING PLAN

| PIER ELEVATIONS | | | |
|---|---|---|---|
| Elevation | Pier 1 | Pier 2 | Pier 3 |
| "A" | 931.50 | 936.00 | 939.00 |
| "B" | 953.17 | 954.42 | 955.82 |
| "C" .35' | 956.~~39~~ | 957.59 | 958.99 |
| "D" .51' | 956.~~55~~ | 957.75 | 959.13 |
| "E" .67' | 956.~~71~~ | 957.91 | 959.28 |
| "F" .82' | 956.~~86~~ | 958.06 | 959.42 |
| "G" .85' | 956.~~89~~ | 958.08 | 959.44 |
| "H" .78' | 956.~~82~~ | 958.01 | 959.35 |
| "J" .70' | 956.~~74~~ | 957.93 | 959.27 |
| "K" .63' | 956.~~67~~ | 957.86 | 959.18 |

NOTES:

- Piles shown thus ↑ are to be battered 1:4 in direction indicated by arrow.
- Super-Structure Ground-A No 1/0 AWG 7 strand soft annealed bare copper cable shall be encased in the outside column of pier No. 2. Connect (by Exothermic weld process) lower end of cable to a steel pile. Extend cable (in one continuous length) through top of pier with lead of sufficient length to exothermic weld upper end of cable to outside beam of super-structure.
- Payment for electrical grounds is included in the lump sum bid for 5-25" "Electrical Lighting System Complete"

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# PIERS

BRIDGE NO. MAH-18-1649
UNDER DIVISION STREET

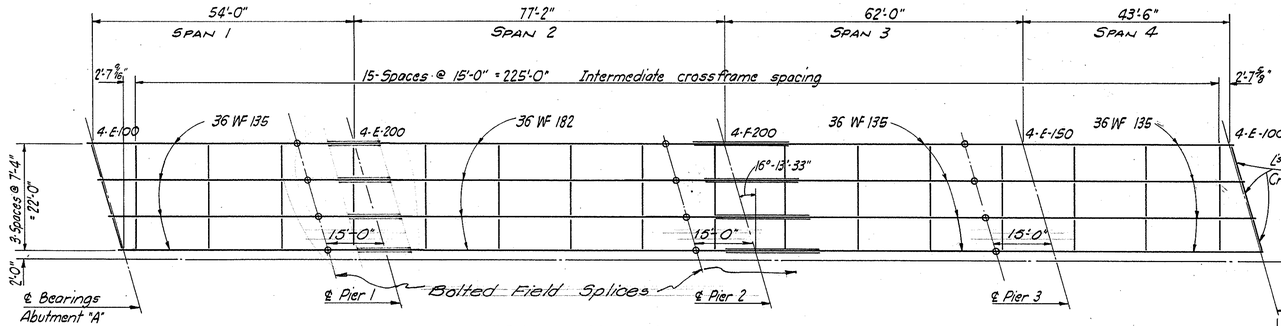
MAHONING COUNTY STA. 569 + 30.01

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| [illegible] | R.C. | R.C. | [illegible] | [illegible] 8-26-63 | | 12-22-65 |

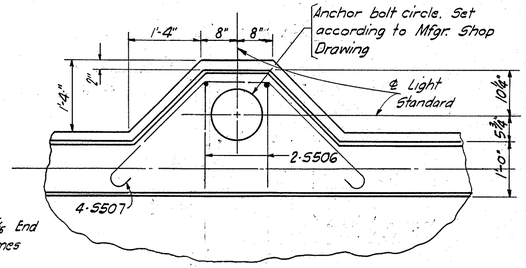
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

237

MAHONING COUNTY
MAH-18-15.50

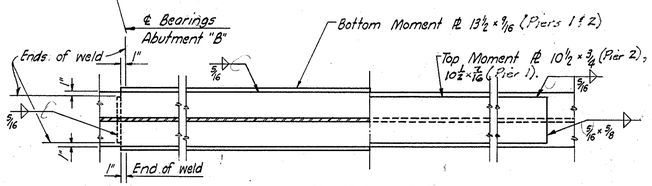



STEEL FRAMING PLAN
Left half shown - Right half similar




PLAN - LIGHT STANDARD BASE

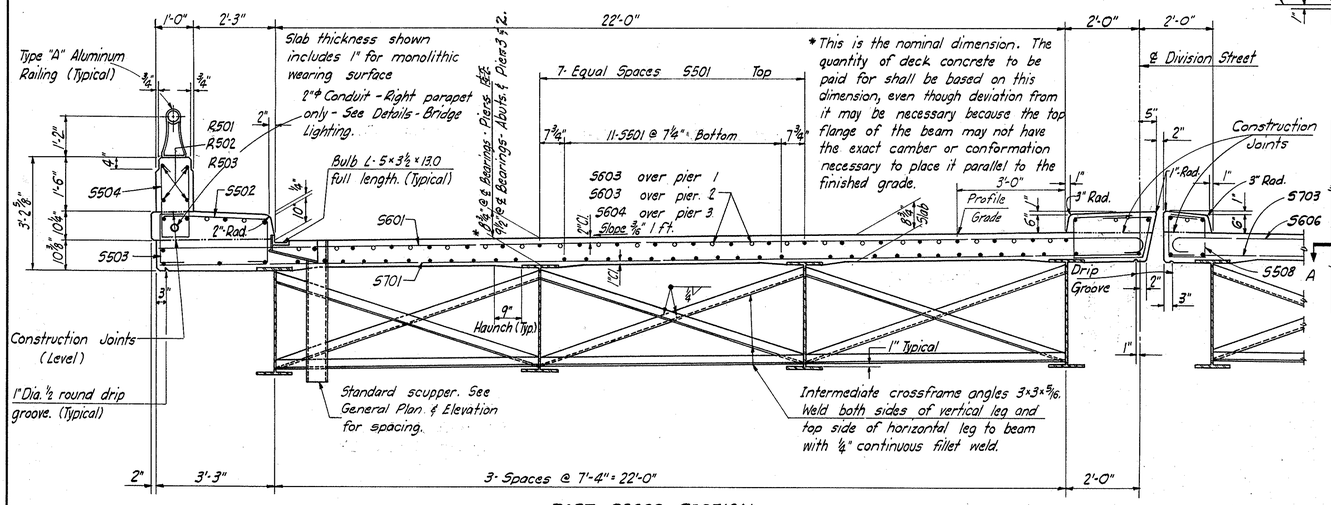
NOTE: For details not shown see Details - Bridge Lighting
For location see General Plan & Elevation.




SECTION A-A

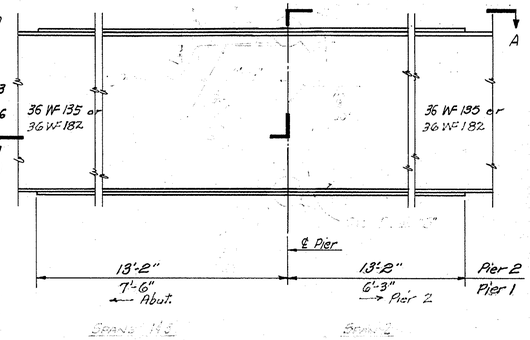
NOTES:

- Refer to Standard Drawing AR-1-57 for details of Type "A" aluminum railing and concrete parapet; to Standard Drawing CSB-2-56, Sheets 2 & 3 of 6 for details of expansion dams, end crossframes, 2" ϕ pipe drains, curb plates and scuppers; and to Standard Drawing FSB-1-62 for bearings.
- Concrete and reinforcing steel above parapet construction joint shall be included with railing for payment.
- See General Plan and Elevation for location of scuppers, 2" ϕ pipe drains and railing posts.
- CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.
- DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" except that the maximum slope shall not exceed 3" per foot. Payment for deck slab concrete shall be based on the 9" width.
- MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.
- 
- All concrete shall be Class "C."
- ELECTRICAL LIGHTING SYSTEM: For additional details refer to drawings "Details - Bridge Lighting" and "General Lighting Notes".
- 

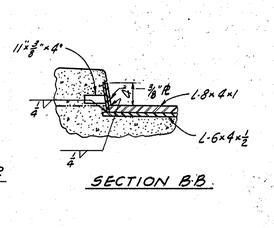


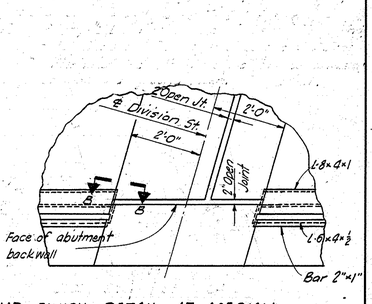

PART CROSS SECTION
Left side shown - Right side similar



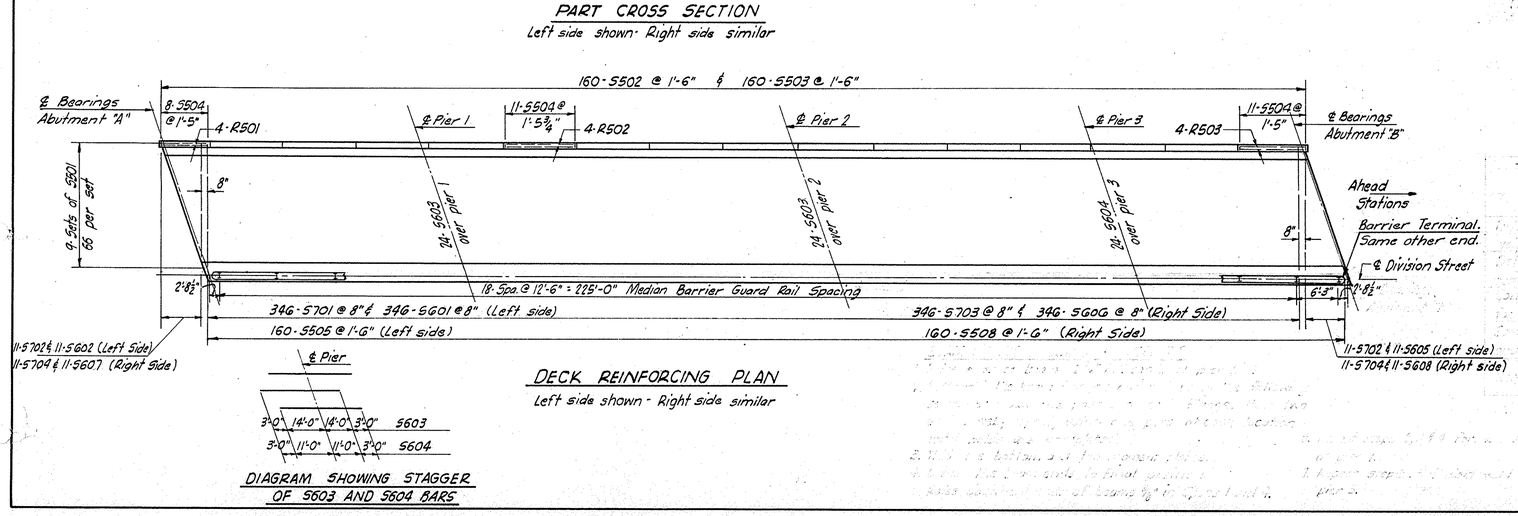




BEAM DETAILS AT PIERS 1 & 2



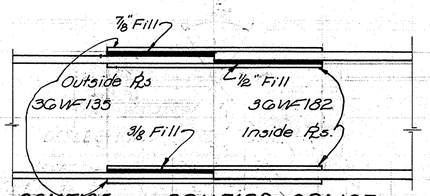

END FINISH DETAIL AT MEDIAN




DECK REINFORCING PLAN
Left side shown - Right side similar




DIAGRAM SHOWING STAGGER OF 5603 AND 5604 BARS




36WF135 TO 36WF182 SPLICE
See 36WF135 Data for additional details.

For BOLTED FIELD SPLICE DETAILS see Std. Dwg. SD-2-64

DEFLECTION AND CAMBER

| LOCATION | SPAN 1 | SPAN 2 | SPAN 3 | SPAN 4 |
|---|---|---|---|---|
| Deflection due to weight of steel | 0" | 3/16" | 0" | 0" |
| Deflection due to remaining dead load | ¼" | 11/16" | ¼" | ⅛" |
| Convexity required for vertical curve | 0" | 0" | ½" | ¼" |
| Sum of deflections and convexity | ¼" | 1" | ¾" | ⅜" |
| Required Camber | 0" | 1" | ¾" | 0" |

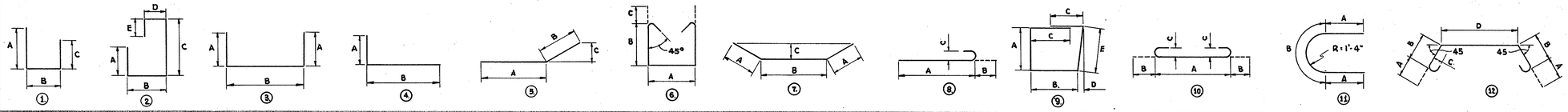
MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18-1649
UNDER DIVISION STREET

MAHONING COUNTY STA. 569 + 30.01

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| [illegible] | m.m. | m.m. | E.F.R. | [illegible] 8-22-63 | | 12-22-65 |




| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

238

MAHONING COUNTY
MAH-18-15.50

All dimensions are out to out.

## ABUTMENT "A"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| A 801 | 14 | 30'-3" | Str. | | | | | | 1,131 |
| A 802 | 12 | 11'-3" | Str. | | | | | | 360 |
| A 601 | 40 | 14'-0" | 1 | 6'-4" | 5'-5" | 2'-7" | | | 841 |
| A 602 | 55 | 16'-3" | 2 | 5'-2" | 1'-5" | 6'-6" | 10" | 3'-0" | 1,342 |
| A 501 | 40 | 8'-4" | 3 | 1'-7" | 5'-5" | | | | 348 |
| A 502 | 40 | 7'-0" | 4 | 8" | 6'-6" | | | | 292 |
| A 503 | 66 | 7'-6" | 3 | 2'-2" | 3'-5" | | | | 516 |
| A 504 | 28 | 28'-10" | Str. | | | | | | 842 |
| A 505 | 26 | 7'-1" | 3 | 2'-1" | 3'-2" | | | | 192 |
| A 506 | 19 | 10'-9" | 3 | 4'-11" | 1'-2" | | | | 213 |
| A 507 | 4 | 4'-9" | Str. | | | | | | 20 |
| A 508 | 4 | 6'-8" | Str. | | | | | | 28 |
| A 509 | 30 | 8'-4" | Str. | | | | | | 261 |
| A 510 | 6 | 8'-9" | Str. | | | | | | 55 |
| A 511 | 6 | 8'-4" | Str. | | | | | | 52 |
| A 512 | 8 | 3'-9" | Str. | | | | | | 31 |
| A 513 | 18 | 12'-0" | Str. | | | | | | 225 |
| A 514 | 4 | 5'-0" | 5 | 3'-4" | 1'-8" | 9" | | | 21 |
| A 515 | 2 | 8'-9" | 3 | 3'-11" | 1'-2" | | | | 18 |
| A 516 | 8 | 7'-11" | 3 | 3'-6" | 1'-2" | | | | 66 |
| A 517 | 18 | 6'-11" | 6 | 8" | 2'-10" | 5" | | | 130 |
| A 518 | 6 | 8'-10" | 7 | 1'-7" | 5'-8" | 1'-3" | | | 55 |
| A 519 | 6 | 10'-4" | 7 | 1'-7" | 7'-2" | 11" | | | 65 |
| A 520 | 2 | 11'-9" | Str. | | | | | | 25 |
| A 521 | 2 | 13'-0" | Str. | | | | | | 27 |
| A 522 | 24 | 5'-7" | 3 | 2'-3" | 1'-4" | | | | 140 |
| A 523 | 8 | 4'-1" | 3 | 1'-6" | 1'-4" | | | | 34 |
| A 524 | 4 | 3'-1" | 3 | 1'-0" | 1'-4" | | | | 13 |
| A 401 | 5 | 1'-5" | Str. | | | | | | 5 |
| A 402 | 6 | 4'-3" | 4 | 2'-7" | 1'-9" | | | | 17 |
| R 504 | 8 | 12'-0" | Str. | Included with railing for payment. | | | | | |
| | | | | | | | | TOTAL = | 7,365 |

## ABUTMENT "B"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| B 801 | 14 | 30'-3" | Str. | | | | | | 1,131 |
| B 802 | 12 | 11'-3" | Str. | | | | | | 360 |
| B 601 | 40 | 14'-0" | 1 | 6'-4" | 5'-5" | 2'-7" | | | 841 |
| B 602 | 55 | 16'-5" | 2 | 5'-2" | 1'-5" | 6'-6" | 11½" | 3'-0" | 1,356 |
| B 501 | 40 | 8'-4" | 3 | 1'-7" | 5'-5" | | | | 348 |
| B 502 | 40 | 7'-0" | 4 | 8" | 6'-6" | | | | 292 |
| B 503 | 66 | 7'-6" | 3 | 2'-2" | 3'-5" | | | | 516 |
| B 504 | 28 | 28'-10" | Str. | | | | | | 842 |
| B 505 | 26 | 7'-1" | 3 | 2'-1" | 3'-2" | | | | 192 |
| B 506 | 19 | 10'-9" | 3 | 4'-11" | 1'-2" | | | | 213 |
| B 507 | 4 | 4'-9" | Str. | | | | | | 20 |
| B 508 | 4 | 6'-8" | Str. | | | | | | 28 |
| B 509 | 30 | 8'-4" | Str. | | | | | | 261 |
| B 510 | 6 | 8'-9" | Str. | | | | | | 55 |
| B 511 | 6 | 8'-4" | Str. | | | | | | 52 |
| B 512 | 8 | 3'-9" | Str. | | | | | | 31 |
| B 513 | 18 | 12'-0" | Str. | | | | | | 225 |
| B 514 | 4 | 6'-0" | 5 | 4'-4" | 1'-8" | 9" | | | 25 |
| B 515 | 2 | 9'-1" | 3 | 4'-1" | 1'-2" | | | | 19 |
| B 516 | 8 | 7'-11" | 3 | 3'-6" | 1'-2" | | | | 66 |
| B 517 | 18 | 6'-11" | 6 | 8" | 2'-10" | 5" | | | 130 |
| B 518 | 6 | 8'-10" | 7 | 1'-7" | 5'-8" | 1'-3" | | | 55 |
| B 519 | 6 | 10'-4" | 7 | 1'-7" | 7'-2" | 11" | | | 65 |
| B 520 | 2 | 11'-9" | Str. | | | | | | 25 |
| B 521 | 2 | 13'-0" | Str. | | | | | | 27 |
| B 522 | 24 | 5'-7" | 3 | 2'-3" | 1'-4" | | | | 140 |
| B 523 | 8 | 4'-1" | 3 | 1'-6" | 1'-4" | | | | 34 |
| B 524 | 4 | 3'-1" | 3 | 1'-0" | 1'-4" | | | | 13 |
| B 401 | 5 | 1'-5" | Str. | | | | | | 5 |
| B 402 | 6 | 4'-3" | 4 | 2'-7" | 1'-9" | | | | 17 |
| R 504 | 8 | 12'-0" | Str. | Included with railing for payment | | | | | |
| | | | | | | | | TOTAL = | 7,384 |

## PIERS

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| P 1001 | 12 | 23'-0" | Str. | | | | | | 1,188 |
| P 1002 | 24 | 33'-4" | Str. | | | | | | 3,442 |
| P 901 | 144 | 6'-6" | 4 | 1'-3" | 5'-6" | | | | 3,182 |
| P 902 | 48 | 21'-6" | Str. | | | | | | 3,509 |
| P 903 | 48 | 18'-3" | Str. | | | | | | 2,978 |
| P 904 | 48 | 16'-8" | Str. | | | | | | 2,720 |
| P 905 | 24 | 19'-0" | Str. | | | | | | 1,550 |
| P 906 | 12 | 30'-5" | 4 | 2'-11" | 27'-9" | | | | 1,241 |
| P 907 | 12 | 30'-7" | 4 | 3'-1" | 27'-9" | | | | 1,248 |
| P 701 | 108 | 11'-4" | 10 | 9'-8" | 10" | 6¾" | | | 2,502 |
| P 601 | 96 | 8'-0" | 10 | 6'-8" | 8" | 6" | | | 1,154 |
| P 501 | 12 | 25'-9" | Str. | | | | | | 322 |
| P 502 | 30 | 9'-2" | 11 | 2'-6" | 4'-2" | | | | 287 |
| P 503 | 108 | 3'-11" | 3 | 9" | 2'-8" | | | | 441 |
| P 504 | 24 | 3'-7" | 3 | 9" | 2'-4" | | | | 90 |
| P 505 | 6 | 3'-5" | 3 | 9" | 2'-2" | | | | 21 |
| P 506 | 180 | 7'-3" | 3 | 2'-5" | 2'-8" | | | | 1,361 |
| | | | | | | | | TOTAL = | 30,780 |

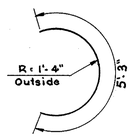
### SPIRAL BARS

| Mark | Total | Length | Pitch | No. of Turns | Core Dia. | Weight |
|---|---|---|---|---|---|---|
| SP401 | 4 | 18'-8" | 4½ | 53 | 32" | 1,373 |
| SP402 | 4 | 15'-5" | 4½ | 44 | 32" | 1,138 |
| SP403 | 4 | 13'-9¾" | 4½ | 40 | 32" | 1,033 |

## SUPERSTRUCTURE

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| S 701 | 346 | 27'-1" | Str. | | | | | | 19,154 |
| S 702 | 22 | 3'-1" to 25'-7" | Str. | 2 each Vary by 2'-3" | | | | | 645 |
| S 703 | 346 | 26'-4" | Str. | | | | | | 18,623 |
| S 704 | 22 | 2'-3" to 24'-9" | Str. | 2 each Vary by 2'-3" | | | | | 607 |
| S 601 | 346 | 27'-10" | 8 | 27'-2" | 8" | 6" | | | 14,465 |
| S 602 | 11 | 3'-1" to 25'-7" | Str. | 1 each Vary by 2'-3" | | | | | 237 |
| S 603 | 96 | 31'-0" | Str. | | | | | | 4,470 |
| S 604 | 48 | 25'-0" | Str. | | | | | | 1,802 |
| S 605 | 11 | 3'-9" to 26'-3" | 8 | 3'-1" to 25'-7" | 8" | 6" | ① | | 248 |
| S 606 | 346 | 27'-0" | 8 | 26'-4" | 8" | 6" | | | 14,032 |
| S 607 | 11 | 2'-11" to 25'-5" | 8 | 2'-3" to 24'-9" | 8" | 6" | ① | | 234 |
| S 608 | 11 | 2'-3" to 24'-9" | Str. | 1 each Vary by 2'-3" | | | | | 223 |
| S 501 | 1188 | 27'-11" | Str. | | | | | | 34,592 |
| S 502 | 320 | 4'-4" | 1 | 2'-11" | 1'-2" | 6" | | | 1,446 |
| S 503 | 320 | 2'-4" | 3 | 8" | 1'-3" | | | | 779 |
| S 504 | 346 | 5'-4" | 6 | 8" | 2'-0" | 5" | | | 1,925 |
| S 505 | 160 | 6'-5" | 9 | 1'-0" | 1'-10" | 1'-6" | 3" | 1'-1" | 1,071 |
| S 506 | 4 | 5'-9" | 4 | 2'-10" | 3'-1" | | | | 24 |
| S 507 | 8 | 7'-8" | 12 | 7" | 2'-8" | 5" | 1'-2" | | 64 |
| S 508 | 160 | 4'-3" | 9 | 1'-0" | 1'-0" | 10" | 0" | 1'-1" | 709 |
| R 501 | 8 | 10'-0" | Str. | Included with railing for payment. | | | | | |
| R 502 | 112 | 14'-10" | Str. | | | | | | |
| R 503 | 8 | 14'-2" | Str. | | | | | | |
| | | | | | | | | TOTAL = | 115,350 |

① 1 each Vary "A" by 2'-3"




RE 401

## REPLACEMENT BARS

| Mark | No. | Length | Type |
|---|---|---|---|
| RE 1001 | 1 | 7'-3" | Str. |
| RE 901 | 1 | 6'-10" | Str. |
| RE 801 | 1 | 6'-6" | Str. |
| RE 701 | 3 | 6'-3" | Str. |
| RE 601 | 3 | 5'-11" | Str. |
| RE 501 | 3 | 5'-7" | Str. |
| RE 401 | 1 | 5'-3" | Bent |

## SPIRAL NOTES

- The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
- The "Number of Turns" shown in the steel list for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.
- Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.
- 1½ closed coils shall be provided at the ends of each spiral unit.
- Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A601 is a number 6 size bar.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE

BRIDGE NO. MAH-18-1649
UNDER DIVISION STREET

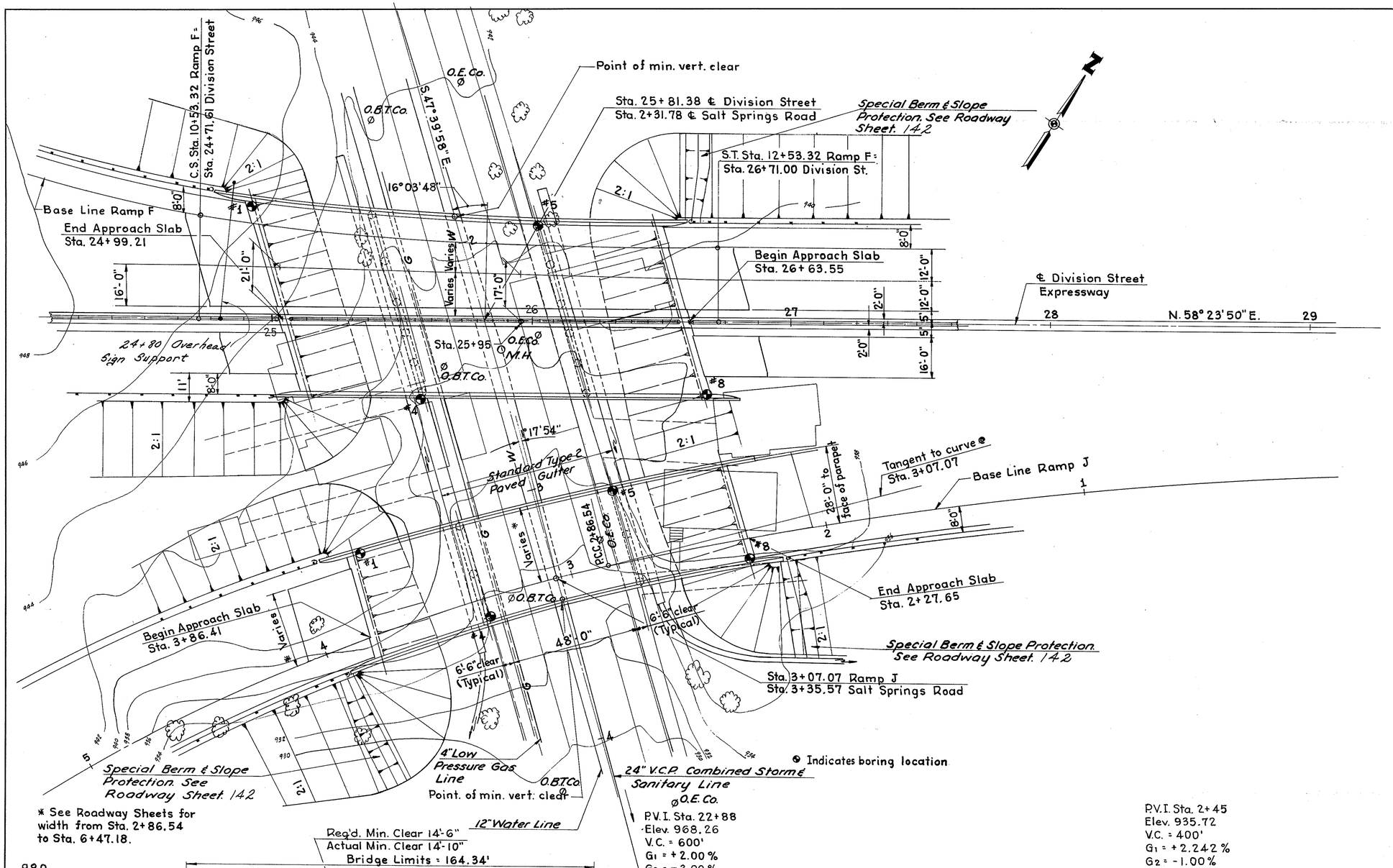
MAHONING COUNTY STA. 569+30.01

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| | | | | 8-26-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

239

# MAH-18-15.50
# MAHONING COUNTY




PROFILE ALONG DIVISION STREET EXPRESSWAY

PROFILE ALONG BASE LINE OF RAMP "J"

**FOUNDATION SOUNDINGS:** Foundation design and foundation quantities are based on a study of borings and soil sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State assumes no responsibility for the accuracy thereof.

BENCH MARK #211 Elev. 944.38 North Bolt of hydrant N.E. corner Salt Springs and Argo. 130' E. on Argo from Salt Springs.

BENCH MARK #212 Elev. 928.66 Top stem of hydrant N.E. corner Division and Salt Springs. 35' E. on Division from Salt Springs

ADT (1975) = 13,195

## DIVISION STREET EXPRESSWAY OVER SALT SPRINGS ROAD

TYPE: Continuous steel beam with reinforced concrete deck and substructures.
SPANS: 46'-6", 66'-8", 46'-6"
ROADWAY: Varies: 72'-8⅛" to 63'-8⅛"
LOAD FREQUENCY: C.F. 2000 (57). Adequate for alternate A.A.S.H.O. loading.
SKEW: 16° 03' 48" R.F.
WEARING SURFACE: 1" Monolithic concrete.
APPROACH SLAB: AS-1-54 (25' long)
ALIGNMENT: Tangent and spiral.
SUPERELEVATION: Varies

ADT (1975) = 6130

## RAMP J OVER SALT SPRINGS ROAD

TYPE: Continuous steel beam with reinforced concrete deck and substructures.
SPANS: 45'-0", 64'-0", 45'-0"
ROADWAY: Varies; 33'-8" to 36'-10"
LOAD FREQUENCY: C.F. 2000 (57) Adequate for A.A.S.H.O. alternate loading.
SKEW: 1° 17' 54" R.F. to the local tangent.
WEARING SURFACE: 1" Monolithic concrete.
APPROACH SLAB: AS-1-54 (25' long)
ALIGNMENT: Curve
SUPERELEVATION: Varies.


MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA


## SITE PLAN

BRIDGE NO MAH-18-RAMP J

OVER SALT SPRINGS ROAD

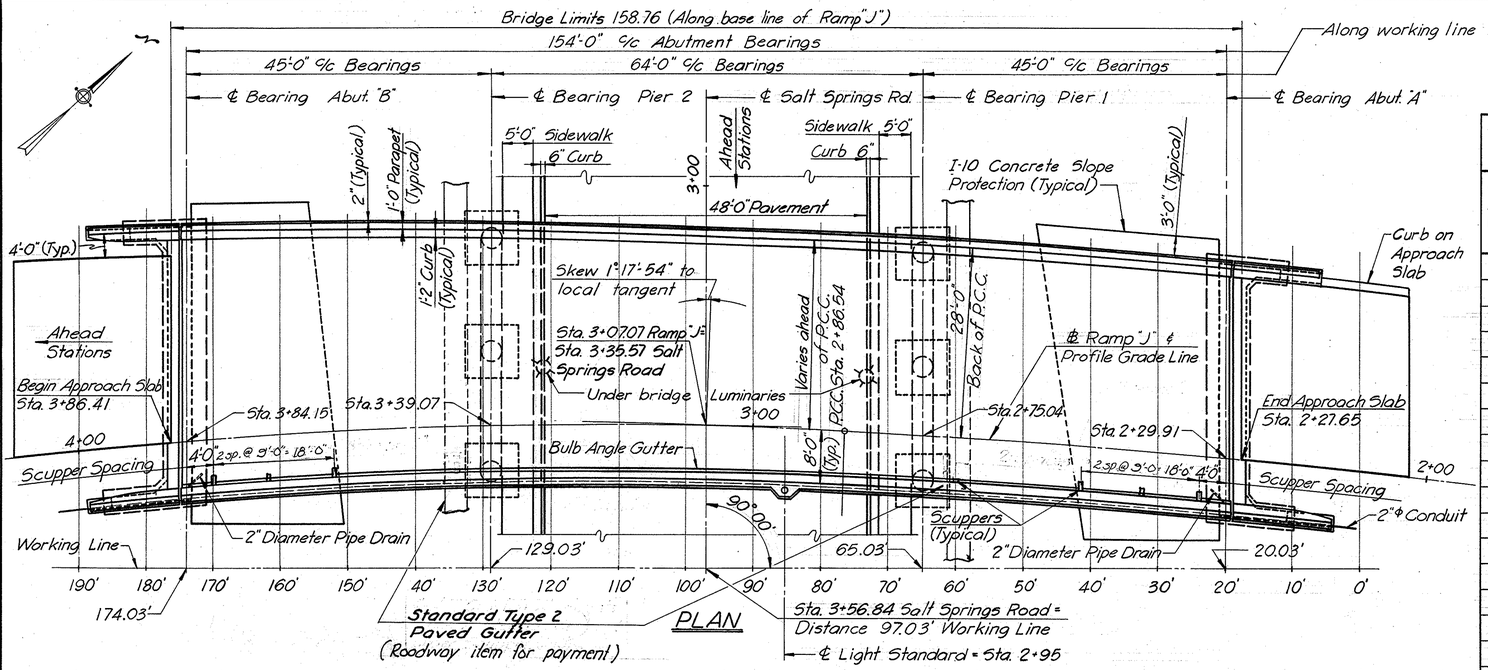
MAHONING COUNTY STA. 3+07.07

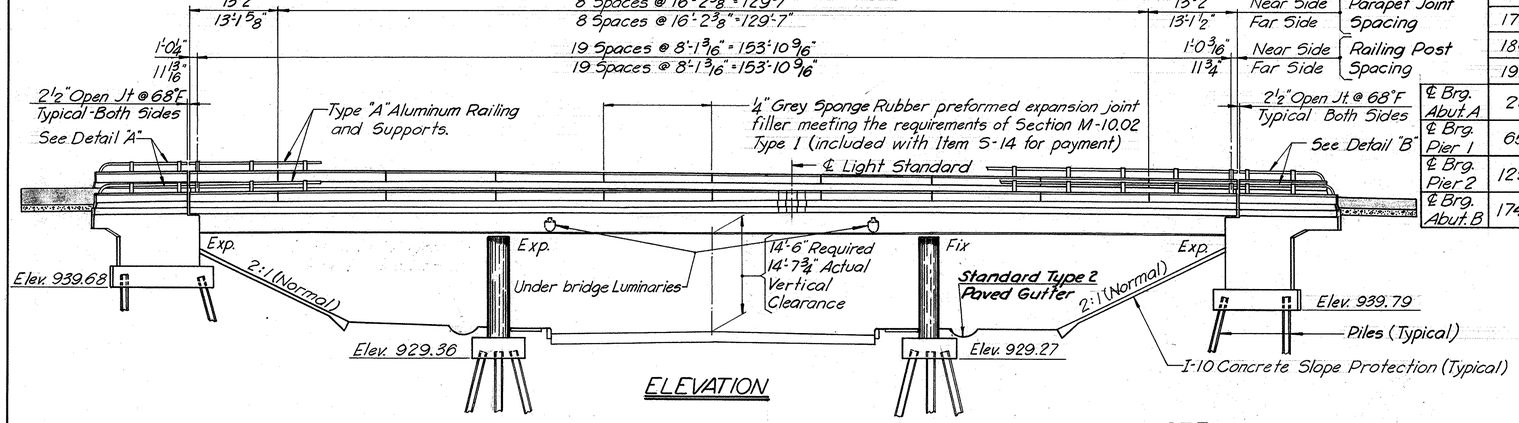
| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EFR | EFR | P.T.R. | A. A. L. | GJK | 8-26-63 | |

Add Traffic Count

| FED. RD. DIVISION | STATE | PROJECT | | 240 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAHONING COUNTY
MAH-18-15.50




ELEVATION

## OFFSETS FROM WORKING LINE & TOP OF SLAB ELEVATIONS

| DISTANCE ALONG WORKING LINE | LOCATION | | | | | |
|---|---|---|---|---|---|---|
| | LEFT CURB | | BASE LINE | | RIGHT CURB | |
| | Offset | Elev. | Offset | Elev. | Offset | Elev. |
| 0' | 7.65' | 951.37 | 14.52' | 951.83 | 41.50' | 953.64 |
| 10' | 8.68' | 951.45 | 15.54' | 951.92 | 42.50' | 953.74 |
| 20' | 9.63' | 951.53 | 16.49' | 952.00 | 43.43' | 953.84 |
| 30' | 10.51' | 951.59 | 17.36' | 952.07 | 44.29' | 953.93 |
| 40' | 11.32' | 951.65 | 18.17' | 952.13 | 45.08' | 954.01 |
| 50' | 12.06' | 951.70 | 18.91' | 952.18 | 45.80' | 954.09 |
| 60' | 12.72' | 951.74 | 19.57' | 952.23 | 46.46' | 954.15 |
| 70' | 13.32' | 951.77 | 20.16' | 952.27 | 47.04' | 954.21 |
| 80' | 13.84' | 951.80 | 20.68' | 952.30 | 47.55' | 954.26 |
| 90' | 14.24' | 951.81 | 21.08' | 952.32 | 48.00' | 954.31 |
| 100' | 14.50' | 951.82 | 21.33' | 952.33 | 48.38' | 954.35 |
| 110' | 14.62' | 951.82 | 21.45' | 952.34 | 48.69' | 954.40 |
| 120' | 14.59' | 951.81 | 21.43' | 952.33 | 48.92' | 954.44 |
| 130' | 14.43' | 951.79 | 21.26' | 952.32 | 49.10' | 954.47 |
| 140' | 14.12' | 951.77 | 20.96' | 952.30 | 49.20' | 954.51 |
| 150' | 13.67' | 951.74 | 20.51' | 952.28 | 49.23' | 954.54 |
| 160' | 13.08' | 951.69 | 19.93' | 952.24 | 49.20' | 954.58 |
| 170' | 12.35' | 951.64 | 19.21' | 952.20 | 49.07' | 954.61 |
| 180' | 11.48' | 951.59 | 18.34' | 952.15 | 48.80' | 954.63 |
| 190' | 10.46' | 951.52 | 17.33' | 952.09 | 48.37' | 954.64 |
| ℄ Brg. Abut. A | 20.03' | 9.63' | 951.53 | 16.49' | 952.00 | 43.44' | 953.84 |
| ℄ Brg. Pier 1 | 65.03' | 13.03' | 951.76 | 19.88' | 952.25 | 46.76' | 954.18 |
| ℄ Brg. Pier 2 | 129.03' | 14.45' | 951.79 | 21.28' | 952.32 | 49.08' | 954.47 |
| ℄ Brg. Abut. B | 174.03' | 12.02' | 951.62 | 18.88' | 952.22 | 48.98' | 954.62 |

## GENERAL NOTES:

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

REFERENCE shall be made to Standard Drawings CSB-2-56, Sheets 2 and 3 of 6, revised 2-2-59; AR-1-57 revised 4-2-62; FSB-1-62 revised 1-15-63; AS-1-64, revised 7-5-62 and Supplemental Specifications 5-101 dated 7-12-62

EXCAVATION QUANTITY includes the removal of fill material required for the construction of abutments.

PILES: All piles to be 10 BP42 steel piles. Piles shall be driven to a minimum bearing capacity of 31 tons per pile for the abutments and 35 tons per pile for the piers.

WELDING of structural steel shall be Class A except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

CURING OF CONCRETE: The requirements of Sta. 3-1.2, Subdivision Finish, shall apply to the following exposed surfaces:

a. The entire portion of piers and abutments exposed to view, including the face of backwall and the face of wall into between adjacent bents.

b. The entire surface of piers and abutments exposed to view, backwalls and the face of wall into between adjacent bents.

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the Owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 28'-0" shall be maintained on Salt Springs Road at all times. The Contractor shall safeguard the traveling public by providing platforms, nets or other suitable protection above the traveled lanes. A minimum vertical clearance of 14'-0" shall be provided at all times.

REFERENCE shall be made to Supplemental Specification S-307 revised 10-1-64 and Std. Dwg. SD-2-64 dated 11-25-64

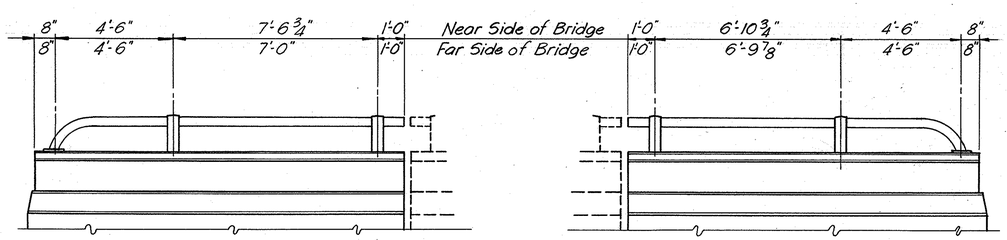
DESIGN LOADING: CF 2000 (57)

CONCRETE CLASS "C": Basic unit stress 1,333 p.s.i.

CONCRETE CLASS "E": Basic unit stress 1,133 psi.

STRUCTURAL STEEL: ASTM A36, basic unit stress 20,000 psi. (ASTM A7 and A373 steel not permitted.)

REINFORCING STEEL: ASTM A15, A16 and A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 psi. Except spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 psi.




DETAIL "A" DETAIL "B"

NOTE:

The spacing dimensions for Parapet Joints and Railing Posts are measured along inside face of Parapet.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# GENERAL PLAN & ELEVATION

BRIDGE NO. MAH-18-RAMP J

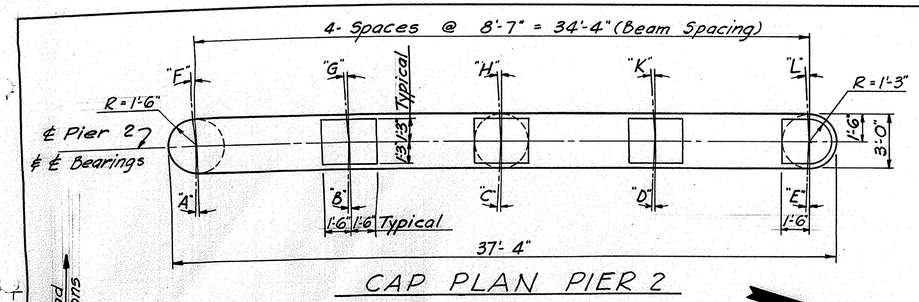
OVER SALT SPRINGS ROAD

MAHONING COUNTY STA. 3+07.07

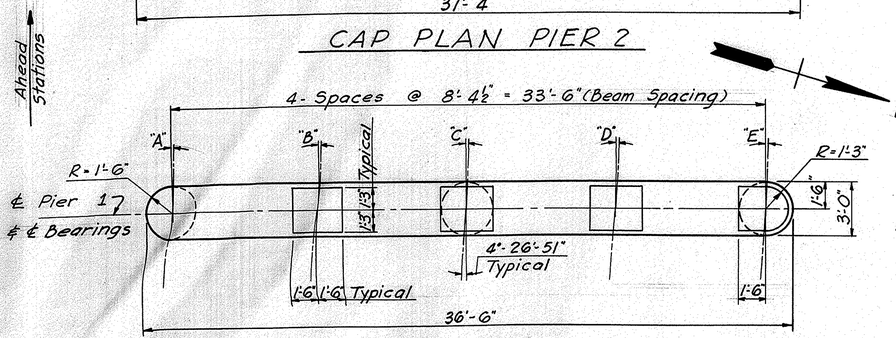
| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| E.F.R. | E.R.J. | E.R.J. | A.A.L. | | 8-26-63 | |

| FED. RD DIVISION | STATE | PROJECT | | 241 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAHONING COUNTY
MAH-18-15.50



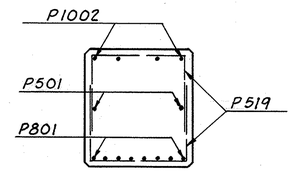

CAP PLAN PIER 2



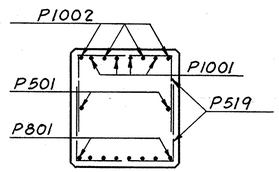

CAP PLAN PIER 1

Ahead Stations

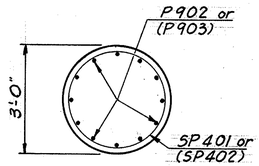
N



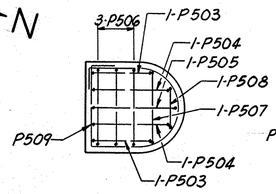

SECTION A-A



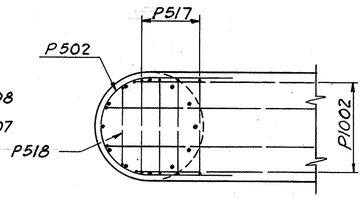

SECTION B-B



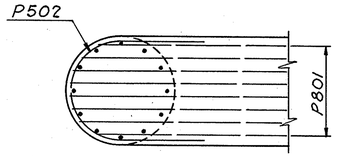

SECTION C-C




VIEW F-F



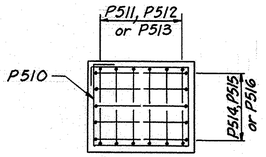

VIEW D-D




SECTION E-E

NOTES:

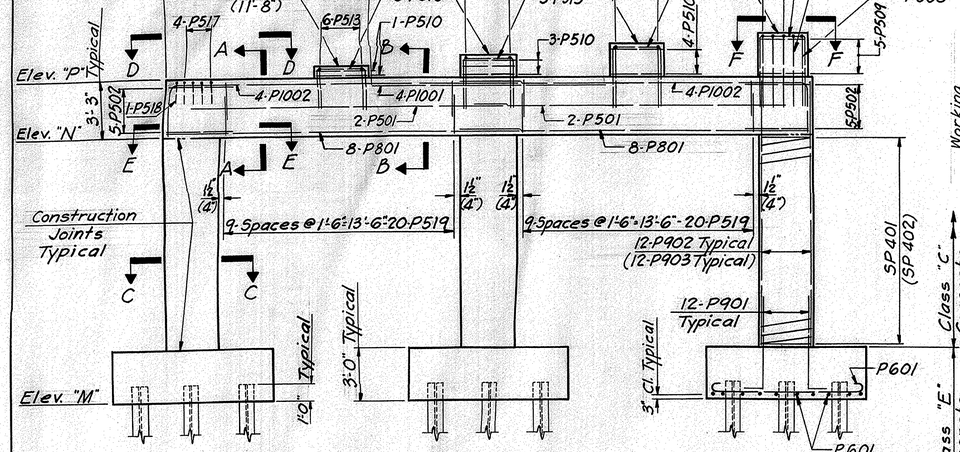
- Super-Structure Ground: A No 1/0 AWG 7 strand soft annealed bare copper cable shall be encased in the outside column of pier No. 1. Connect (by Exothermic weld process) lower end of cable to a steel pile. Extend cable (in one continuous length) through top of pier with lead of sufficient length to exothermic weld upper end of cable to outside beam of super-structure.
- Payment for electrical grounds is included in the lump sum bid for 5-25 "Electrical Lighting System Complete."




TYPICAL INTERIOR BEAM SEAT

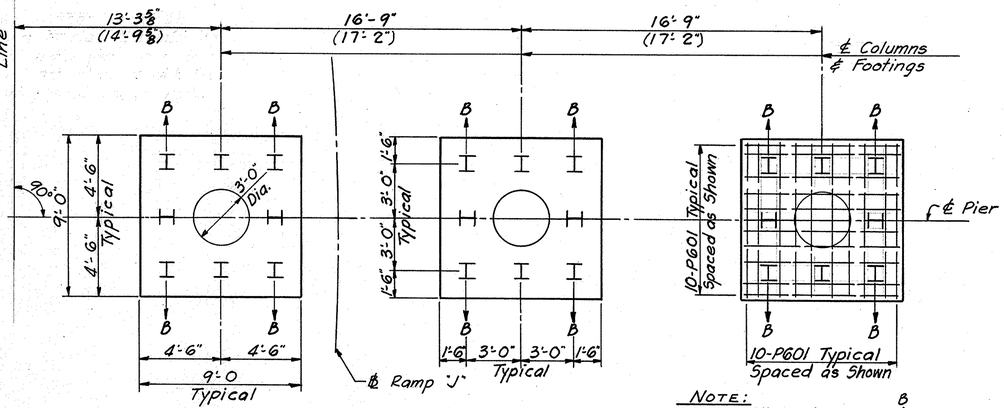
NOTE:

- Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the drilling of anchor rod holes.




ELEVATION

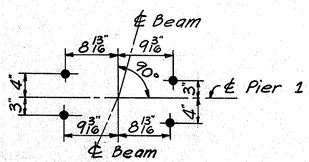
Pier 1 Shown
Pier 2 similar except as noted thus ( )



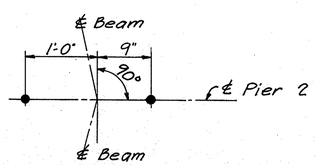

FOOTING PLAN

NOTE:

- Piles shown thus B↑ are to be battered 3:12 in direction indicated by arrow




PIER 1




PIER 2

ANCHOR ROD LAYOUT

| BEAM ANGLES | |
|---|---|
| "A" | 1°-20'-33" |
| "B" | 1°-31'-44" |
| "C" | 1°-42'-55" |
| "D" | 1°-54'-06" |
| "E" | 2°-05'-17" |
| "F" | 3°-33'-38" |
| "G" | 2°-42'-51" |
| "H" | 1°-52'-00" |
| "K" | 1°-01'-07" |
| "L" | 0°-10'-11" |

| PIER ELEVATIONS | | |
|---|---|---|
| Elevation | Pier 1 | Pier 2 |
| "M" | 929.27 | 929.36 |
| "N" | 944.05 | 944.39 |
| "P" | 947.30 | 947.64 |
| "R" | 947.90 | 948.30 |
| "S" | 948.50 | 948.96 |
| "T" | 949.10 | 949.62 |
| "V" | 949.71 | 950.29 |

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# PIERS

BRIDGE NO. MAH-18-RAMP J
OVER SALT SPRINGS ROAD

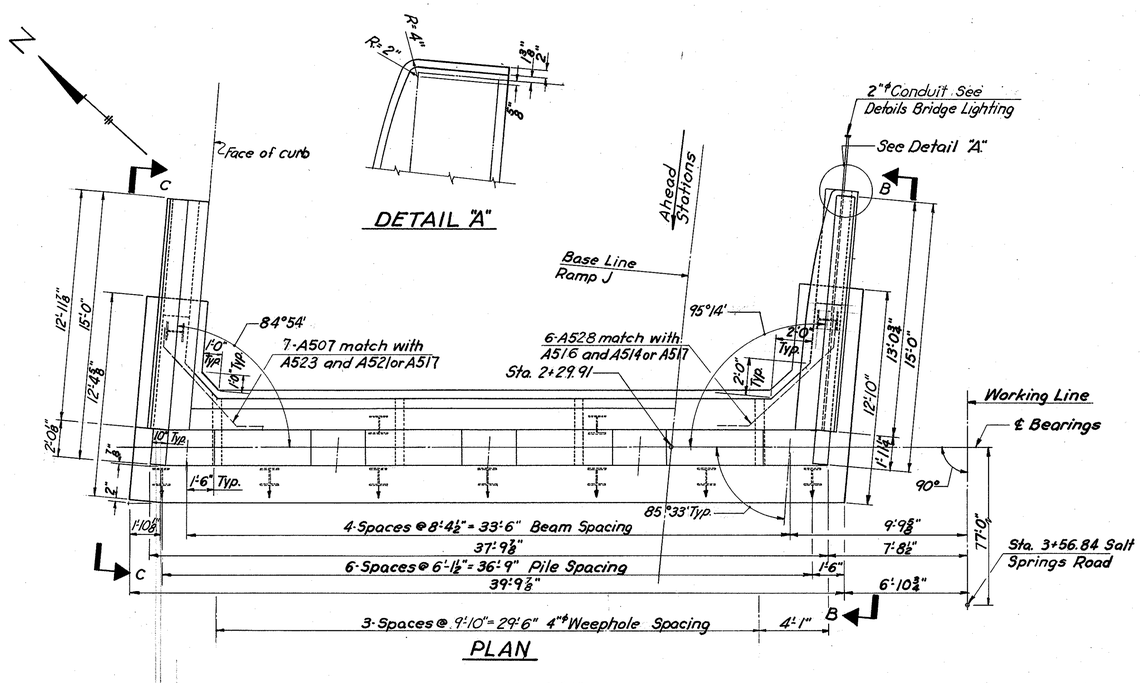
MAHONING COUNTY STA. 3+07.07

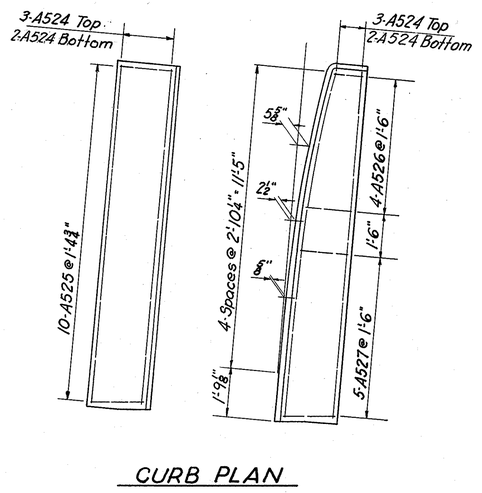
| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| | R.C. | R.C. | R.L.S. | 8-26-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

242

# MAHONING COUNTY
# MAH-18-15.50




CURB PLAN

## NOTES:

Porous backfill 2 feet thick full length of abutment shall extend up to the underside of the approach slab and outward to the wings. Excavation there for, in excess of that required for construction of the abutments, shall be considered as paid for in the bid price per Cu.Yd. paid for porous backfill.

All abutment concrete shall be Class "E".

All parapet concrete shall be Class "C".

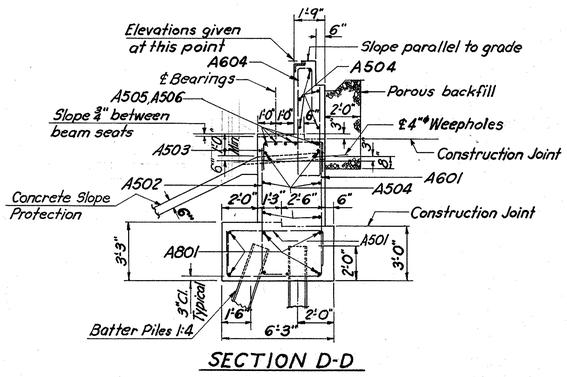
Concrete and reinforcing steel above parapet construction joint shall be included with railing S-14 for payment.

All abutment parapet railings shall be continuous through railing posts.

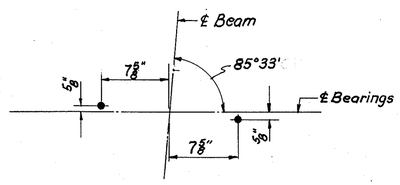
Refer to Standard Drawing AR-1-57 (Revised 4-2-62) for details of Type "A" railing and concrete parapet.

PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade, after which the excavation shall be made for the abutments and piles driven.

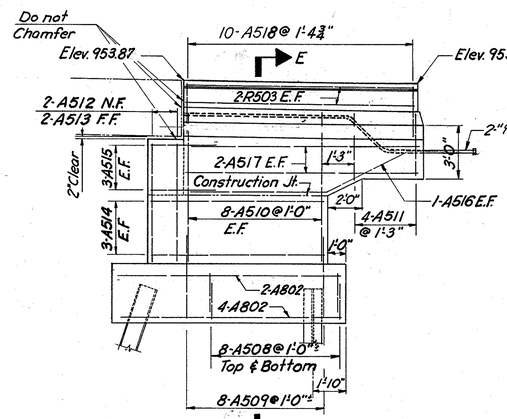
BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor rod holes.



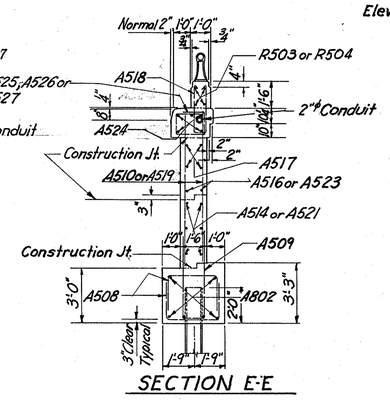

SECTION D-D



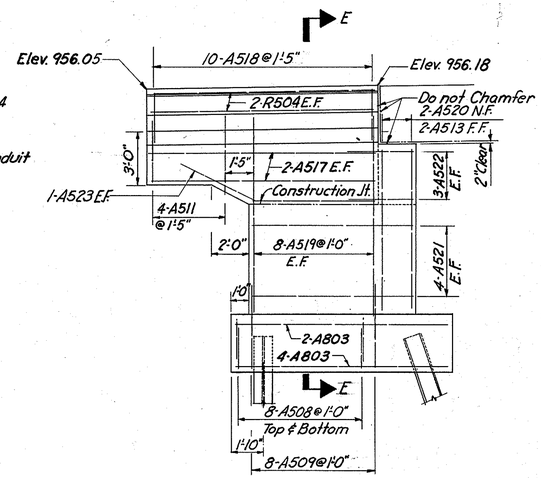

ANCHOR ROD LAYOUT




SECTION B-B




SECTION E-E




SECTION C-C

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

## ABUTMENT A
BRIDGE NO. MAH-18-RAMP J

OVER SALT SPRINGS ROAD

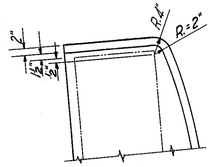
MAHONING COUNTY — STA. 3+07.07

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| E.F.R. | E.F.R. | A.J. | A.A.L. | 8-26-63 | |

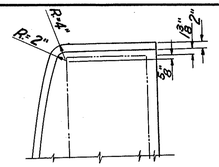
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

243

MAHONING COUNTY
MAH-18-15.50




DETAIL "A"

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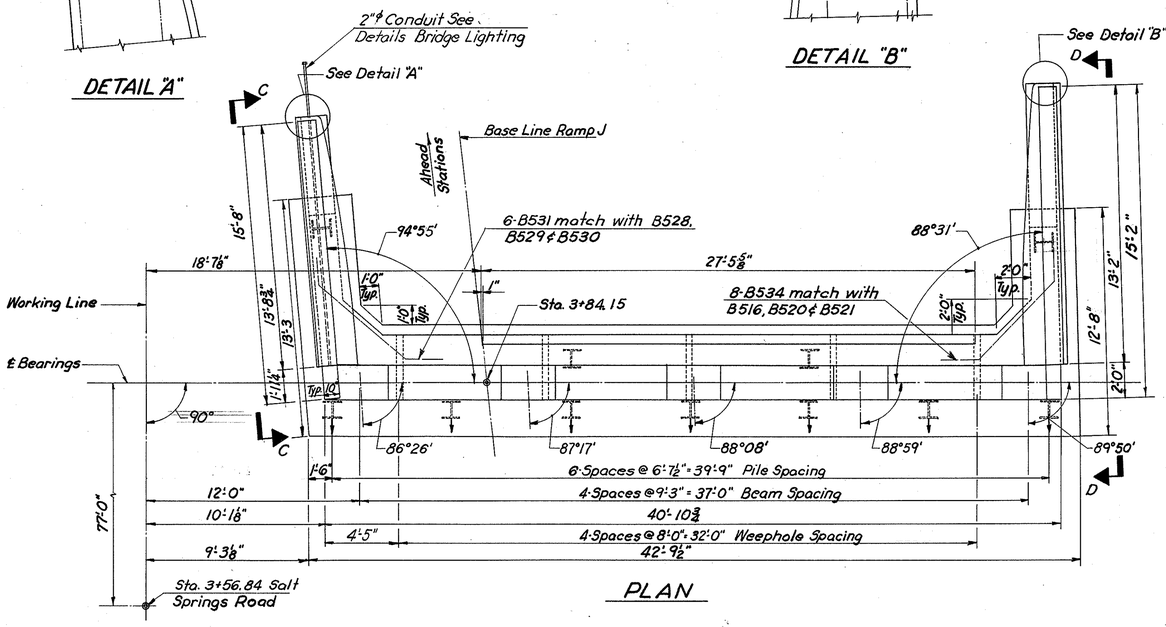
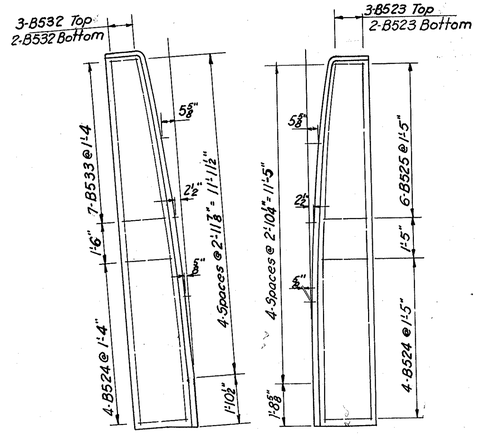
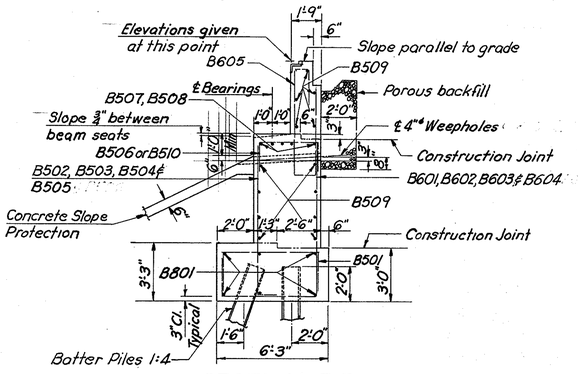



PLAN



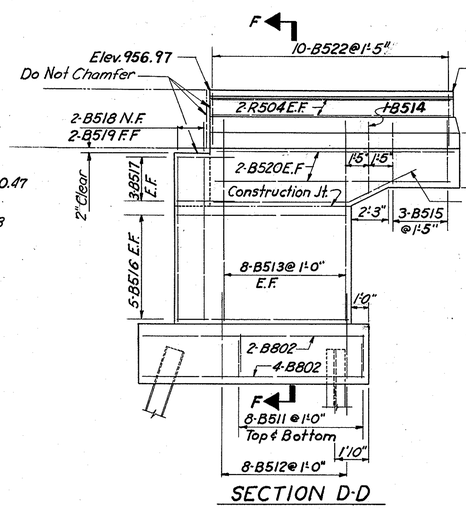

CURB PLAN

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

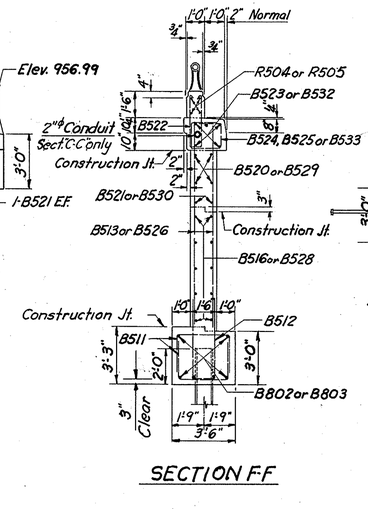



SECTION E-E

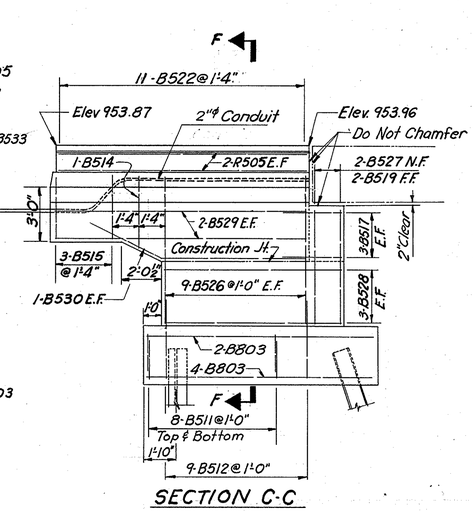
NOTE:
See Abutment "A" sheet for notes.



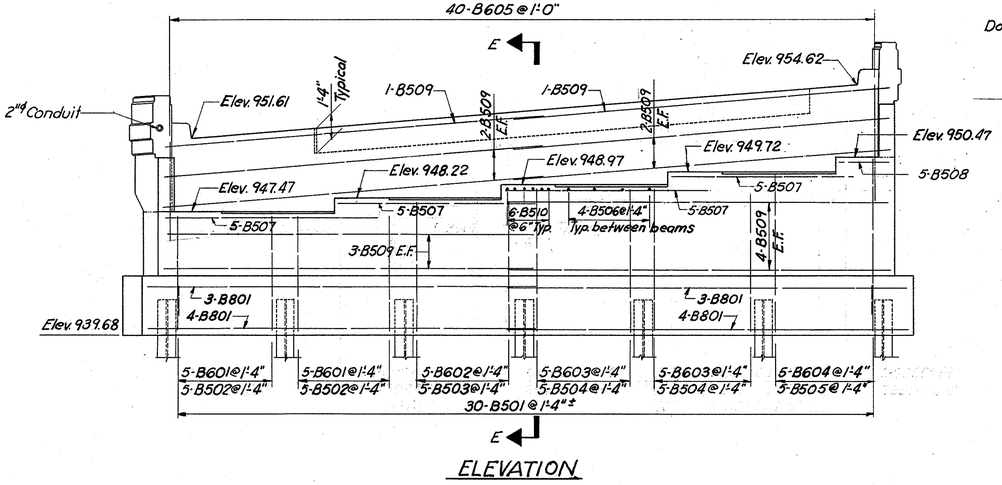

SECTION D-D



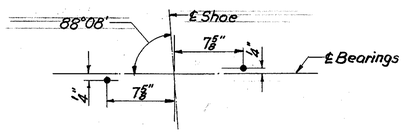

SECTION F-F




SECTION C-C




ELEVATION




ANCHOR ROD LAYOUT

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENT B

BRIDGE NO. MAH-18-RAMP J

OVER SALT SPRINGS ROAD

MAHONING COUNTY — STA. 3+07.07

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| EFR | EFR | BJ | $A=A_o$ | 8-26-63 | |

| FED. RD. DIVISION | STATE | PROJECT | | 244 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAHONING COUNTY
MAH-18-15.50

℄ Light Standard

Varies (See General Plan and Elevation)

Junction Box

Slab Thickness shown includes 1" for monolithic wearing surface.

5602, 5603, or 5604 (Typical)

5703, 704, or 5705 (Typical)

5501

5502 (Typical)

R501, R502 (Typical)

10 Equal Spaces Typical Top 5503 (Lap 1'-7 Minimum)

5504 over Piers (Typical)

8 3/4" Slab

94 @ * ℄ Brgs. Piers
93 @ * ℄ Brgs. Abutments

5601 (Typical)

5701 or 5702 (Typical)

Type "A" Aluminum Railing (Typical)

Bulb L - 5 × 3½ × 13.0 full length

2"ϕ Rod

2"ϕ Conduit

Conduit Coupling

Varies

L3×3×5/16

Intermediate crossframe angles 3×3×5/16 Weld both sides of vertical leg and top side of horizontal leg to beam with ¼" continuous fillet weld.

Constr. Joints (level)

9" Haunch (Typical)

9 Equal Spaces 5605 (Lap 1'-11" Minimum)

10" Typical Bottom

Typical: Top horizontal angle shall be used only at piers.

1"Dia. ½ round Drip Groove (Typical)

Standard Scupper, See General Plan and Elevation for Spacing.

5/16"ϕ U-Bolt with locknuts

Varies (See "STEEL FRAMING PLAN")

2"ϕ Conduit - See Details Bridge Lighting

1½" × ½" bar

Set from shop drawings for luminaires

## TYPICAL CROSS SECTION

* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the the exact camber or conformation required to place it parallel to the finished grade.

## DEFLECTION AND CAMBER

| LOCATION | SPAN 1 | SPAN 2 | SPAN 3 |
|---|---|---|---|
| Deflection due to weight of steel | 0" | 1/16" | 0" |
| Deflection due to weight of remaining D.L | 1/8" | 3/8" | 1/8" |
| Convexity required for V.C. | 1/8" | -1/8" | -1/8 |
| Sum of deflection and convexity | 1/4" | 5/16" | 0" |
| Required Camber | 0" | 0" | 0" |

## NOTES:

- Refer to Standard Drawing AR-1-57 for details of Type "A" aluminum railing and concrete parapet; to Standard Drawing CSB-2-56, Sheets 2 and 3 of 6 for details of expansion dams, end crossframes, 2"ϕ pipe drains, curb plates and scuppers; and for bearings refer to Standard Drawing FSB-1-62 and to Pier Sheet No. 241 and Abutment Sheets No. 242 and 243 for anchor rod layouts.
- Concrete and reinforcing steel above parapet construction joint shall be included with railing for payment.
- See General Plan and Elevation for location of scuppers, 2"ϕ pipe drains and railing posts.
- CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.
- DECK SLAB HAUNCH: The haunch in the superelevated deck slab adjacent to the top of steel beams which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" on the low side and between 9" and 12" on the high side. Except on the high side, the maximum slope shall not exceed 3" per foot. Payment for deck slab concrete shall be based on 9" width.
- All concrete shall be Class "C".
- ELECTRICAL LIGHTING SYSTEM: for additional details refer to drawings "Details-Bridge Lighting and "General Lighting Notes" Sheets No. 199, 201, 203 and 205
- Luminaire support angles and 5/8"ϕ U-bolts with locknuts to be included with Structural Steel for payment.

℄ Salt Springs Road

Bolted Field Splices

3 Spaces @ 15'-4" = 46'-0" | 4 Spaces @ 15'-6" = 62'-0" | 3 Spaces @ 15'-4" = 46'-0"

Intermediate Cross-frames Spacing

Intermediate Cross-frames Ls 3×3×5/16 (Typical)

Typical - Span 1

36WF135

36WF160

End Crossframes L 4×4×5/16 (Typical)

Ahead Stations

4 Spaces @ 8'-1" = 32'-4"

4 Spaces @ 8'-1½" = 33'-6"

4 Spaces @ 9'-3" = 37'-0"

4 Spaces @ 8'-1½" = 33'-6"

4 Spaces @ 9'-3" = 37'-0"

12'-0"

1'-0"

23'

L3×3×5/16

12'-0"

14'-9⅝"

13'-3⅝"

9'-9⅜"

℄ Brg. Abut. "B" ★ 5-E100 Bearings

℄ Brg. Pier #2 ★ 5-E 200 Bearings

~90°

℄ Brg. Pier #1 ★ 5-F 200 Bearings

℄ Brg. Abut. "A" 5-E100 Bearings

★ See note this sheet for placing of shoes.

Sta. 3+56.84 Salt Springs Rd.

Ramp "J" Working Line

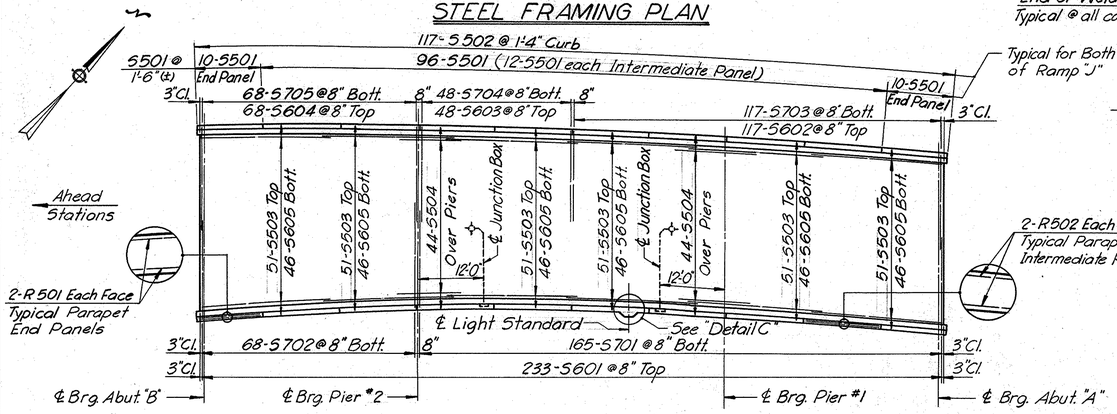
45'-0" SPAN 3 | 32'-0" | 32'-0" | 64'-0" SPAN 2 | 45'-0" SPAN 1

## STEEL FRAMING PLAN

## TABLE OF ANGLES

| | | | | | |
|---|---|---|---|---|---|
| (A) | 85°33'09" | (E) | 88°05'54" | (J) | 88°08'00" |
| (B) | 88°39'27" | (F) | 87°54'43" | (K) | 88°58'54" |
| (C) | 88°28'16" | (G) | 86°26'22" | (L) | 89°49'49" |
| (D) | 88°17'05" | (H) | 87°17'09" | | |

For BOLTED FIELD SPLICE DETAILS see Std. Dwg. SD-2-64




## DECK REINFORCING PLAN

End of Weld Typical @ all corners of Pls

Bottom moment Pl. (2) 1" thick

Top moment Pl. 5/8" thick - Pier 1, 3/4" thick - Pier 2

1" Min.

1" (Typ.)

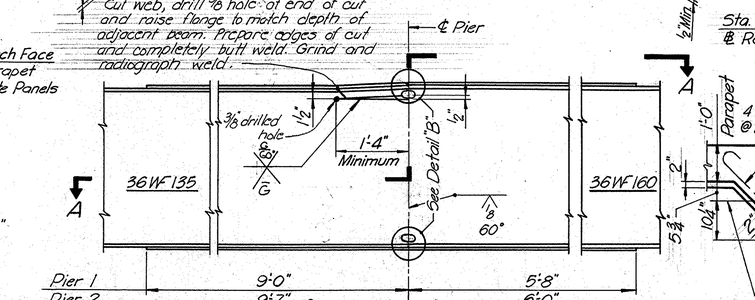
5/16

5/16 × 5/8

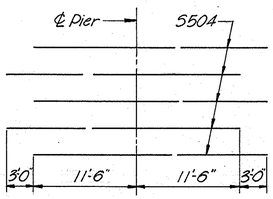
½" Min.

## SECTION A-A

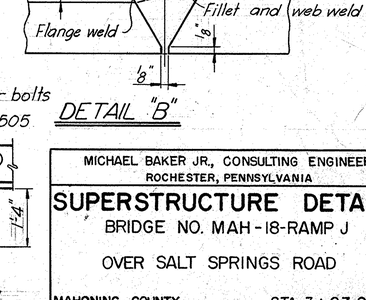
Cut web, drill 3/8 hole at end of cut and raise flange to match depth of adjacent beam. Prepare edges of cut and completely butt weld. Grind and radiograph weld.



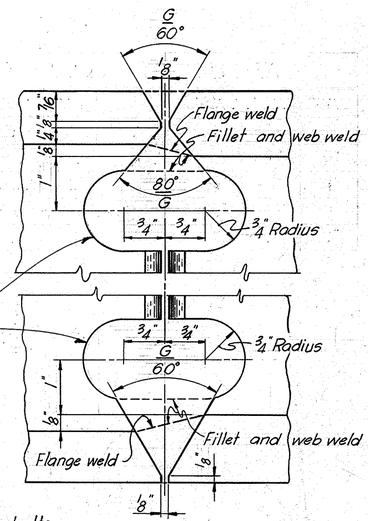

## BEAM SPLICE DETAIL




## DIAGRAM SHOWING STAGGER OF 5504 BARS OVER PIERS




## DETAIL "C"




## DETAIL "B"

## NOTE:

G indicates grind flush.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18-RAMP J

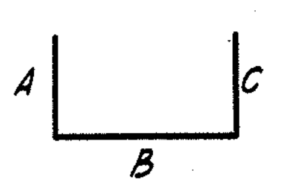
OVER SALT SPRINGS ROAD

MAHONING COUNTY — STA. 3+07.07

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| E.F.R. | E.R.J. | E.R.J. | R.A.L. | 8-26-63 | 8-19-65 |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

MAHONING COUNTY
MAH - 18 - 15.50



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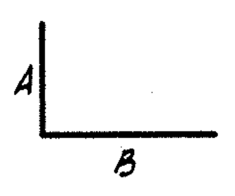

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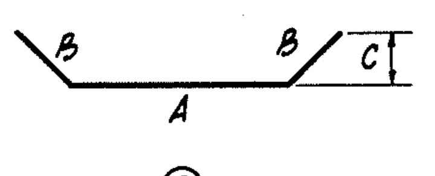

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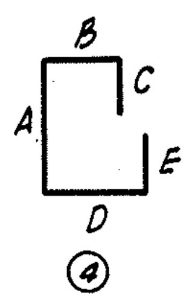

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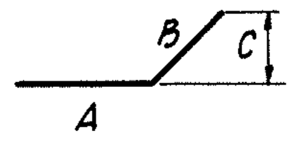

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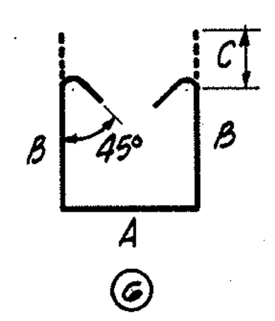

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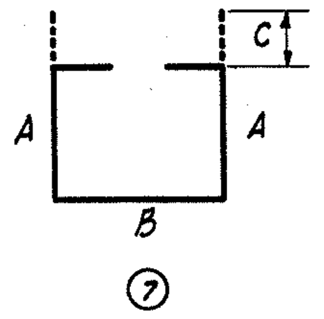

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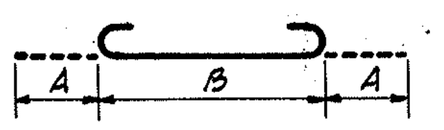

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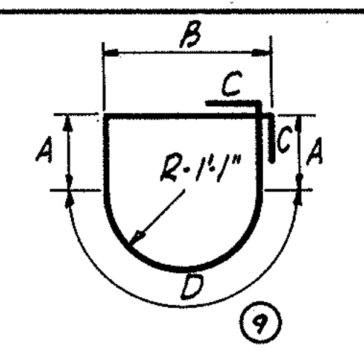

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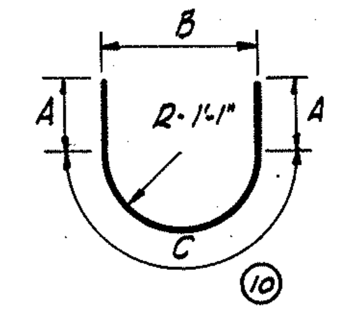

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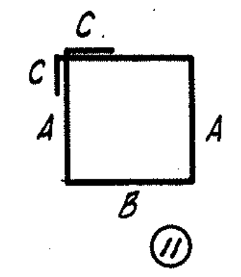

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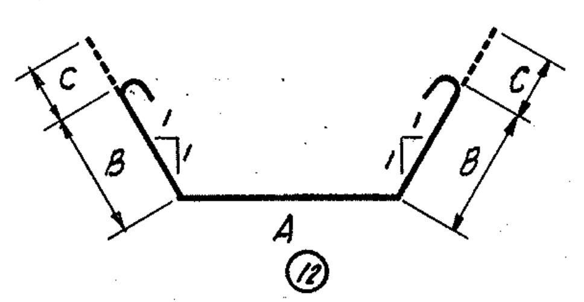


⑫

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | ABUTMENT "A" | | | | | | |
| A801 | 14 | 21'-0" | Str. | | | | | | 785 |
| A802 | 6 | 12'-6" | Str. | | | | | | 200 |
| A803 | 6 | 11'-9" | Str. | | | | | | 188 |
| A601 | 11 | 14'-8" | 1 | 5'-5" | 2'-7" | 7'-0" | | | 242 |
| A602 | 11 | 15'-9" | 1 | 5'-5" | 2'-7" | 8'-1" | | | 260 |
| A603 | 2 | 16'-11" | 1 | 5'-5" | 2'-7" | 9'-3" | | | 51 |
| A604 | 36 | 16'-1" | 4 | 6'-4" | 11" | 3'-0" | 1'-5" | 5'-1" | 870 |
| A501 | 24 | 8'-4" | 1 | 5'-5" | 1'-7" | 1'-7" | | | 209 |
| A502 | 24 | 7'-6" to 9'-3" | 2 | 8'-11" | 6" | 6-Each vary "A" by 9" | | | 210 |
| A503 | 42 | 7'-6" | 1 | 7'-2" | 2'-2" | 2'-2" | | | 329 |
| A504 | 20 | 19'-6" | Str. | | | | | | 407 |
| A505 | 20 | 10'-6" | Str. | | | | | | 219 |
| A506 | 5 | 3'-1" | Str. | | | | | | 16 |
| A507 | 7 | 9'-0" | 3 | 6'-0" | 1'-7" | 1'-7" | 1'-2" | | 66 |
| A508 | 32 | 7'-1" | 1 | 3'-2" | 2'-1" | 2'-1" | | | 236 |
| A509 | 16 | 10'-1" | 1 | 1'-2" | 4'-7" | 4'-7" | | | 168 |
| A510 | 16 | 9'-1" | Str. | | | | | | 152 |
| A511 | 8 | 7'-11" | 1 | 1'-2" | 3'-6" | 3'-6" | | | 66 |
| A512 | 2 | 7'-4" | Str. | | | | | | 15 |
| A513 | 4 | 4'-7" | Str. | | | | | | 19 |
| A514 | 6 | 9'-6" | Str. | | | | | | 59 |
| A515 | 6 | 3'-10" | Str. | | | | | | 24 |
| A516 | 2 | 12'-1" | 5 | 7'-6" | 4'-5" | 1'-10" | | | 25 |
| A517 | 8 | 12'-8" | Str. | | | | | | 106 |
| A518 | 20 | 6'-11" | 6 | 8" | 2'-10" | 5" | | | 144 |
| A519 | 16 | 11'-5" | Str. | | | | | | 191 |
| A520 | 2 | 9'-7" | Str. | | | | | | 20 |
| A521 | 8 | 9'-0" | Str. | | | | | | 75 |
| A522 | 6 | 3'-7" | Str. | | | | | | 22 |
| A523 | 2 | 11'-4" | 5 | 7'-0" | 4'-5" | 1'-10" | | | 24 |
| A524 | 10 | 12'-7" | Str. | | | | | | 131 |
| A525 | 10 | 6'-3" | 7 | 1'-4" | 1'-10" | 1'-10" | | | 65 |
| A526 | 4 | 5'-2" to 5'-8" | 7 | 1'-4" | 1'-1" to 1'-7" | 10" | 1 Ea. vary "B" by 2" | | 23 |
| A527 | 5 | 6'-2" | 7 | 1'-4" | 1'-9" | 1'-0" | | | 32 |
| A528 | 6 | 9'-6" | 3 | 6'-6" | 1'-7" | 1'-7" | 1'-1" | | 59 |
| R503 | 4 | 12'-9" | Str. | | | | | | — |
| R504 | 4 | 12'-8" | Str. | | | | | | — |
| | | | | | | | | TOTAL | 5,708 |

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | ABUTMENT "B" | | | | | | |
| B801 | 14 | 22'-6" | Str. | | | | | | 841 |
| B802 | 6 | 12'-4" | Str. | | | | | | 198 |
| B803 | 6 | 12'-11" | Str. | | | | | | 207 |
| B601 | 10 | 14'-10" | 1 | 5'-5" | 2'-7" | 7'-2" | | | 223 |
| B602 | 5 | 15'-7" | 1 | 5'-5" | 2'-7" | 7'-11" | | | 117 |
| B603 | 10 | 16'-4" | 1 | 5'-5" | 2'-7" | 8'-8" | | | 245 |
| B604 | 5 | 17'-1" | 1 | 5'-5" | 2'-7" | 9'-5" | | | 128 |
| B605 | 40 | 16'-5" | 4 | 6'-6" | 11" | 3'-0" | 1'-5" | 5'-3" | 986 |
| B501 | 30 | 8'-4" | 1 | 5'-5" | 1'-7" | 1'-7" | | | 261 |
| B502 | 10 | 7'-8" | 2 | 7'-4" | 6" | | | | 80 |
| B503 | 5 | 8'-4" | 2 | 8'-0" | 6" | | | | 43 |
| B504 | 10 | 9'-3" | 2 | 8'-11" | 6" | | | | 96 |
| B505 | 5 | 10'-0" | 2 | 9'-8" | 6" | | | | 52 |
| B506 | 16 | 6'-4" | 1 | 3'-5" | 1'-7" | 1'-7" | | | 106 |
| B507 | 20 | 10'-9" | Str. | | | | | | 224 |
| B508 | 5 | 3'-0" | Str. | | | | | | 16 |
| B509 | 24 | 21'-1" | Str. | | | | | | 528 |
| B510 | 30 | 7'-10" | 1 | 3'-5" | 2'-4" | 2'-4" | | | 245 |
| B511 | 34 | 7'-1" | 1 | 3'-2" | 2'-1" | 2'-1" | | | 251 |
| B512 | 17 | 10'-1" | 1 | 1'-2" | 4'-7" | 4'-7" | | | 179 |
| B513 | 16 | 12'-4" | Str. | | | | | | 206 |
| B514 | 2 | 9'-9" | 1 | 1'-2" | 4'-5" | 4'-5" | | | 20 |
| B515 | 6 | 7'-11" | 1 | 1'-2" | 3'-6" | 3'-6" | | | 50 |
| B516 | 10 | 9'-4" | Str. | | | | | | 97 |
| B517 | 12 | 3'-7" | Str. | | | | | | 45 |
| B518 | 2 | 10'-6" | Str. | | | | | | 22 |
| B519 | 4 | 4'-8" | Str. | | | | | | 19 |
| B520 | 4 | 12'-10" | Str. | | | | | | 54 |
| B521 | 2 | 11'-2" | 5 | 7'-1" | 4'-1" | 1'-10" | | | 23 |
| B522 | 21 | 6'-11" | 6 | 8" | 2'-10" | 5" | | | 151 |
| B523 | 5 | 13'-0" | Str. | | | | | | 68 |
| B524 | 8 | 6'-2" | 7 | 1'-4" | 1'-9" | 1'-0" | | | 51 |
| B525 | 6 | 5'-1" to 5'-9" | 7 | 1'-4" | 1'-0" to 1'-8" | 10" | 1-Ea. vary "B" by 1½" (+) | | 34 |
| B526 | 18 | 9'-4" | Str. | | | | | | 175 |
| B527 | 2 | 7'-6" | Str. | | | | | | 16 |
| B528 | 6 | 9'-11" | Str. | | | | | | 62 |
| B529 | 4 | 13'-8" | Str. | | | | | | 57 |
| B530 | 2 | 12'-1" | 5 | 8'-2" | 3'-11" | 1'-9" | | | 25 |
| B531 | 6 | 9'-8" | 3 | 6'-6" | 1'-7" | 1'-1" | | | 61 |
| B532 | 5 | 13'-6" | Str. | | | | | | 70 |
| B533 | 7 | 5'-1" to 5'-9" | 7 | 1'-4" | 1'-0" to 1'-8" | 10" | 1-Ea. vary "B" by 1½" (-) | | 40 |
| B534 | 8 | 9'-4" | 3 | 6'-2" | 1'-7" | 1'-2" | | | 78 |
| R506 | 4 | 13'-4" | Str. | | | | | | — |
| R507 | 4 | 12'-10" | Str. | | | | | | — |
| | | | | | | | | TOTAL | 6,450 |

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | | PIERS | | | | | |
| P1001 | 8 | 14'-0" | Str. | | | | | | 482 |
| P1002 | 16 | 22'-9" | 2 | 3'-0" | 20'-1" | | | | 1566 |
| P901 | 72 | 6'-6" | 2 | 1'-3" | 5'-6" | | | | 1591 |
| P902 | 36 | 14'-8" | Str. | | | | | | 1795 |
| P903 | 36 | 14'-11" | Str. | | | | | | 1826 |
| P801 | 32 | 19'-9" | Str. | | | | | | 1687 |
| P601 | 120 | 10'-0" | 8 | 8" | 8'-8" | | | | 1802 |
| P501 | 8 | 16'-6" | Str. | | | | | | 138 |
| P502 | 20 | 7'-2" | 10 | 1'-6" | 2'-8" | 4'-2" | | | 150 |
| P503 | 4 | 9'-0" | 1 | 1'-7" | 3'-10" | 1'-7" | | | 38 |
| P504 | 4 | 9'-7" | 1 | 2'-2" | 3'-10" | 2'-2" | | | 40 |
| P505 | 2 | 9'-9" | 1 | 2'-4" | 3'-10" | 2'-4" | | | 20 |
| P506 | 6 | 9'-6" | 1 | 2'-1" | 3'-10" | 2'-1" | | | 60 |
| P507 | 2 | 9'-4" | 1 | 1'-11" | 3'-10" | 1'-11" | | | 20 |
| P508 | 2 | 8'-8" | 1 | 1'-3" | 3'-10" | 1'-3" | | | 18 |
| P509 | 10 | 8'-10" | 9 | 1'-4" | 2'-2" | 6" | 3'-5" | | 92 |
| P510 | 16 | 10'-0" | 11 | 2'-8" | 2'-2" | 6" | | | 167 |
| P511 | 12 | 8'-8" | 1 | 2'-1" | 3'-5" | 2'-1" | | | 109 |
| P512 | 12 | 7'-4" | 1 | 2'-1" | 2'-9" | 2'-1" | | | 92 |
| P513 | 12 | 6'-0" | 1 | 2'-1" | 2'-1" | 2'-1" | | | 75 |
| P514 | 10 | 9'-2" | 1 | 2'-7" | 3'-5" | 2'-7" | | | 96 |
| P515 | 10 | 7'-10" | 1 | 2'-7" | 2'-9" | 2'-7" | | | 82 |
| P516 | 10 | 6'-6" | 1 | 2'-7" | 2'-1" | 2'-7" | | | 68 |
| P517 | 8 | 3'-7" | 1 | 9" | 2'-4" | 9" | | | 30 |
| P518 | 2 | 3'-0" | 1 | 9" | 1'-9" | 9" | | | 6 |
| P519 | 80 | 6'-11" | 1 | 2'-8" | 2'-3" | 2'-8" | | | 577 |

-SPIRAL BARS-

| MARK | TOTAL | LENGTH | PITCH | № TURNS | CORE DIA. | WEIGHT |
|---|---|---|---|---|---|---|
| SP401 | 3 | 11'-9" | 4½" | 34 | 2'-8" | 658 |
| SP402 | 3 | 12'-0" | 4½" | 35 | 2'-8" | 676 |
| | | | | | TOTAL | 13,961 |

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | SUPERSTRUCTURE | | | | | | |
| S701 | 165 | 20'-3" | Str. | | | | | | 6,830 |
| S702 | 68 | 20'-9" to 21'-9" | Str. | 17-Each vary by 4" | | | | | 2,954 |
| S703 | 117 | 20'-0" | Str. | | | | | | 4,783 |
| S704 | 48 | 20'-0" to 20'-9" | Str. | 12-Each vary by 3" | | | | | 1,999 |
| S705 | 68 | 20'-2" to 21'-6" | Str. | 4-Each vary by 1" | | | | | 2,896 |
| S601 | 233 | 24'-0" | Str. | | | | | | 8,399 |
| S602 | 117 | 15'-9" | Str. | | | | | | 2,768 |
| S603 | 48 | 15'-9" to 16'-6" | Str. | 12-Each vary by 3" | | | | | 1,163 |
| S604 | 68 | 16'-6" to 19'-2" | Str. | 4-Each vary by 2" | | | | | 1,822 |
| S605 | 276 | 27'-6" | Str. | | | | | | 11,400 |
| S501 | 232 | 5'-3" | 6 | 8" | 2'-1" | 5" | | | 1,270 |
| S502 | 234 | 6'-2" | 7 | 1'-4" | 1'-10" | 1'-0" | | | 1,505 |
| S503 | 306 | 27'-3" | Str. | | | | | | 8,697 |
| S504 | 88 | 26'-0" | Str. | | | | | | 2,386 |
| S505 | 2 | 7'-1" | 1 | 2'-10" | 2'-3" | 2'-3" | | | 15 |
| S506 | 4 | 7'-7" | 12 | 1'-4" | 2'-7" | 7" | | | 31 |
| R501 | 16 | 12'-9" | Str. | | | | | | — |
| R502 | 64 | 15'-10" | Str. | | | | | | — |
| | | | | | | | | TOTAL | 58,918 |

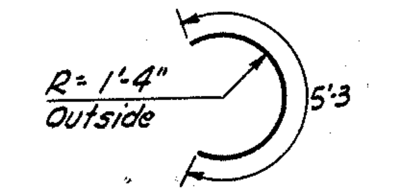
## ESTIMATED QUANTITIES

| Item | Total | Unit | Description | Superstr. | Abuts. | Piers | General |
|---|---|---|---|---|---|---|---|
| E-2 | 432 | Cu. Yds. | Unclassified Excavation | | 279 | 153 | |
| S-1 | 190 | Cu. Yds. | Class "C" Concrete, Superstructure | 190 | | | |
| S-1 | 48 | Cu. Yds. | Class "C" Concrete, Pier Caps & Columns | | | 48 | |
| S-1 | 110 | Cu. Yds. | Class "E" Concrete, Abutments above Footings | | 110 | | |
| S-1 | 125 | Cu. Yds. | Class "E" Concrete, Footings | | 71 | 54 | |
| S-4 | 85,037 | Pounds | Reinforcing Steel | 58,918 | 12,158 | 13,961 | |
| S-7 | 146,550 | Pounds | Structural Steel | 146,550 | | | |
| S-8 | 146,550 | Pounds | Field Painting of Structural Steel | 146,550 | | | |
| S-14 | 365 | Lin. Ft. | Railing, Type "A" (Alum. Rail & supports, Conc. Parapets.) | 312 | 53 | | |
| S-16 | Lump Sum | | First Test Pile. | | | | L.S. |
| S-18 | 1,145 | Lin. Ft. | Steel Piles 10 BP 42. | | 440 | 705 | |
| S-25 | | | Electrical Lighting System Complete * | | | | |
| S-29 | 28 | Cu. Yds. | Porous Backfill | | 28 | | |
| S-29 | 6 | Each | Scuppers, including support | 6 | | | |
| I-10 | 249 | Sq. Yds. | Concrete Slope Protection | | | | 249 |
| S-101 | 190 | Each | Water-reducing, set-retarding admixture | 190 | | | |

* See General Summary-Lighting Sheet.

## SPIRAL NOTES

- The "Length" shown in the steel list for the spirals bars is the distance from the top of the footing to the bottom of the pier cap.
- The "Number of Turns" shown in the steel list for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.
- Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.
- 1½" closed coils shall be provided at the ends of each spiral unit.
- Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.



RE 401

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A601 is a number 6 size bar.

**REPLACEMENT BARS**

| Mark | Total | Length | Type |
|---|---|---|---|
| RE 1001 | 1 | 7'-3" | Str. |
| RE 901 | 1 | 6'-10" | Str. |
| RE 801 | 1 | 6'-6" | Str. |
| RE 701 | 1 | 6'-3" | Str. |
| RE 601 | 2 | 5'-11" | Str. |
| RE 501 | 2 | 5'-7" | Str. |
| RE 401 | 1 | 5'-3" | Bent. |

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE

BRIDGE NO. MAH-18-RAMP J

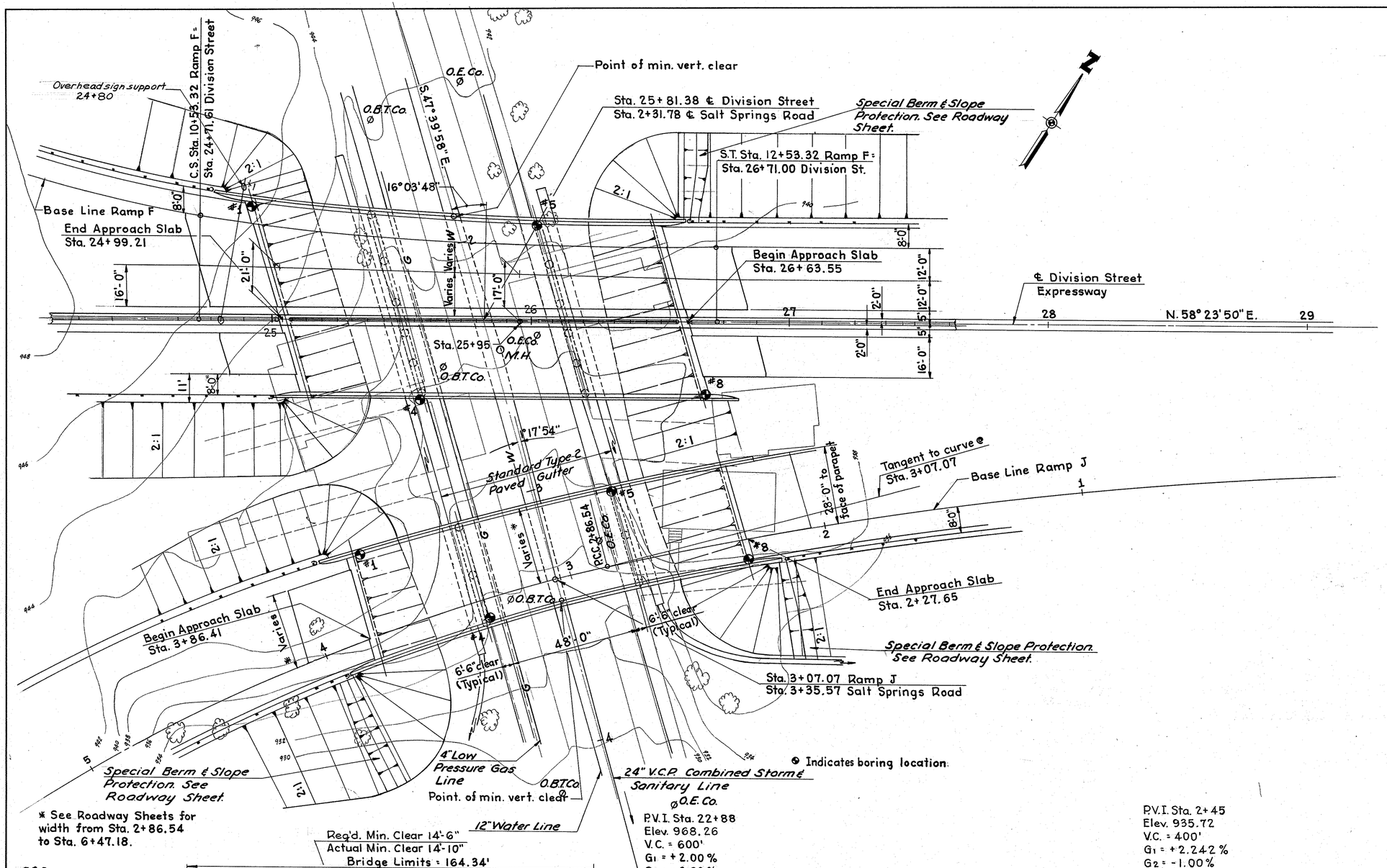
OVER SALT SPRINGS ROAD

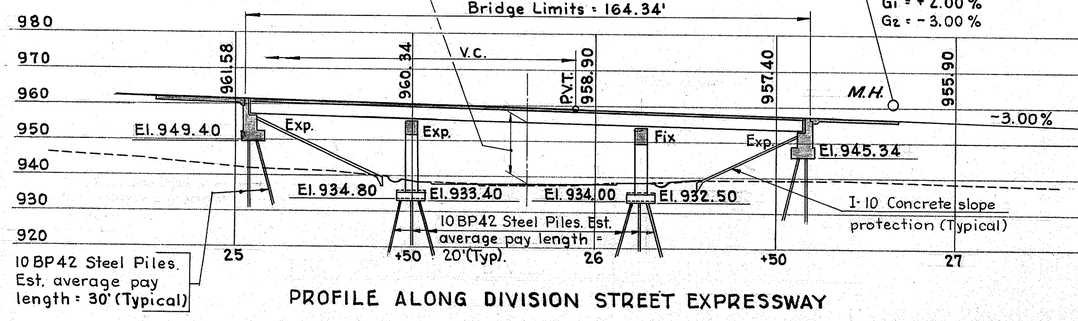
MAHONING COUNTY STA. 3+07.07

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| E.F.R. | P.T.R. | m.m. | A. A. L. | 8-26-63 | |

| FED. RD. DIVISION | STATE | PROJECT | | 246 |
|---|---|---|---|---|
| 2 | OHIO | | | |

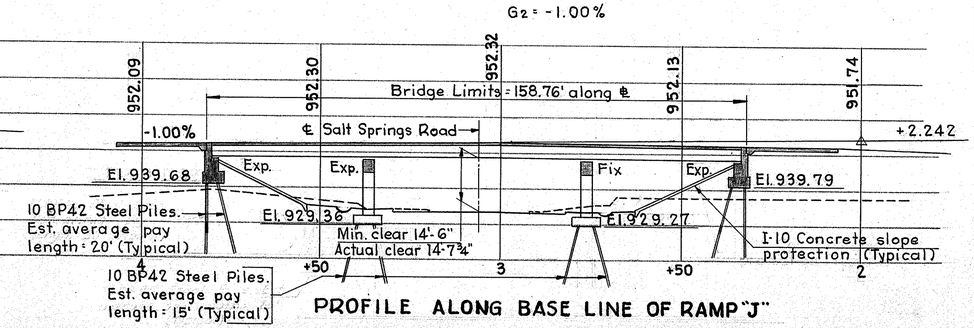
# MAH-18-15.50
# MAHONING COUNTY




P.V.I. Sta. 22+88
Elev. 968.26
V.C. = 600'
$G_1$ = +2.00 %
$G_2$ = -3.00 %

P.V.I. Sta. 2+45
Elev. 935.72
V.C. = 400'
$G_1$ = +2.242 %
$G_2$ = -1.00 %




**FOUNDATION SOUNDINGS:** Foundation design and foundation quantities are based on a study of borings and soil sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State assumes no responsibility for the accuracy thereof.

BENCH MARK #211 Elev. 944.38 North Bolt of hydrant N.E. corner Salt Springs and Argo. 130' E. on Argo from Salt Springs.

BENCH MARK #212 Elev. 928.66 Top stem of hydrant N.E. corner Division and Salt Springs. 35' E. on Division from Salt Springs

ADT (1975) = 31,400

## DIVISION STREET EXPRESSWAY OVER SALT SPRINGS ROAD

TYPE: Continuous steel beam with reinforced concrete deck and substructures.
SPANS: 46'-6", 66'-8", 46'-6"
ROADWAY: Varies; 72'-8⅛" to 63'-8⅛"
LOAD FREQUENCY: C.F. 2000 (57). Adequate for alternate A.A.S.H.O. loading.
SKEW: 16° 03' 48" R.F.
WEARING SURFACE: 1" Monolithic concrete.
APPROACH SLAB: AS-1-54 (25' long)
ALIGNMENT: Tangent and spiral.
SUPERELEVATION: Varies

## RAMP J OVER SALT SPRINGS ROAD

TYPE: Continuous steel beam with reinforced concrete deck and substructures.
SPANS: 45'-0", 64'-0", 45'-0"
ROADWAY: Varies; 33'-8" to 36'-10"
LOAD FREQUENCY: C.F. 2000 (57) Adequate for A.A.S.H.O. alternate loading.
SKEW: 1° 17' 54" R.F. to the local tangent.
WEARING SURFACE: 1" Monolithic concrete.
APPROACH SLAB: AS-1-54 (25' long)
ALIGNMENT: Curve
SUPERELEVATION: Varies.

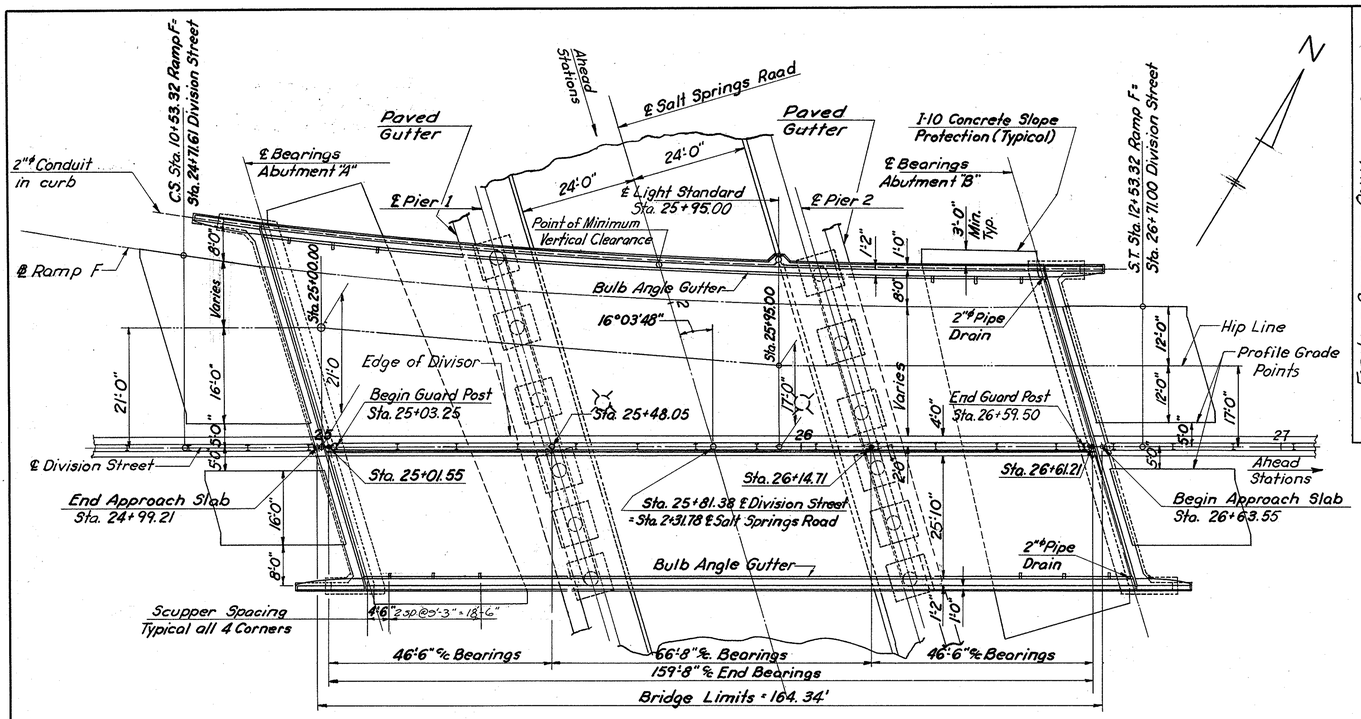
MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

## SITE PLAN

BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD

MAHONING COUNTY — STA. 25+81.38

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| E.F.R. | E.F.R. | P.T.R. | D.W.H. | F.K. | 10-14-63 | |




⁂ Indicates under bridge Luminaires.

PLAN

* ROADWAY ITEM FOR PAYMENT.

## LAYOUT OFFSETS & ELEVATIONS

FOR LEFT STRUCTURE ONLY

| Station | Gutter Line Distance | Gutter Line Elev. | Hip Elev. | P.G. Elev. | Edge of Divisor | Top Of Parapet |
|---|---|---|---|---|---|---|
| 24+71.61 | 47.44' | 960.67 | 961.94 | 962.19 | 962.23 | |
| +80 | 46.04 | 960.60 | 961.76 | 962.01 | 962.06 | 962.95 |
| +90 | 44.52 | 960.49 | 961.55 | 961.80 | 961.85 | 962.84 |
| 25+00 | 43.16 | 960.36 | 961.33 | 961.58 | 961.62 | 962.72 |
| +10 | 41.94 | 960.21 | 961.10 | 961.35 | 961.39 | 962.58 |
| +20 | 40.88 | 960.04 | 960.87 | 961.11 | 961.15 | 962.41 |
| +30 | 39.94 | 959.85 | 960.63 | 960.86 | 960.91 | 962.22 |
| +40 | 39.12 | 959.65 | 960.38 | 960.60 | 960.65 | 962.02 |
| +50 | 38.43 | 959.43 | 960.12 | 960.34 | 960.39 | 961.79 |
| +60 | 37.84 | 959.20 | 959.86 | 960.07 | 960.11 | 961.55 |
| +70 | 37.34 | 958.96 | 959.58 | 959.79 | 959.83 | 961.31 |
| +80 | 36.94 | 958.71 | 959.30 | 959.50 | 959.54 | 961.07 |
| +90 | 36.61 | 958.45 | 959.01 | 959.20 | 959.25 | 960.82 |
| 26+00 | 36.36 | 958.20 | 958.72 | 958.90 | 958.94 | 960.57 |
| +10 | 36.16 | 957.96 | 958.45 | 958.60 | 958.64 | 960.31 |
| +20 | 36.03 | 957.72 | 958.17 | 958.30 | 958.33 | 960.07 |
| +30 | 35.93 | 957.48 | 957.90 | 958.00 | 958.03 | 959.82 |
| +40 | 35.88 | 957.23 | 957.62 | 957.70 | 957.72 | 959.58 |
| +50 | 35.85 | 956.99 | 957.35 | 957.40 | 957.41 | 959.34 |
| +60 | 35.84 | 956.73 | 957.06 | 957.10 | 957.11 | 959.08 |
| +70 | 35.83 | 956.50 | 956.80 | 956.80 | 956.80 | |

MAH-18-15.50
MAHONING COUNTY

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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## GENERAL NOTES

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

REFERENCE shall be made to Standard Drawings CSB-2-56, Sheets 2 and 3 of 6, revised 2-2-59; AR-1-57 revised 4-2-62; FSB-1-62, revised 1-15-63; Supplemental Specifications 5101 dated 12-2-59, and AS-1-54 revised 7-5-62.

DESIGN LOADING – CF 2,000 (57).

CLASS C CONCRETE – Basic unit stress 1,333 p.s.i.

CLASS E CONCRETE – Basic unit stress 1,133 p.s.i.

STRUCTURAL STEEL – ASTM A36 - basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted).

REINFORCING STEEL – ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

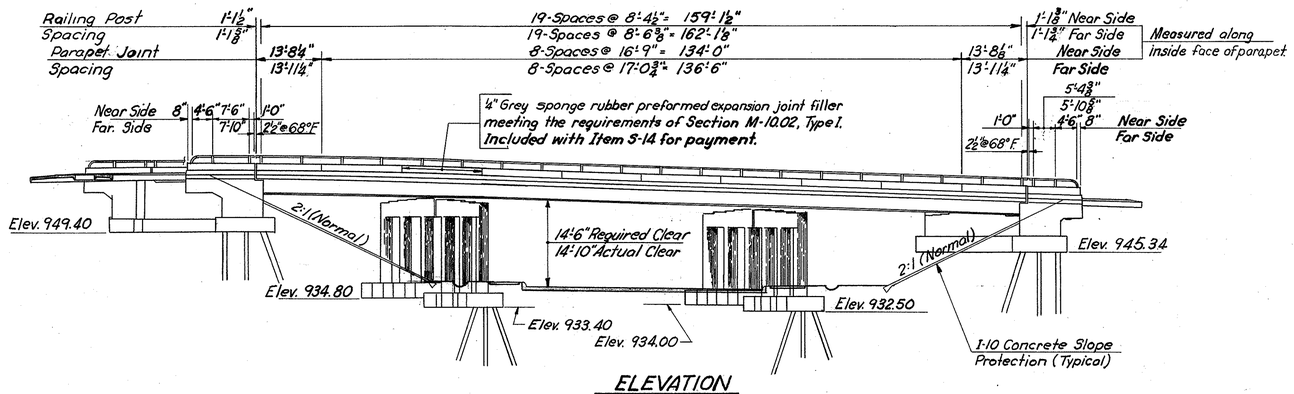
EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments.

PILES shall be driven to a minimum bearing capacity of 33 tons per pile for the abutments and 33 tons per pile for the piers.

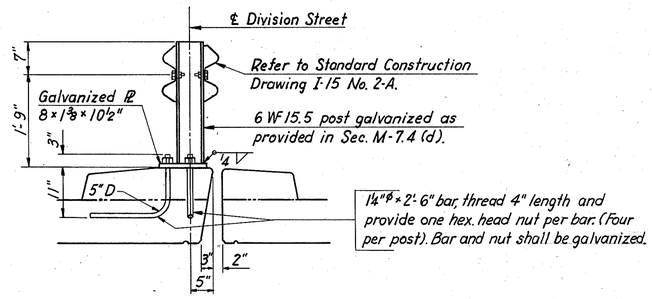
WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

MACHINE FINISH: The right portion of the bridge deck shall be finished by the use of a finishing machine. At the Contractor's option, the left portion of the bridge deck may be finished by the use of a finishing machine.

REFERENCE shall be made to Supplemental Specification 5-307 ~~revised 10-1-64~~ and Standard Drawing SD-2-64 dated 11-25-64




ELEVATION




MEDIAN BARRIER GUARD RAIL DETAILS

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# GENERAL PLAN & ELEVATION

BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD
MAHONING COUNTY STA. 25+81.38

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| EFR | RJ | RJ | DMM | F.K 10-14-63 | |

MAHONING COUNTY
MAH-18-15.50

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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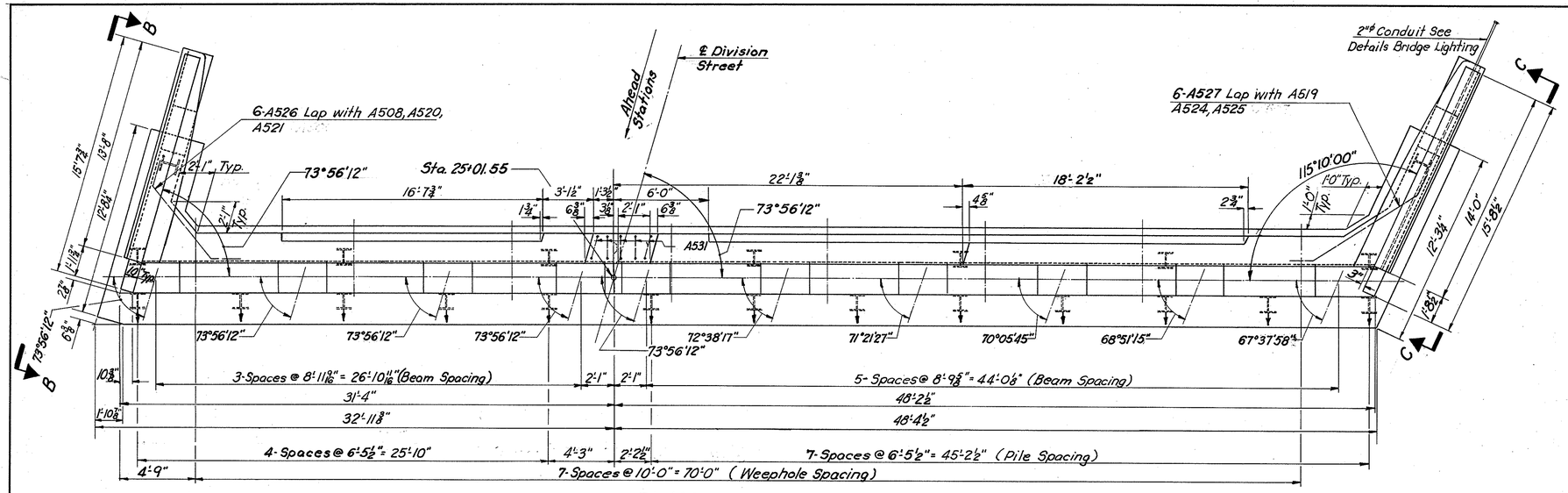
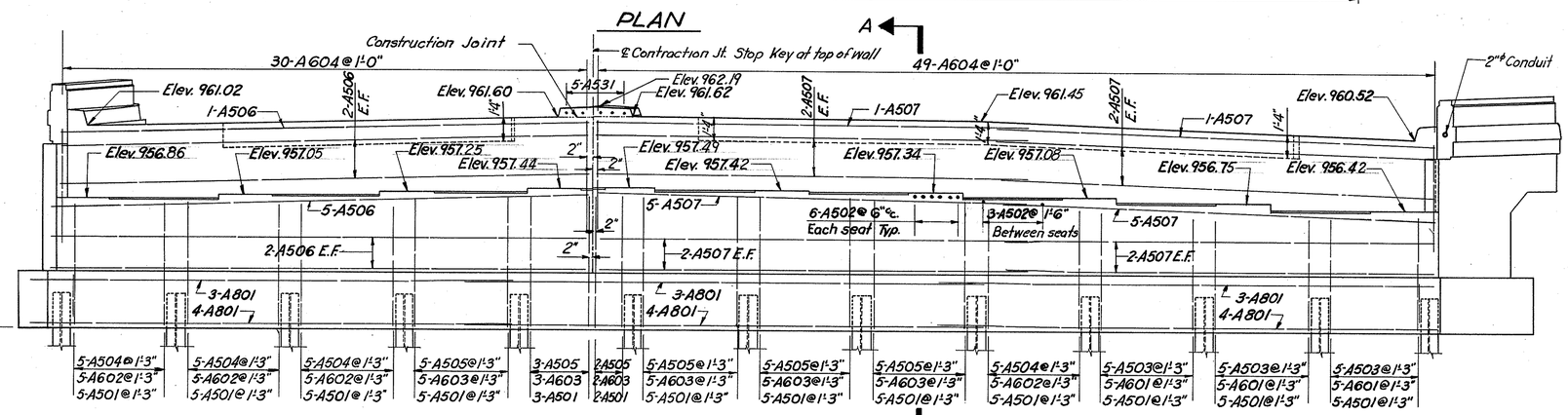
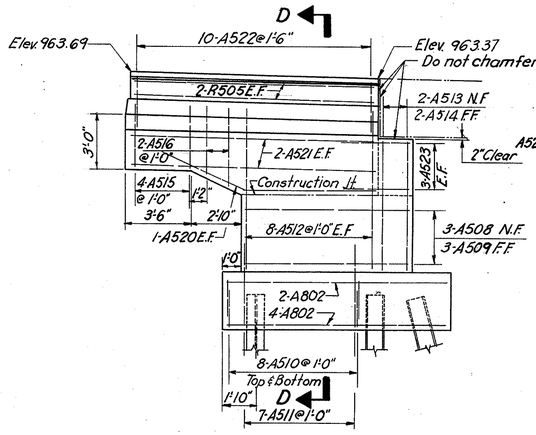
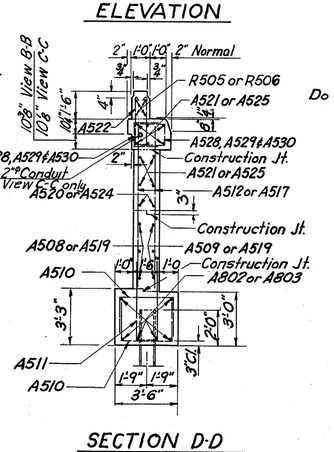


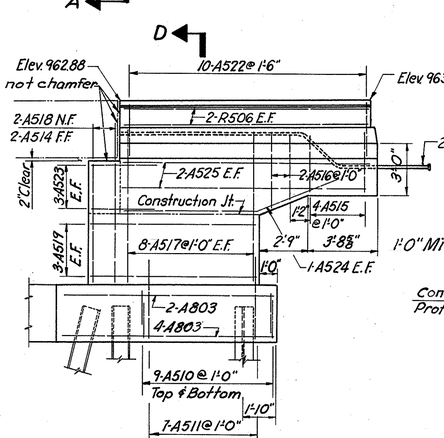

ELEVATION



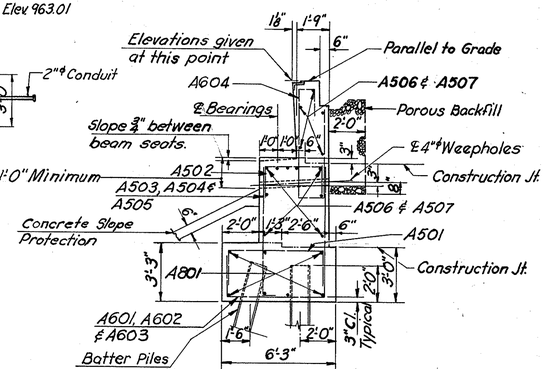

VIEW B-B




SECTION D-D




VIEW C-C




SECTION A-A

**NOTES:**

Porous backfill 2 feet thick full length of abutment shall extend up to the underside of the approach slab and outward to the wings. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

All parapet concrete shall be Class "C".

Concrete and reinforcing steel above parapet construction joint shall be included with railing S-14 for payment.

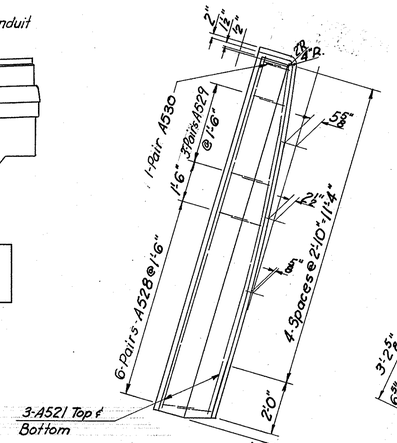
All abutment parapet railings shall be continuous through railing posts.

Refer to Standard Drawing AR-1-57 (Revised 4-2-62) for details of Type "A" railing and concrete parapet.

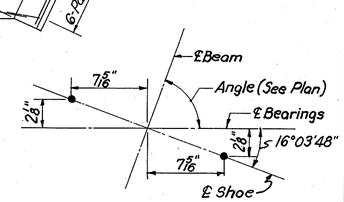
PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments after which the excavation shall be made for the abutments and piles driven.

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor holes.

All abutment concrete shall be Class "E."




CURB PLAN




ANCHOR ROD LAYOUT

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENT A

BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD

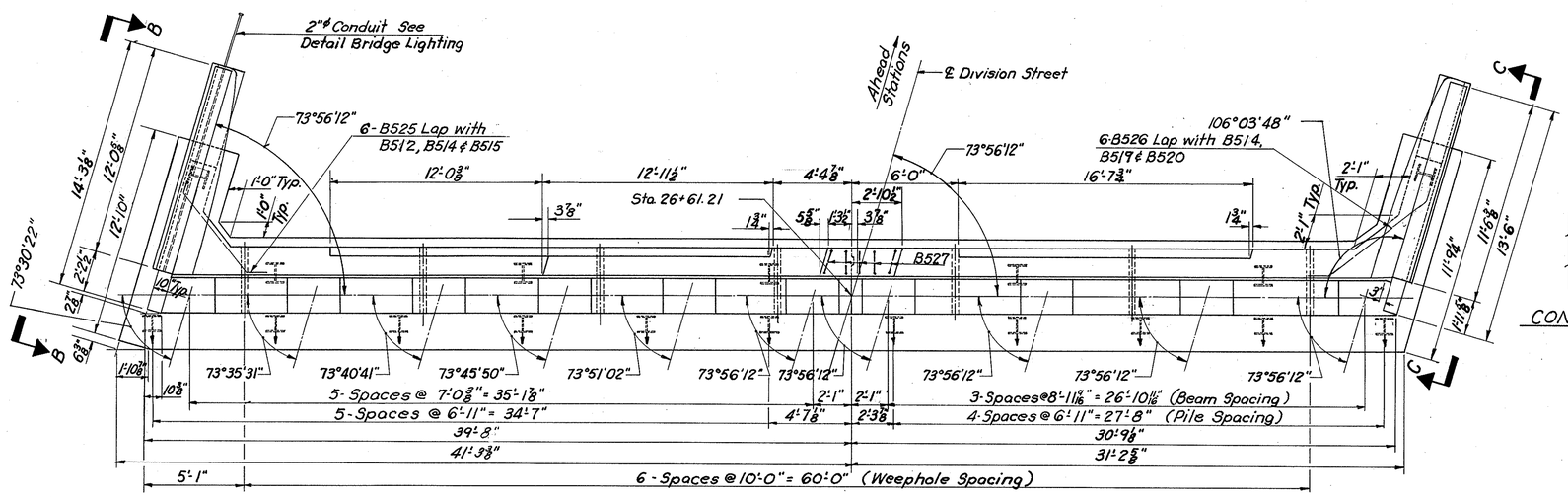
MAHONING COUNTY STA. 25+81.38

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| D.W.N. | D.W.N. | R | E.F.R. | F.K. 10-14-63 | |

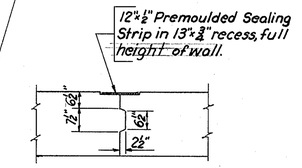
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

249

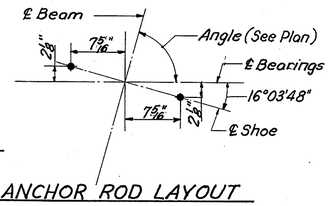
MAH-18-15.50
MAHONING COUNTY



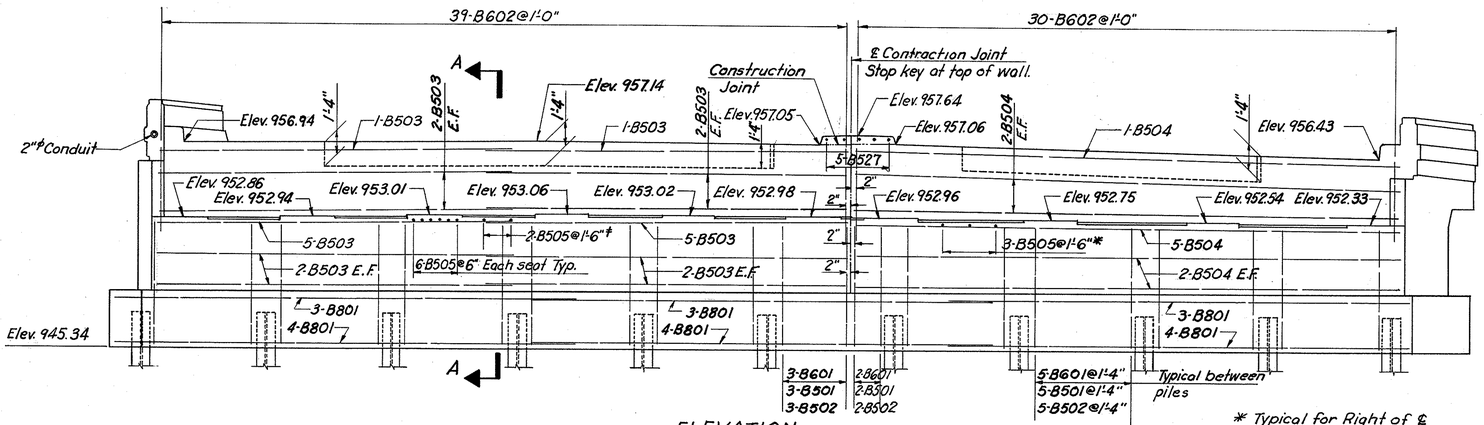

PLAN




CONTRACTION JOINT DETAIL

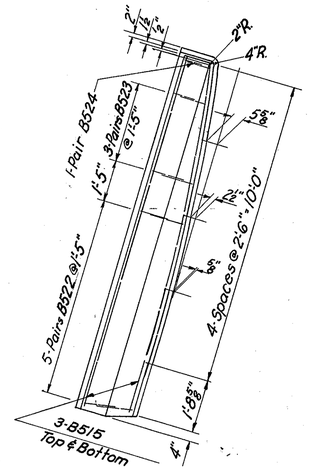



ANCHOR ROD LAYOUT

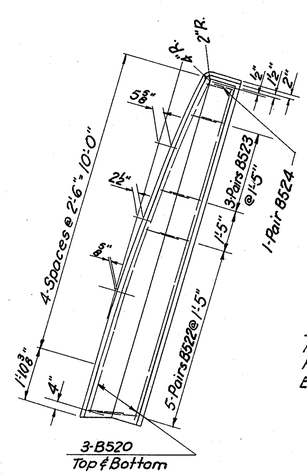



ELEVATION

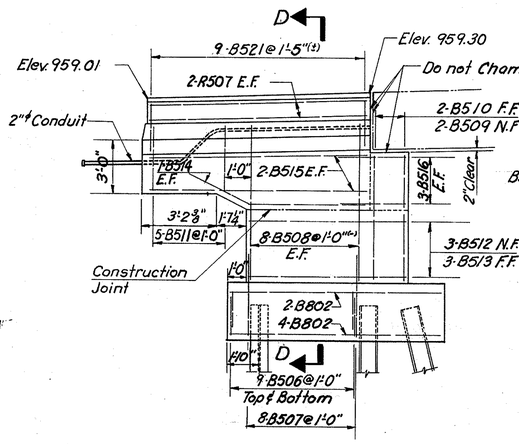
* Typical for Right of ℄
ǂ Typical for Left of ℄



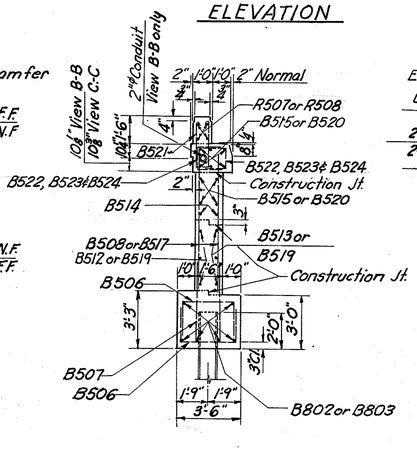

CURB PLAN



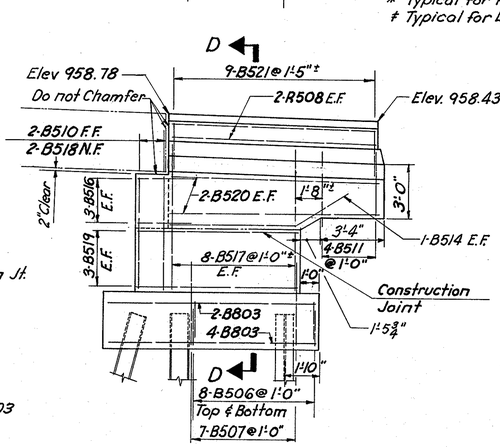

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face



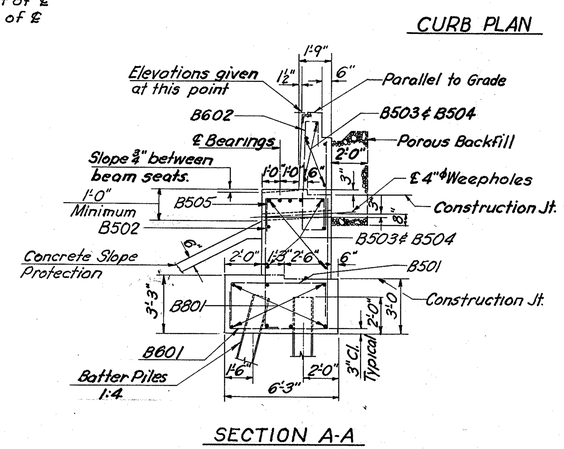

VIEW B-B




SECTION D-D




VIEW C-C




SECTION A-A

Notes:
See Abutment "A" Sheet for notes.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENT B

BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD

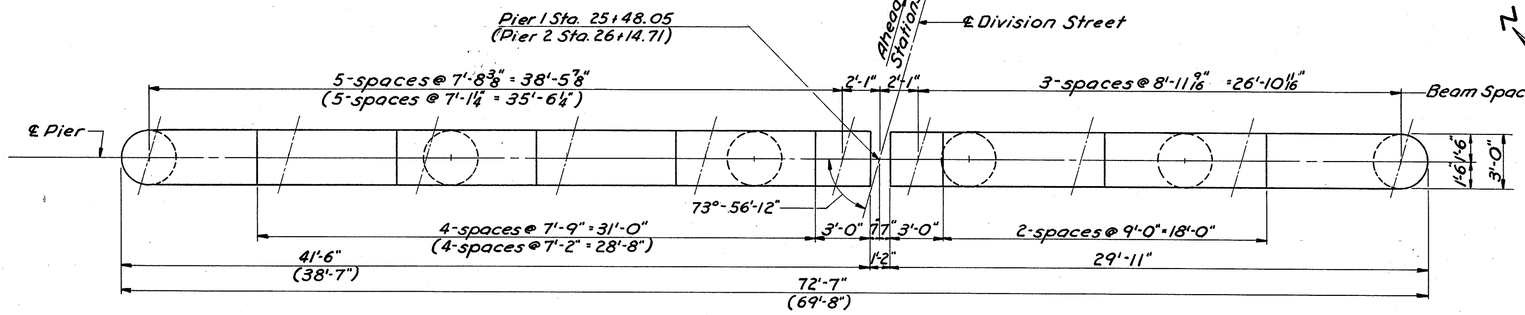
MAHONING COUNTY — STA. 25+81.38

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| EFR | RJ | RJ | DWH | F.R. 10-14-63 | |

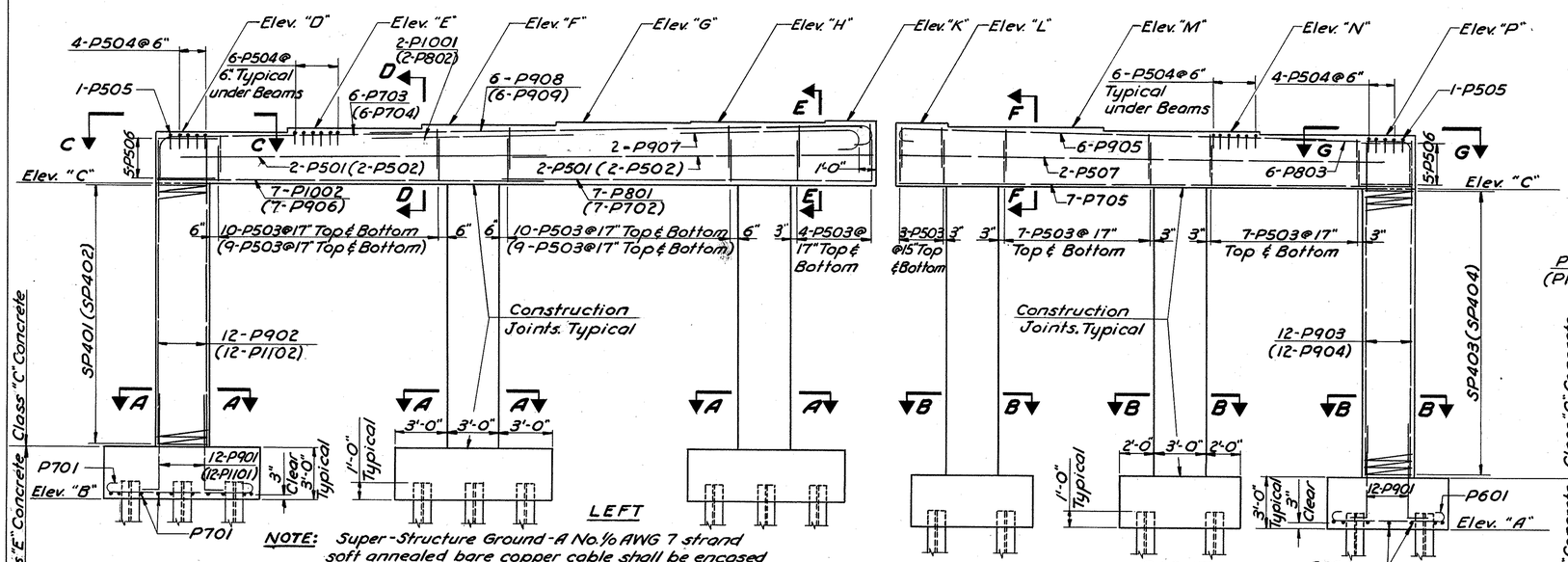
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

250

MAH-18-15.50
MAHONING COUNTY



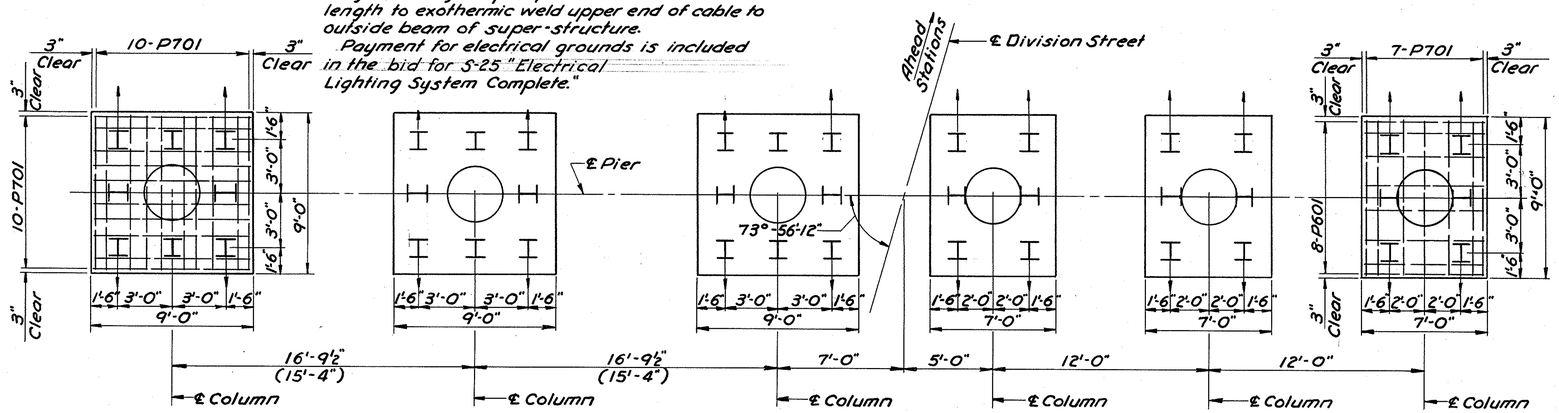

## CAP PLAN - PIER 1



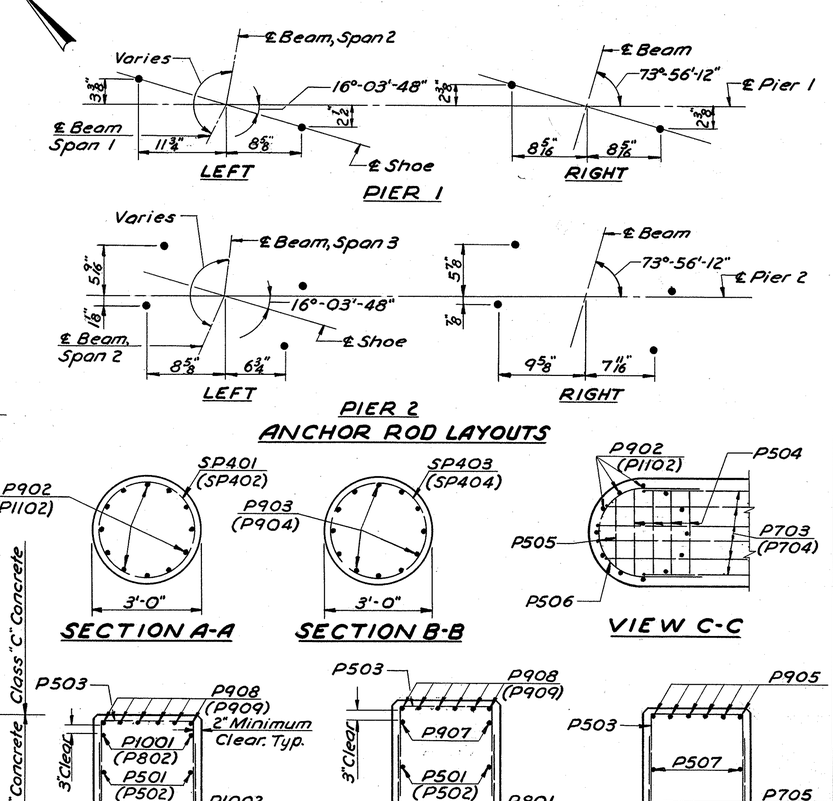

NOTE: Super-Structure Ground-A No. 1/0 AWG 7 strand soft annealed bare copper cable shall be encased in the outside column of Pier No. 2, Left. Connect (by Exothermic weld process) lower end of cable to a steel pile. Extend cable (in one continuous length) through top of pier with lead of sufficient length to exothermic weld upper end of cable to outside beam of super-structure.

Payment for electrical grounds is included in the bid for S-25 "Electrical Lighting System Complete."

## ELEVATION - PIER 1




## FOOTING PLAN - PIER 1

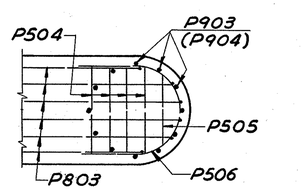



## ANCHOR ROD LAYOUTS










VIEW G-G

| TABLE OF ELEVATIONS | | |
|---|---|---|
| Elevation | Pier 1 | Pier 2 |
| A | 933.40 | 932.50 |
| B | 934.80 | 934.00 |
| C | 952.58 | 950.39 |
| D | 955.58 | 953.74 |
| E | 955.80 | 953.87 |
| F | 956.02 | 953.99 |
| G | 956.18 | 954.10 |
| H | 956.24 | 954.13 |
| K | 956.30 | 954.15 |
| L | 956.24 | 954.02 |
| M | 956.04 | 953.81 |
| N | 955.84 | 953.60 |
| P | 955.64 | 953.39 |

NOTES:
- Pier 1 details are shown. Pier 2 details similar except where noted thus ( ).
- Piles shown thus ⊦ are to be battered 1:4 in direction indicated by arrow.
- Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the drilling of anchor rod holes.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# PIERS

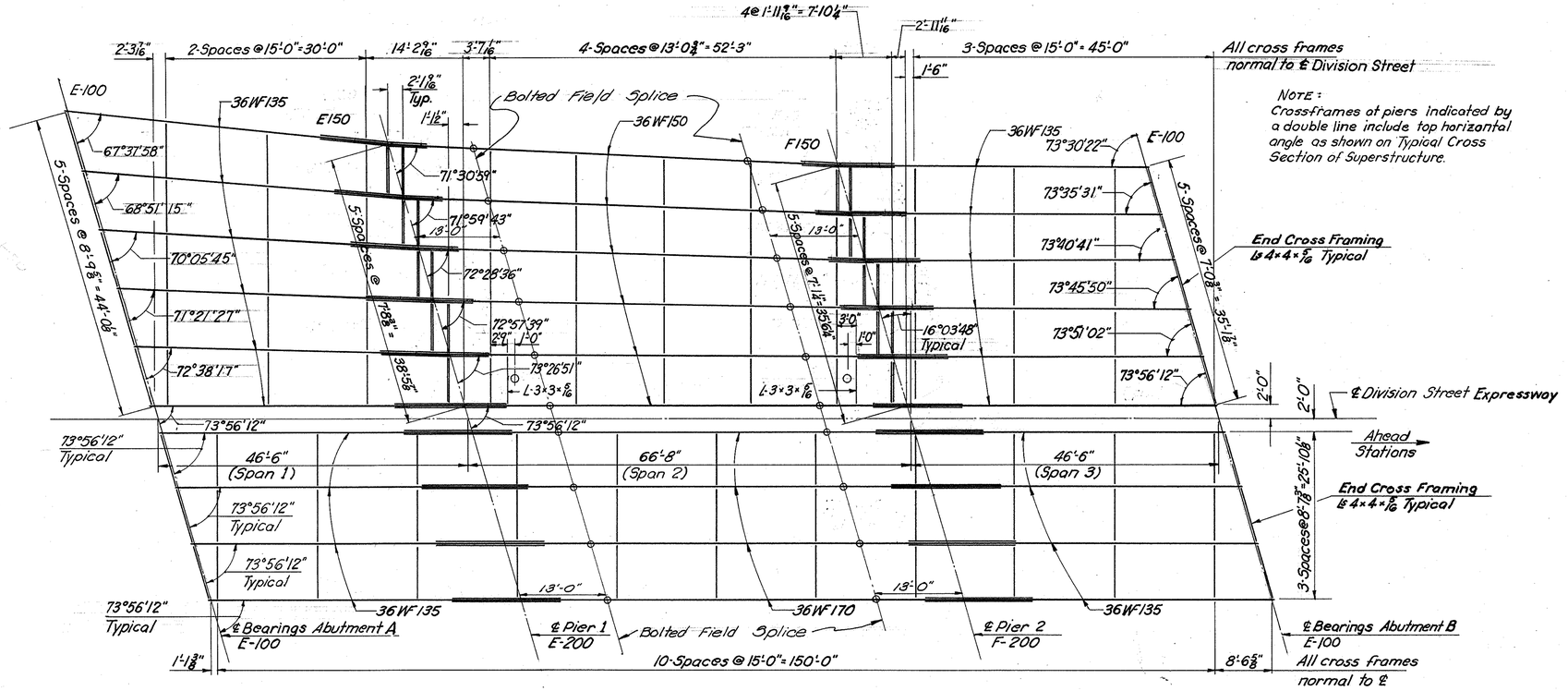
BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD
MAHONING COUNTY — STA. 25+81.38

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| [illegible] | [illegible] | P.D. | DWN. | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

251

MAH-18-15.50
MAHONING COUNTY

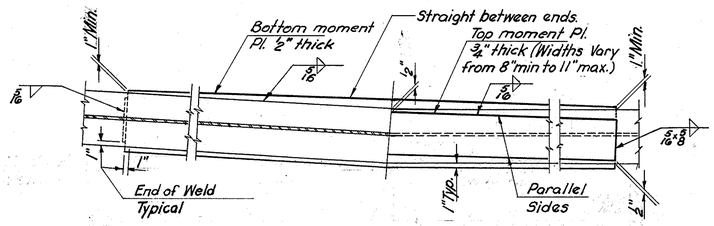



STEEL FRAMING PLAN

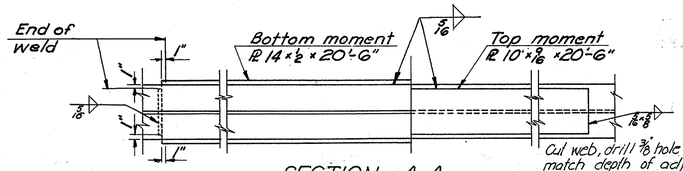
## DEFLECTION AND CAMBER

| | Location | Right Structure Span 1 | Right Structure Span 2 | Right Structure Span 3 | Left Structure Span 1 | Left Structure Span 2 | Left Structure Span 3 |
|---|---|---|---|---|---|---|---|
| Interior | Deflection due to weight of steel | 0 | 1/16" | 0 | 0 | 1/16" | 0 |
| | Deflection due to weight of remaining dead load | 1/8" | 3/8" | 1/8" | 1/8" | 5/16" | 1/8" |
| | Convexity required for vertical curve | 1/4" | 5/16" | 0 | 1/2" | 3/8" | 0 |
| | Sum of deflection and convexity | 3/8" | 3/4" | 1/8" | 5/8" | 3/4" | 1/8" |
| | Required Camber | 0 | 3/4" | 0 | 0 | 7/8" | 0 |
| Exterior | Deflection due to weight of steel | 0 | 1/16" | 0 | 0 | 1/16" | 0 |
| | Deflection due to weight of remaining dead load | 1/8" | 3/8" | 1/8" | 1/8" | 7/16" | 1/8" |
| | Convexity required for vertical curve | 1/4" | 5/16" | 0 | 7/16" | 3/8" | 0 |
| | Sum of deflection and convexity | 3/8" | 3/4" | 1/8" | 9/16" | 7/8" | 1/8" |
| | Required Camber | 0 | 3/4" | 0 | 0" | 7/8" | 0 |
| Median | Deflection due to weight of steel | 0 | 1/16" | 0 | 0 | 1/16" | 0 |
| | Deflection due to weight of remaining dead load | 1/8" | 5/16" | 1/8" | 1/8" | 1/4" | 1/16" |
| | Convexity required for vertical curve | 1/4" | 3/8" | 0 | 1/4" | 9/16" | 0 |
| | Sum of deflection and convexity | 3/8" | 3/8" | 1/8" | 3/8" | 7/8" | 1/16" |
| | Required Camber | 0 | 3/4" | 0 | 0" | 7/8" | 0 |

NOTES:
All shoes are set with their transverse axes normal to ℄ Division Street.
The width of the E-150 masonry plate for the left bridge is 2'-1 1/4". (See Pier Sheet for Anchor Rod Layout)

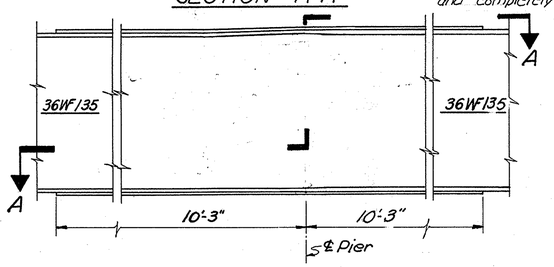



SECTION B-B

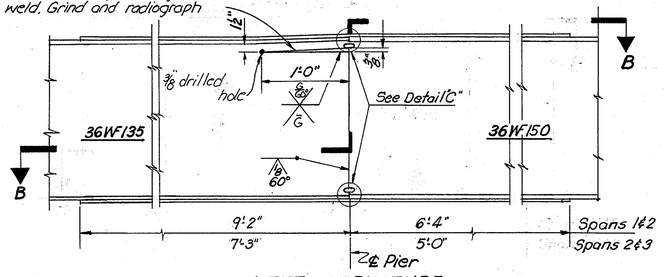



SECTION A-A

Cut web, drill 3/8" hole at end of cut and raise flange to match depth of adjacent beam. Prepare edges of cut and completely butt weld. Grind and radiograph weld.

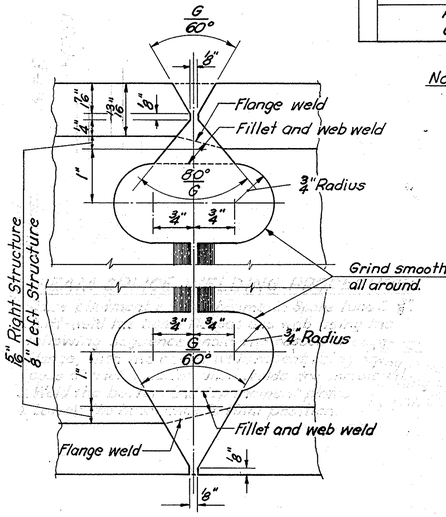



RIGHT STRUCTURE



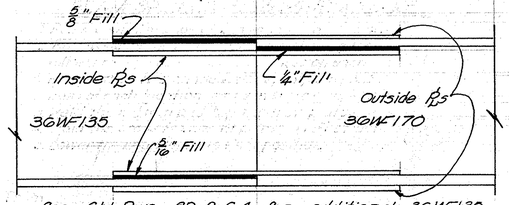

LEFT STRUCTURE

BEAM SPLICE DETAILS




DETAIL C
For Left Structure

NOTES
Where no camber is specified, beams shall be fabricated with any natural camber or bowed side up.
See Superstructure Details sheet for notes.




See Std. Dwg. SD-2-64 for additional 36WF130 splice details.

36WF135 TO 36WF170 BEAM SPLICE DETAILS
See Std. Dwg. SD-2-64 For all 36WF150 splice details

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD

MAHONING COUNTY STA. 25+81.38

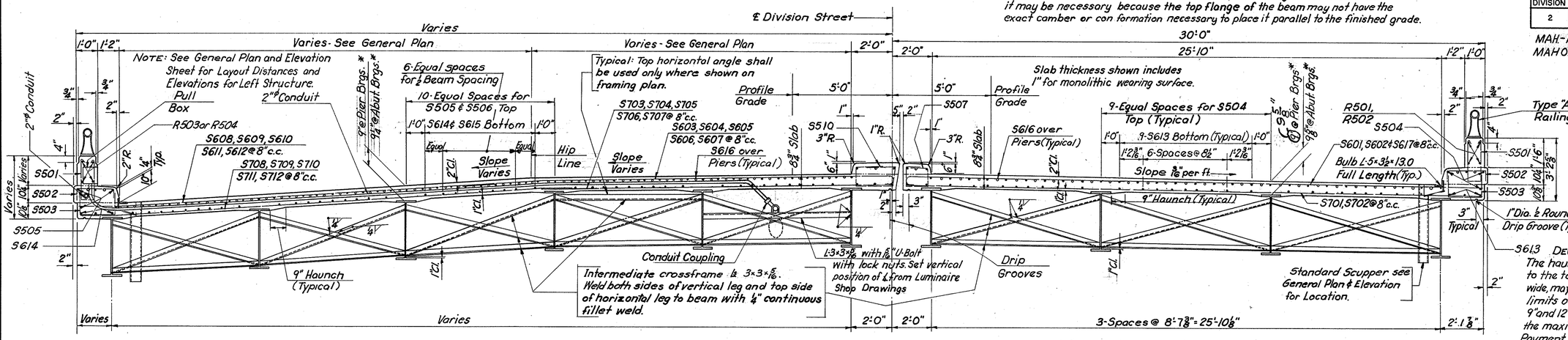
| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| EFR | RJ | RJ | DMM | F.K. 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

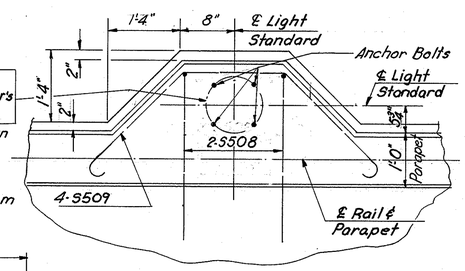
252

MAH-18-15.50
MAHONING COUNTY

* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or con formation necessary to place it parallel to the finished grade.

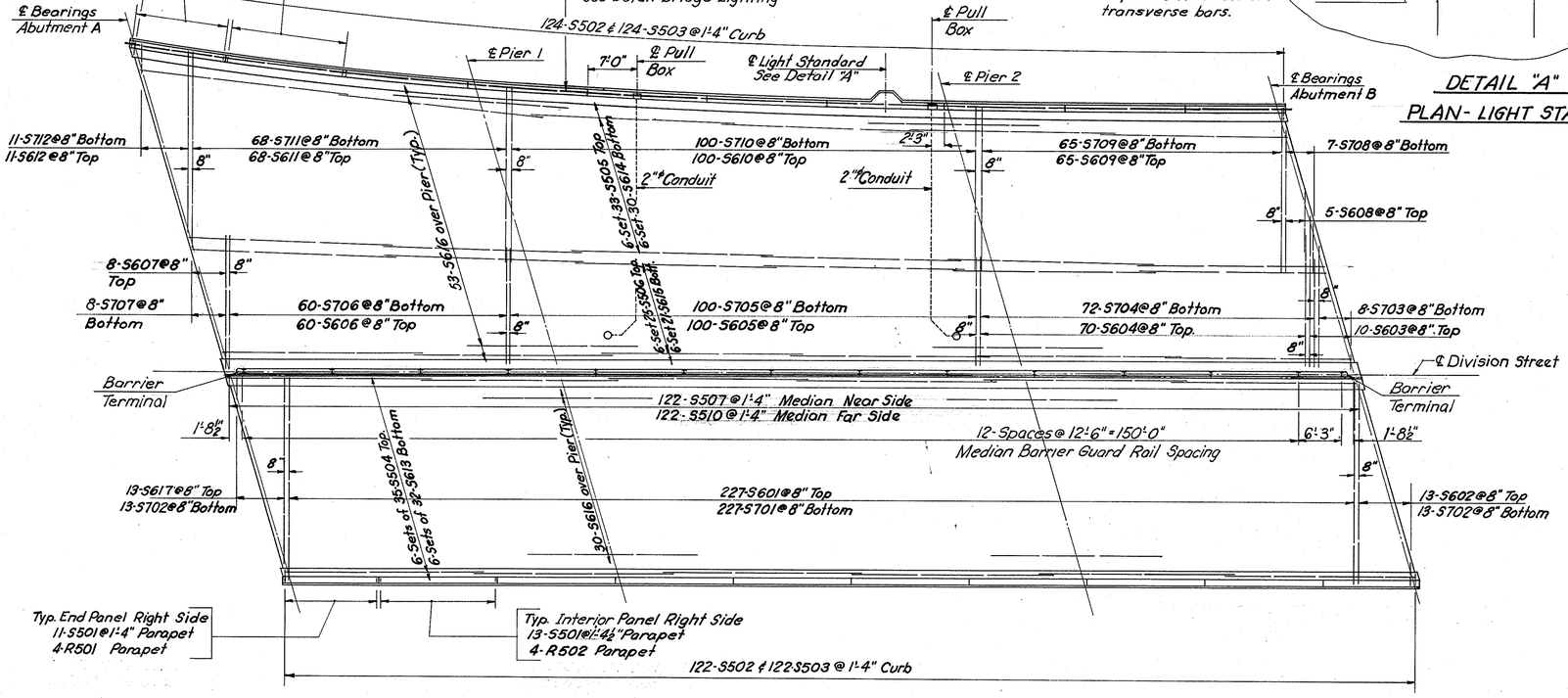



## TYPICAL CROSS SECTION




Anchor bolt circle. Set according to manufacturer's shop drawings.
For details not shown see Details-Bridge Lighting.
Lap S508 with bottom transverse bars.

DETAIL "A"
PLAN - LIGHT STANDARD BASE




DECK REINFORCING PLAN

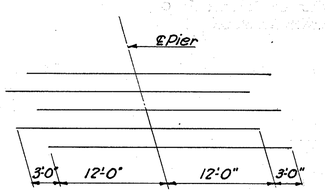
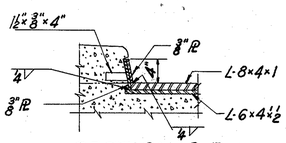
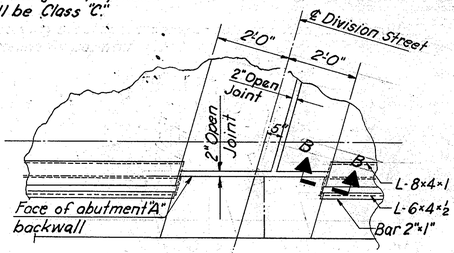



DIAGRAM SHOWING STAGGER OF S616 BARS




SECTION B-B




END FINISH DETAIL AT MEDIAN
(Abutment "B" Similar Except for Open Joint in Deck)

NOTES: CONTINUED

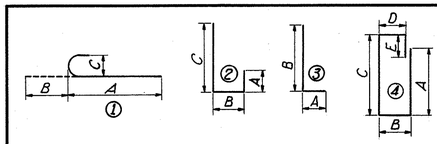
- Refer to Standard Drawing AR-1-57 for details of Type "A" Aluminum Railing and concrete parapet, to Standard Drawing CSB-2-56, sheets 2 & 3 of 6 for details of expansion dams, end crossframes, 2"ϕ pipe drains, curb plates and scuppers; and for bearings refer to Standard Drawing FSB.-1-62 and to abutment and pier sheets for anchor rod layout.
- See General Plan and Elevation for location of scuppers, 2"ϕ pipe drains and railing posts.
- CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.
- DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12". Except that the maximum slope shall not exceed 3 inches per foot. Payment for deck slab concrete shall be based on the 9" width. (For Right Bridge Deck.)
- Concrete and reinforcing steel above parapet construction joint shall be included with railing for payment.
- All concrete shall be Class "C."

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD
MAHONING COUNTY STA. 25+81.38

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| E.F.R. | | | | F.K. 10-14-63 | 4-7-66 |




| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

253

MAH-18-15.50
MAHONING COUNTY
All bar dimensions are out to out

## ABUTMENT "A"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| A801 | 21 | 28'-8" | Str. | | | | | | 1,608 |
| A802 | 6 | 12'-0" | Str. | | | | | | 192 |
| A803 | 6 | 11'-11" | Str. | | | | | | 191 |
| | | | | | | | | | |
| | | | | | | | | | |
| A601 | 15 | 13'-7" | 2 | 2'-1" | 5'-5" | 6'-5" | | | 306 |
| A602 | 20 | 14'-1" | 2 | 2'-1" | 5'-5" | 6'-11" | | | 423 |
| A603 | 25 | 14'-6" | 2 | 2'-1" | 5'-5" | 7'-4" | | | 544 |
| A604 | 79 | 17'-0" | 4 | 5'-6" | 1'-5" | 6'-10" | 11" | 2'-11" | 2017 |
| | | | | | | | | | |
| | | | | | | | | | |
| A501 | 60 | 9'-8" | 2 | 2'-3" | 5'-5" | 2'-3" | | | 605 |
| A502 | 84 | 7'-0" | 2 | 1'-11" | 3'-5" | 1'-11" | | | 613 |
| A503 | 15 | 6'-10" | 3 | 6" | 6'-5 | | | | 107 |
| A504 | 20 | 7'-4" | 3 | 6" | 6'-11" | | | | 153 |
| A505 | 25 | 7'-9" | 3 | 6" | 7'-4" | | | | 202 |
| A506 | 14 | 29'-11" | Str. | | | | | | 437 |
| A507 | 28 | 25'-8" | Str. | | | | | | 750 |
| A508 | 3 | 12'-0" | 7 | 9'-3" | 2'-9" | 9" | | | 38 |
| A509 | 3 | 7'-6" | Str. | | | | | | 23 |
| A510 | 34 | 7'-1" | 2 | 2'-1" | 3'-2" | 2'-1" | | | 251 |
| A511 | 14 | 10'-9" | 2 | 4'-11" | 1'-2" | 4'-11" | | | 157 |
| A512 | 16 | 9'-0" | Str. | | | | | | 150 |
| A513 | 2 | 7'-2" | Str. | | | | | | 15 |
| A514 | 4 | 4'-6" | Str. | | | | | | 19 |
| A515 | 8 | 7'-7" | 2 | 3'-4" | 1'-2" | 3'-4" | | | 63 |
| A516 | 4 | 8'-1" to 9'-1" | 2 | 3'-7" to 4'-1" | 1'-2" | 3'-7" to 4'-1" | 2 Ea. Vary A & C By 6" | | 36 |
| A517 | 16 | 8'-6" | Str. | | | | | | 142 |
| A518 | 2 | 6'-8" | Str. | | | | | | 14 |
| A519 | 6 | 9'-1" | Str. | | | | | | 57 |
| A520 | 2 | 12'-3" | 5 | 7'-3" | 5'-0" | 2'-6" | | | 26 |
| A521 | 10 | 13'-7" | Str. | | | | | | 142 |
| A522 | 20 | 6'-7" | 6 | 2'-8" | 8" | 5" | | | 137 |
| A523 | 12 | 3'-6" | Str. | | | | | | 44 |
| A524 | 2 | 12'-8" | 5 | 7'-8" | 5'-0" | 2'-6" | | | 26 |
| A525 | 10 | 13'-10" | Str. | | | | | | 144 |
| A526 | 6 | 9'-1" | 8 | 1'-7" | 5'-11" | 1'-3" | | | 57 |
| A527 | 6 | 11'-7" | 8 | 1'-7" | 8'-5" | 10½" | | | 72 |
| A528 | 24 | 4'-5" | 2 | 1'-8" | 1'-4" | 1'-8" | | | 111 |
| A529 | 12 | 3'-9" | 2 | 1'-4" | 1'-4" | 1'-4" | | | 47 |
| A530 | 4 | 3'-1" | 2 | 1'-0" | 1'-4" | 1'-0" | | | 13 |
| A531 | 5 | 5'-2" | 2 | 2'-0" | 1'-5" | 2'-0" | | | 27 |
| | | | | | | | | | |
| | | | | | | | | | |
| R505 | 4 | 13'-4" | Str. | Included with Railing for Payment | | | | | |
| R506 | 4 | 13'-8" | Str. | | | | | | |
| | | | | | | | Total | | 9,959 |

## ABUTMENT "B"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| B801 | 21 | 25'-9" | Str. | | | | | | 1,444 |
| B802 | 6 | 12'-0" | Str. | | | | | | 192 |
| B803 | 6 | 11'-5" | Str. | | | | | | 183 |
| | | | | | | | | | |
| | | | | | | | | | |
| B601 | 50 | 13'-7" | 2 | 2'-1" | 5'-5" | 6'-5" | | | 1,020 |
| B602 | 69 | 17'-0" | 4 | 5'-6" | 1'-5" | 6'-10" | 11" | 2'-11" | 1,762 |
| | | | | | | | | | |
| | | | | | | | | | |
| B501 | 50 | 9'-8" | 2 | 2'-3" | 5'-5" | 2'-3" | | | 504 |
| B502 | 50 | 6'-9" | 3 | 6" | 6'-5" | | | | 352 |
| B503 | 28 | 20'-6" | Str. | | | | | | 599 |
| B504 | 14 | 30'-5" | Str. | | | | | | 445 |
| B505 | 79 | 7'-0" | 2 | 1'-11" | 3'-5" | 1'-11" | | | 577 |
| B506 | 34 | 7'-1" | 2 | 2'-1" | 3'-2" | 2'-1" | | | 251 |
| B507 | 15 | 10'-9" | 2 | 4'-11" | 1'-2" | 4'-11" | | | 168 |
| B508 | 16 | 8'-10" | Str. | | | | | | 147 |
| B509 | 2 | 7'-3" | Str. | | | | | | 15 |
| B510 | 4 | 4'-9" | Str. | | | | | | 20 |
| B511 | 9 | 7'-7" | 2 | 3'-4" | 1'-2" | 3'-4" | | | 71 |
| B512 | 3 | 9'-4" | Str. | | | | | | 29 |
| B513 | 3 | 8'-4" | Str. | | | | | | 26 |
| B514 | 4 | 11'-6" | 5 | 6'-6" | 5'-0" | 2'-3" | | | 48 |
| B515 | 10 | 11'-10" | Str. | | | | | | 123 |
| B516 | 12 | 3'-7" | Str. | | | | | | 45 |
| B517 | 16 | 8'-6" | Str. | | | | | | 142 |
| B518 | 2 | 6'-8" | Str. | | | | | | 14 |
| B519 | 6 | 8'-7" | Str. | | | | | | 54 |
| B520 | 10 | 11'-4" | Str. | | | | | | 118 |
| B521 | 18 | 6'-7" | 6 | 2'-8" | 8" | 5" | | | 124 |
| B522 | 20 | 4'-5" | 2 | 1'-8" | 1'-4" | 1'-8" | | | 92 |
| B523 | 12 | 3'-9" | 2 | 1'-4" | 1'-4" | 1'-4" | | | 47 |
| B524 | 4 | 3'-1" | 2 | 1'-0" | 1'-4" | 1'-0" | | | 13 |
| B525 | 6 | 8'-10" | 8 | 1'-7" | 5'-8 | 1'-3" | | | 55 |
| B526 | 6 | 10'-9" | 8 | 1'-7 | 7'-7" | 1'-0" | | | 67 |
| B527 | 5 | 5'-2" | 2 | 2'-0" | 1'-5" | 2'-0" | | | 27 |
| | | | | | | | | | |
| R507 | 4 | 11'-8" | Str. | Included with Railing for Payment | | | | | |
| R508 | 4 | 11'-2" | Str. | | | | | | |
| | | | | | | | Total | | 8,774 |

## PIERS

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| P1101 | 36 | 7'-6" | 3 | 6'-4" | 1'-6" | | | | 1,435 |
| P1102 | 36 | 16'-5" | Str. | | | | | | 3,140 |
| | | | | | | | | | |
| | | | | | | | | | |
| P1001 | 2 | 15'-0" | Str. | | | | | | 129 |
| P1002 | 7 | 22'-0" | Str. | | | | | | 663 |
| | | | | | | | | | |
| | | | | | | | | | |
| P901 | 108 | 6'-6" | 3 | 5'-6" | 1'-3" | | | | 2387 |
| P902 | 36 | 17'-6" | Str. | | | | | | 2,142 |
| P903 | 36 | 19'-0" | Str. | | | | | | 2326 |
| P904 | 36 | 17'-7" | Str. | | | | | | 2,152 |
| P905 | 12 | 27'-0" | 1 | 25'-9" | 1'-3" | 11¼" | | | 1,102 |
| P906 | 7 | 20'-6" | Str. | | | | | | 488 |
| P907 | 4 | 14'-6" | 1 | 13'-3" | 1'-3" | 11¼" | | | 197 |
| P908 | 6 | 30'-9" | 1 | 29'-6" | 1'-3" | 11¼" | | | 627 |
| P909 | 6 | 29'-3" | 1 | 28'-0" | 1'-3" | 11¼" | | | 597 |
| | | | | | | | | | |
| | | | | | | | | | |
| P801 | 7 | 21'-10" | Str. | | | | | | 408 |
| P802 | 2 | 11'-6" | Str. | | | | | | 61 |
| P803 | 12 | 9'-6" | 3 | 7'-0" | 2'-9" | | | | 304 |
| | | | | | | | | | |
| | | | | | | | | | |
| P701 | 162 | 10'-4" | 12 | 8'-8" | 10" | 7" | | | 3,422 |
| P702 | 7 | 20'-0" | Str. | | | | | | 286 |
| P703 | 6 | 16'-9" | 3 | 14'-2" | 2'-9" | | | | 205 |
| P704 | 6 | 15'-8" | 3 | 12'-9" | 3'-1" | | | | 192 |
| P705 | 14 | 28'-6" | Str. | | | | | | 816 |
| | | | | | | | | | |
| | | | | | | | | | |
| P501 | 4 | 20'-9" | Str. | | | | | | 87 |
| P502 | 4 | 19'-3" | Str. | | | | | | 80 |
| P503 | 160 | 7'-5" | 2 | 2'-6" | 2'-8" | 2'-6" | | | 1238 |
| P504 | 112 | 3'-11" | 2 | 9" | 2'-8" | 9" | | | 458 |
| P505 | 2 | 3'-3" | 2 | 9" | 2'-0" | 9" | | | 7 |
| P506 | 20 | 6'-10" | 11 | 1'-7" | 3'-8" | 1'-2" | | | 143 |
| P507 | 4 | 28'-4" | Str. | | | | | | 118 |
| | | | | | | | | | |
| | | | | | | | | | |
| P601 | 48 | 8'-0" | 12 | 6'-8" | 8" | 6" | | | 577 |
| | | | | | | | | | |
| | | | | | | | | | |
| P801 | 108 | 6'-6" | 3 | 5'-6" | 1'-3" | | | | 2387 |

### SPIRAL BARS

| Mark | Total | Length | Size | Pitch | No. Turns | Core Dia. | Weight |
|---|---|---|---|---|---|---|---|
| SP401 | 3 | 14'-9" | ½"ϕ | 4½" | 42 | 2'-8" | 814 |
| SP402 | 3 | 13'-5" | ½"ϕ | 4½" | 39 | 2'-8" | 755 |
| SP403 | 3 | 16'-2" | ½"ϕ | 4½" | 46 | 2'-8" | 893 |
| SP404 | 3 | 14'-11" | ½"ϕ | 4½" | 43 | 2'-8" | 834 |
| | | | | | | Total | 2,9083 |

## SUPERSTRUCTURE

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| S701 | 227 | 29'-0" | Str. | | | | | | 13,456 |
| S702 | 26 | 2'-0" to 29'-0" | Str. | | 2-Ea. Vary By 2'-3" | | | | 824 |
| S703 | 8 | 2'-9" to 18'-6" | Str. | | 1-Ea. Vary By 2'-3" | | | | 174 |
| S704 | 72 | 17'-3" | Str. | | | | | | 2,539 |
| S705 | 100 | 17'-6" to 18'-9" | Str. | | 25-Ea. Vary By 5" | | | | 3,705 |
| S706 | 60 | 18'-10" to 20'-5" | Str. | | 3-Ea. Vary By 1" | | | | 2407 |
| S707 | 8 | 4'-9" to 20'-6" | Str. | | 1-Ea. Vary By 2'-3" | | | | 206 |
| S708 | 7 | 7'-0" to 20'-6" | Str. | | 1-Ea. Vary By 2'-3" | | | | 196 |
| S709 | 65 | 24'-0" | Str. | | | | | | 3,189 |
| S710 | 100 | 24'-3" to 25'-6" | Str. | | 25-Ea. Vary By 5" | | | | 5,084 |
| S711 | 68 | 25'-5" to 28'-2" | Str. | | 2-Ea. Vary By 1" | | | | 3,724 |
| S712 | 11 | 4'-4" to 26'-10" | Str. | | 1-Ea. Vary By 2'-3" | | | | 350 |
| | | | | | | | | | |
| | | | | | | | | | |
| S601 | 227 | 29'-8" | 1 | 29'-0" | 8" | 6" | | | 10,115 |
| S602 | 13 | 2'-0" to 29'-0" | Str. | | 1-Ea. Vary By 2'-3" | | | | 303 |
| S603 | 10 | 3'-8" to 23'-11" | 1 | 3'-0" to 23'-3" | 8" | 6" | 1-Ea. Vary A By 2'-3" | | 206 |
| S604 | 70 | 21'-2" | 1 | 20'-6" | 8" | 6" | | | 2,225 |
| S605 | 100 | 21'-8" to 22'-11" | 1 | 21'-0" to 22'-3" | 8" | 6" | 25-Ea. Vary A By 5" | | 3,348 |
| S606 | 60 | 22'-1" to 25'-2" | 1 | 22'-3" to 24'-6" | 8" | 6" | 6-Ea. Vary A By 3" | | 2,167 |
| S607 | 8 | 7'-10" to 24'-2" | Str. | | 1-Ea. Vary By 2'-4" | | | | 192 |
| S608 | 5 | 8'-0" to 17'-0" | Str. | | 1-Ea. Vary By 2'-3" | | | | 94 |
| S609 | 65 | 20'-3" | Str. | | | | | | 1977 |
| S610 | 100 | 20'-3" to 21'-6" | Str. | | 25-Ea. Vary By 5" | | | | 3,135 |
| S611 | 68 | 21'-3" to 24'-0" | Str. | | 2-Ea. Vary By 1" | | | | 2,311 |
| S612 | 11 | 4'-4" to 26'-10" | Str. | | 1-Ea. Vary By 2'-3" | | | | 257 |
| S613 | 192 | 28'-5" | Str. | | | | | | 8,196 |
| S614 | 180 | 29'-0" | Str. | | | | | | 7,840 |
| S615 | 126 | 28'-5" | Str. | | | | | | 5,379 |
| S616 | 166 | 27'-0" | Str. | | | | | | 6,732 |
| S617 | 13 | 2'-8" to 29'-8" | 1 | 2'-0" to 29'-0" | 8" | 6" | 1-Ea. Vary A By 2'-3" | | 316 |
| | | | | | | | | | |
| S501 | 252 | 5'-7" | 6 | 2'-2" | 8" | 5" | | | 1,467 |
| S502 | 246 | 2'-10" | 2 | 7" | 1'-11" | 7" | | | 727 |
| S503 | 246 | 4'-3" | 2 | 1'-4" | 1'-10" | 1'-4" | | | 1,090 |
| S504 | 216 | 28'-2" | Str. | | | | | | 6,346 |
| S505 | 198 | 28'-9" | Str. | | | | | | 5,937 |
| S506 | 150 | 28'-2" | Str. | | | | | | 4,407 |
| S507 | 122 | 4'-3" | 9 | 1'-0" | 1'-0" | 1'-1" | 10" | 0" | 540 |
| S508 | 2 | 7'-11" | 2 | 2'-0" | 2'-10" | 3'-4" | | | 17 |
| S509 | 4 | 7'-8" | 10 | 2'-8" | 1'-2" | 7" | 5" | | 32 |
| S510 | 122 | 6'-5" | 9 | 1'-0" | 1'-10" | 1'-1" | 1'-6" | 3" | 817 |
| | | | | | | | | | |
| R501 | 8 | 13'-4" | Str. | Included with Railing for Payment. | | | | | |
| R502 | 32 | 16'-5" | Str. | | | | | | |
| R503 | 8 | 13'-7" | Str. | | | | | | |
| R504 | 32 | 16'-8" | Str. | | | | | | |
| | | | | | | | | Total | 112,027 |

## ESTIMATED QUANTITIES

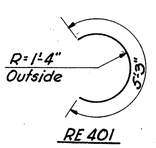
| Item | Total | Unit | Description | Superstructure | Abutments | Piers | General |
|---|---|---|---|---|---|---|---|
| E2 | 639 | Cu.Yds. | Unclassified Excavation | | 374 | 265 | |
| S1 | 350 | Cu.Yds. | Class "C" concrete, superstructure | 350 | | | |
| S1 | 99 | Cu.Yds. | Class "C" concrete, pier caps & columns | | | 99 | |
| S1 | 156 | Cu.Yds. | Class "E" concrete, abutments above footings | | 156 | | |
| S1 | 218 | Cu.Yds. | Class "E" concrete, footings | | 122 | 96 | |
| S4 | 159,843 | Lbs. | Reinforcing steel | 112,027 | 18,733 | 29,083 | |
| S7 | 302,140 | Lbs. | Structural steel | 302,140 | | | |
| S8 | 302,140 | Lbs. | Field painting of structural steel | 302,140 | 302,140 | | |
| S14 | 376.99 | Lin.Ft. | Railing (Type A aluminum rail & supports, concrete parapets) | 325.74 | 51.25 | | |
| S16 | Lump Sum | | First test pile | | | | Lump Sum |
| S18 | 2,880 | Lin.Ft. | Steel piles, 10BP42 | | 1,200 | 1,680 | |
| S25 | | | Electrical lighting system, complete * | | | | |
| S29 | 48 | Cu.Yds. | Porous backfill | | 48 | | |
| S29 | 12 | Each | Scuppers, including supports | 12 | | | |
| I-10 | 537 | Sq.Yds. | Concrete slope protection | | | | 537 |
| S-101 | 350 | Each | Water-reducing, set-retarding admixture | 350 | | | |
| S3 | 18 | Lin.Ft. | Waterproofing, premoulded sealing strip | | 18 | | |
| S14 | 156 | Lin.Ft. | Guard Rail, Steel Beam Barrier Type (deep) Including Anchorage. | 156 | | | |
| | | | *See General Summary - Bridge Lighting Details Sheet | | | | |

### SPIRAL NOTES

- The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
- The "Number of Turns" shown in the steel list for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.
- Spiral reinforcing bars shall not have deformations but shall in other respects conform to item S-4.
- 1½ closed coils shall be provided at the ends of each spiral unit.
- Four steel channel, tee or angle spacers, weighing approximately 0.68 lbs. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lbs. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

### REPLACEMENT BARS

| Mark | Total | Length | Type |
|---|---|---|---|
| RE1101 | 1 | 7'-7" | Str. |
| RE1001 | 1 | 7'-3" | Str. |
| RE901 | 1 | 6'-10" | Str. |
| RE801 | 1 | 6'-6" | Str. |
| RE701 | 3 | 6'-3" | Str. |
| RE601 | 4 | 5'-11" | Str. |
| RE501 | 2 | 5'-7" | Str. |
| RE401 | 1 | 5'-3" | Bent |




RE 401

### BAR SIZE

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A601 is a number 6 size bar.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE

BRIDGE NO. MAH-18
DIVISION STREET EXPRESSWAY
OVER SALT SPRINGS ROAD

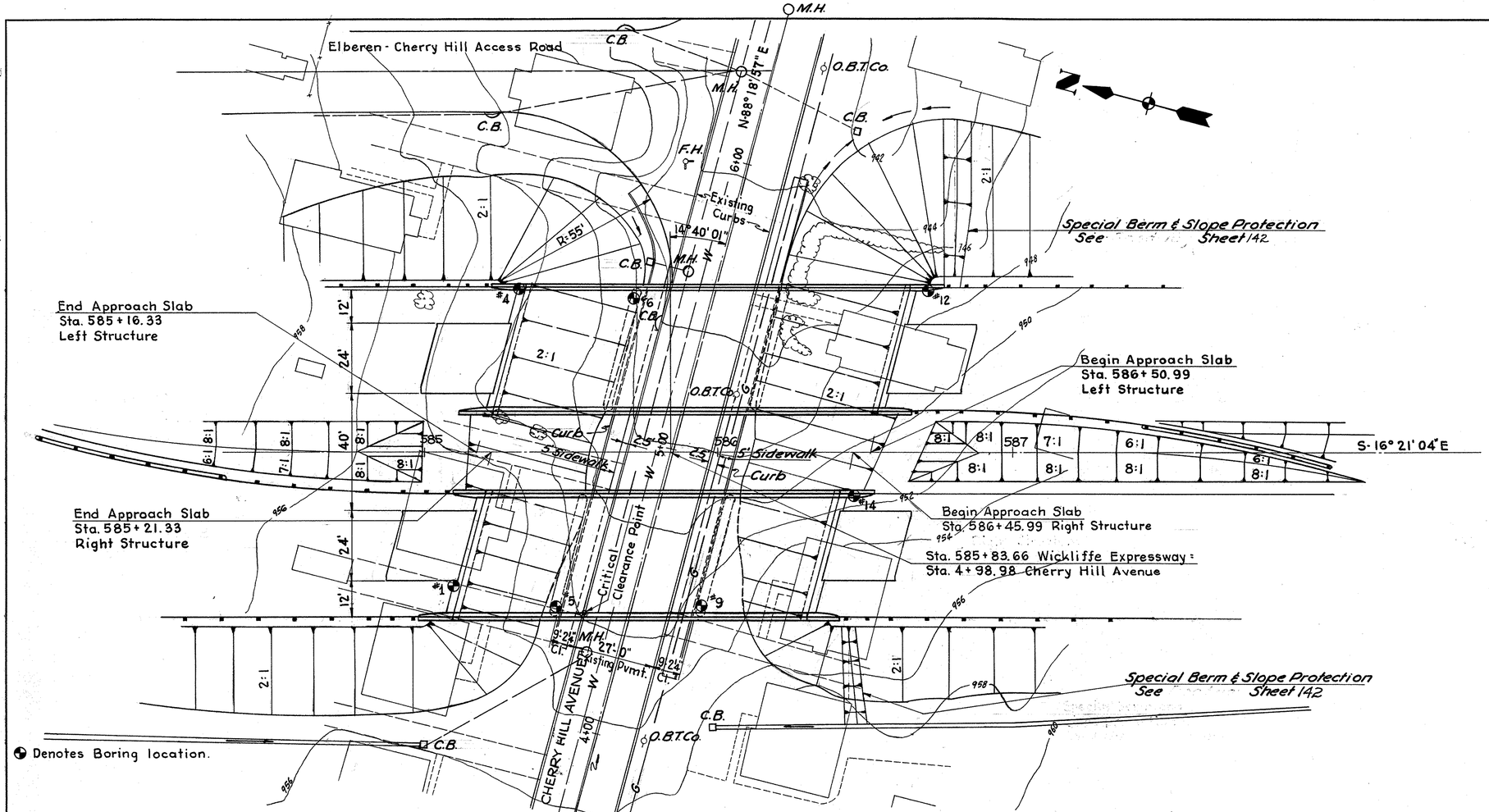
MAHONING COUNTY STA. 25+81.38

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| — | — | — | — | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

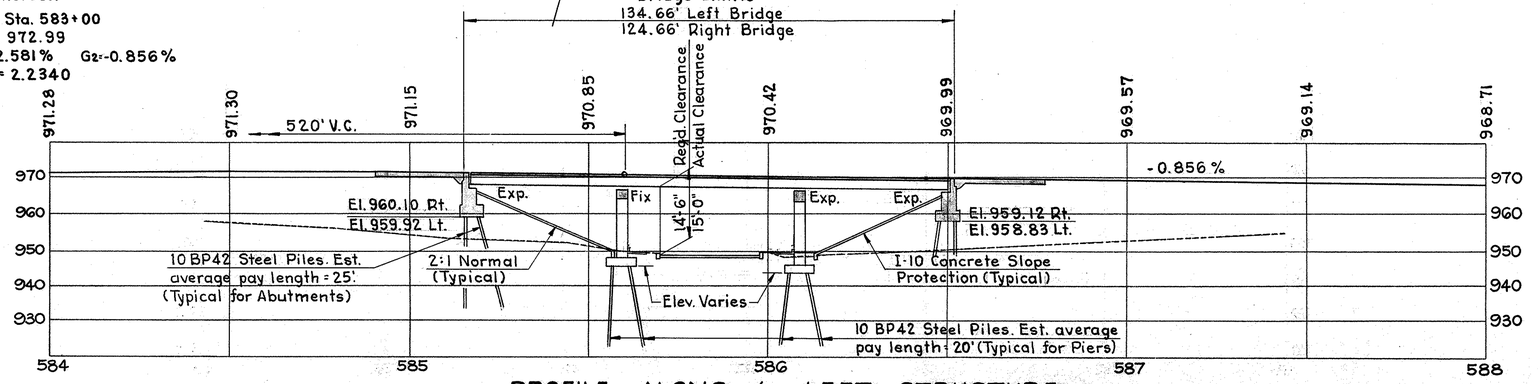
254

# MAH-18-15.50
# MAHONING COUNTY




FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of borings and soil-sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State assumes no responsibility for the accuracy thereof.

P.V.I. Sta. 583+00
Elev. 972.99
$G_1$=+2.581% $G_2$=-0.856%
M.O. = 2.2340




PROFILE ALONG ℄ LEFT STRUCTURE

B.M. 138 Top stem of hydrant W. side of Cherry Hill opposite 2118 Cherry Hill 200' W. on Cherry Hill from Gem. Elev. 947.74.

B.M. 139 Top stem of hydrant W. side of Cherry Hill opposite 1941 Cherry Hill 156' E. on Cherry Hill from Gem. Elev. 938.41.

A.D.T. (1975) 44,910 (Each Structure)

## PROPOSED STRUCTURE

**TYPE:** Continuous steel beam with reinforced concrete deck and substructure.
**SPANS:** 40'-50'-40' c.c. Bearings Left.
35'-50'-35' c.c. Bearings Right
**ROADWAY:** 42'-0" ⅔ parapets with 1'-2" curbs

**LOAD FREQUENCY:** C.F. 2000 (57)*
**SKEW:** 14° 40' 01" L.F.
**WEARING SURFACE:** 1" Monolithic concrete
**APPROACH SLABS:** AS-1-54 (25' long)
**ALIGNMENT:** Tangent

* Adequate for alternate A.A.S.H.O. loading.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

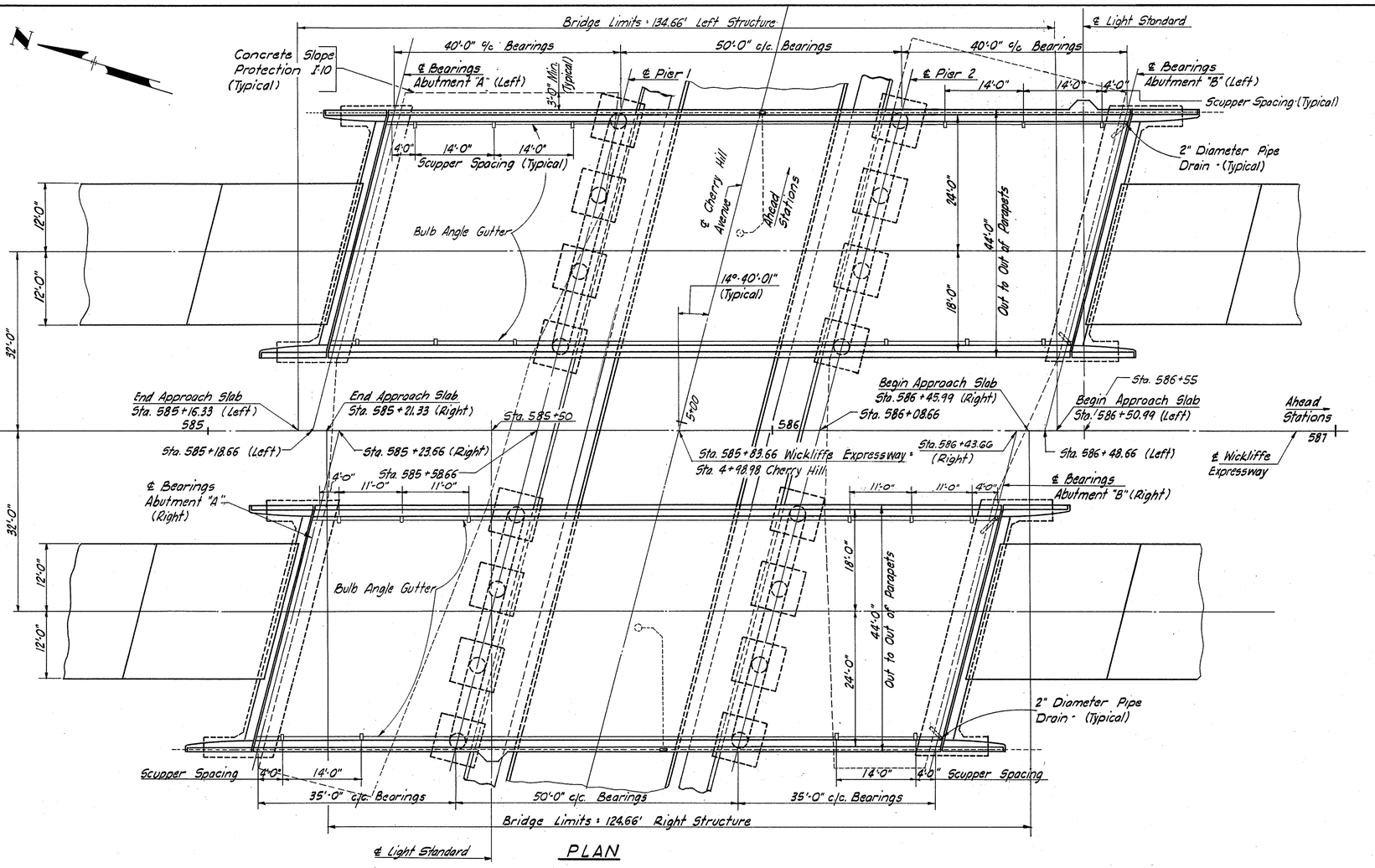
SITE PLAN
BRIDGE NO. MAH-18-1678 L&R
OVER CHERRY HILL AVENUE

MAHONING COUNTY
STA. 585+16.33 L.B. STA. 585+21.33 R.B.
STA. 586+50.99 L.B. STA. 586+45.99 R.B.

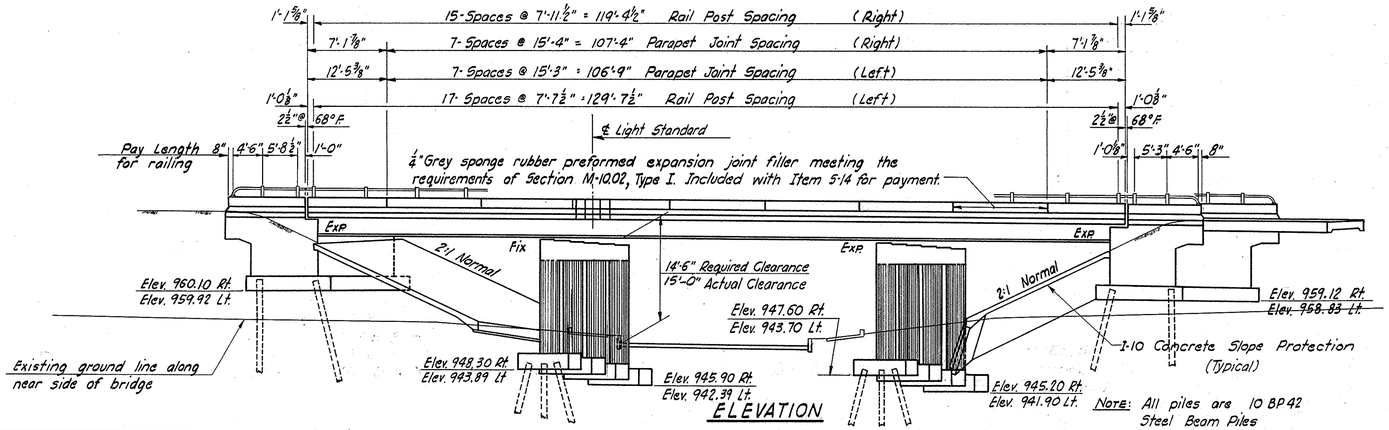
| PRESENT TOPOGRAPHY | | PROPOSED WORK | | | |
|---|---|---|---|---|---|
| SURVEYED | DRAWN | DESIGNED | DRAWN | CHECKED | REVIEWED |
| Aurilio | MM | E.F.R. | J.H. | RLS | 8/6/63 |

| FED. RD. DIVISION | STATE | PROJECT | | 255 |
|---|---|---|---|---|
| 2 | OHIO | | | |

# MAH-18-15.50
# MAHONING COUNTY




PLAN




ELEVATION

NOTE: All piles are 10 BP 42 Steel Beam Piles

## GENERAL NOTES:

- DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.
- REFERENCE shall be made to Standard Drawings CSB-2-56, Sheets 2 and 3 of 6, revised 2-2-59; AR-1-57 revised 4-2-62; FSB-1-62 revised 1-15-63; AS-1-54 revised 7-5-62, and Supplemental Specifications S-101 dated 12-2-59.
- EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments.
- PILES shall be driven to a minimum bearing capacity of 26.5 tons at abutments and 31.5 tons at piers.
- WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.
- UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.
- MAINTENANCE OF TRAFFIC: For maintenance of traffic on Cherry Hill Avenue, refer to "General Notes - Traffic."
- REFERENCE shall be made to Supplemental Specification S-307 dated 8-23-60.
- DESIGN LOADING: CF-2000 (57)
- CONCRETE CLASS "C": Basic unit stress 1,333 p.s.i.
- CONCRETE CLASS "E": Basic unit stress 1,133 p.s.i.
- STRUCTURAL STEEL: ASTM A36 - basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted.)
- REINFORCING STEEL: ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade, Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

REFERENCE shall be made to Standard Drawing SD-2-64 dated 11-25-64 and Supplemental Specification S-307 revised 10-1-64

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

## GENERAL PLAN & ELEVATION
BRIDGE NO. MAH-18-1678 L&R
OVER CHERRY HILL AVENUE

MAHONING COUNTY
STA. 585+16.33 L.B., STA. 585+21.33 R.B.
STA. 586+50.99 L.B., STA. 586+45.99 R.B.

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EFR | EFR | M.M. | RLS | [illegible] | 8-16-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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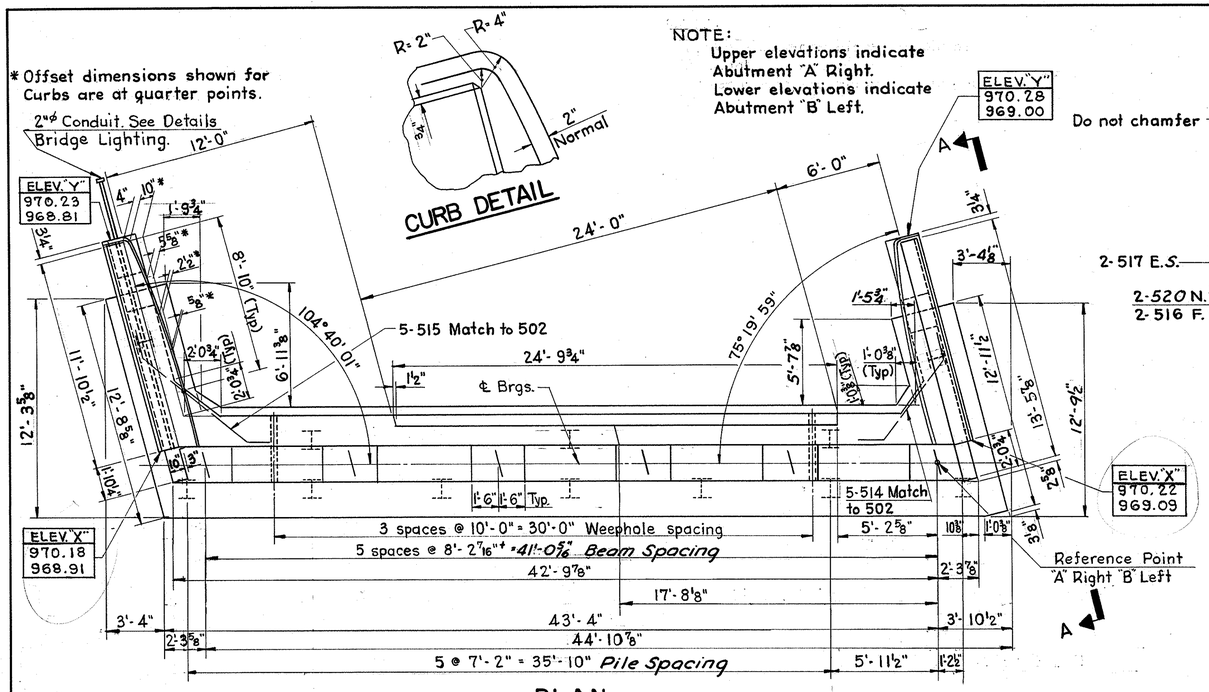
# MAH-18-15.50
# MAHONING COUNTY

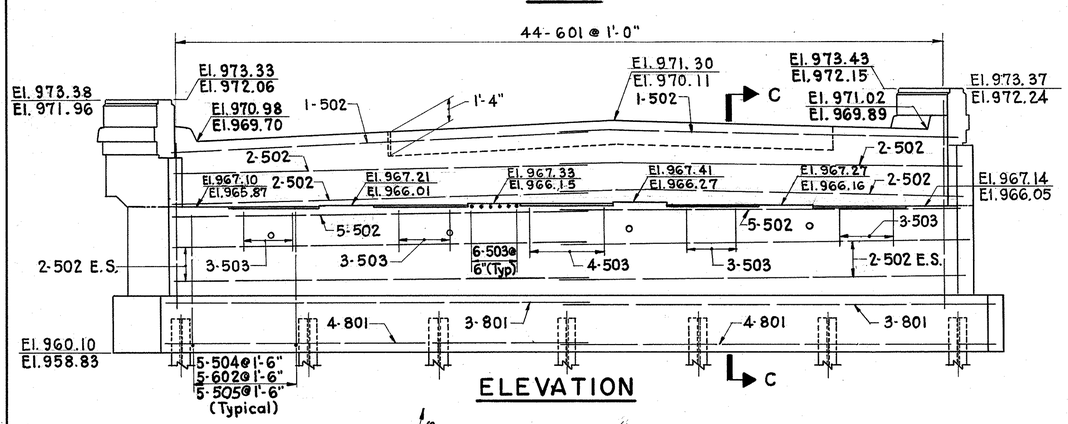
* Offset dimensions shown for Curbs are at quarter points.

2"ϕ Conduit. See Details Bridge Lighting.

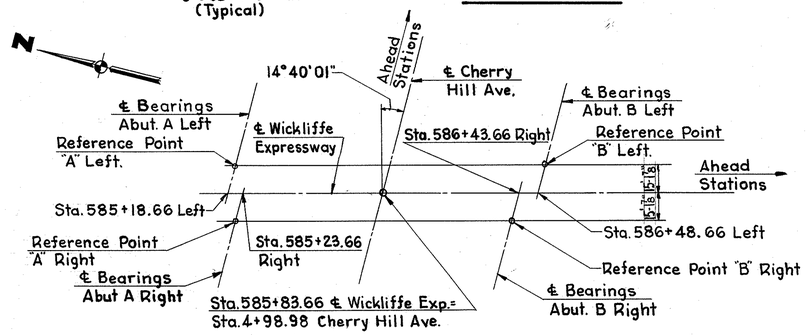
NOTE: Upper elevations indicate Abutment "A" Right. Lower elevations indicate Abutment "B" Left.



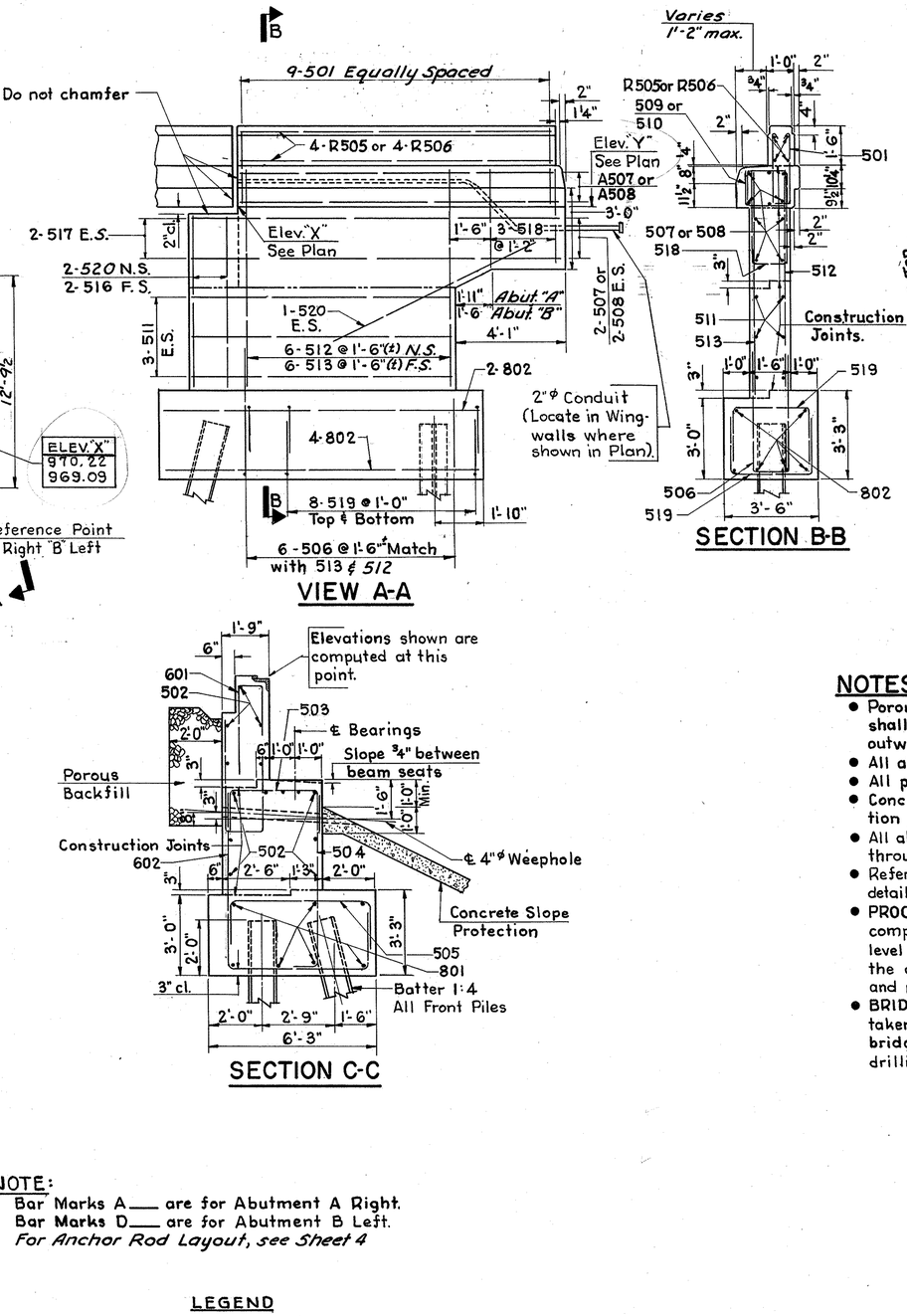

## PLAN




## ELEVATION

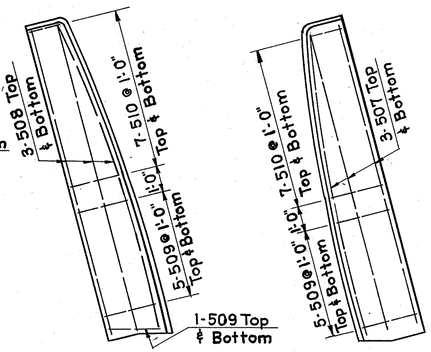



## ABUTMENT LAYOUT PLAN













NOTE:
Bar Marks A___ are for Abutment A Right.
Bar Marks D___ are for Abutment B Left.
*For Anchor Rod Layout, see Sheet 4*

LEGEND
N.S. = Near Side
F.S. = Far Side
E.S. = Each Side

## NOTES:

- Porous backfill 2 feet thick full length of abutment shall extend up to the underside of approach slab and outward to the wings.
- All abutment concrete shall be Class "E".
- All parapet concrete shall be Class "C".
- Concrete and reinforcing steel above parapet construction joint shall be included with railing S-14 for payment.
- All abutment parapet railings shall be continuous through railing posts.
- Refer to Standard Drawing AR-1-57 (Revised 4-2-62) for details of Type "A" railing and concrete parapet.
- PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments, after which excavation shall be made and piles driven for the abutments and piers.
- BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor rod holes.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

## ABUTMENTS "A" RT., "B" LT.

BRIDGE NO. MAH-18-1678 L.&R.
OVER CHERRY HILL AVENUE

MAHONING COUNTY — STA. 585+16.33 L.B., STA. 585+21.33 R.B.
STA. 586+50.99 L.B., STA. 586+45.99 R.B.

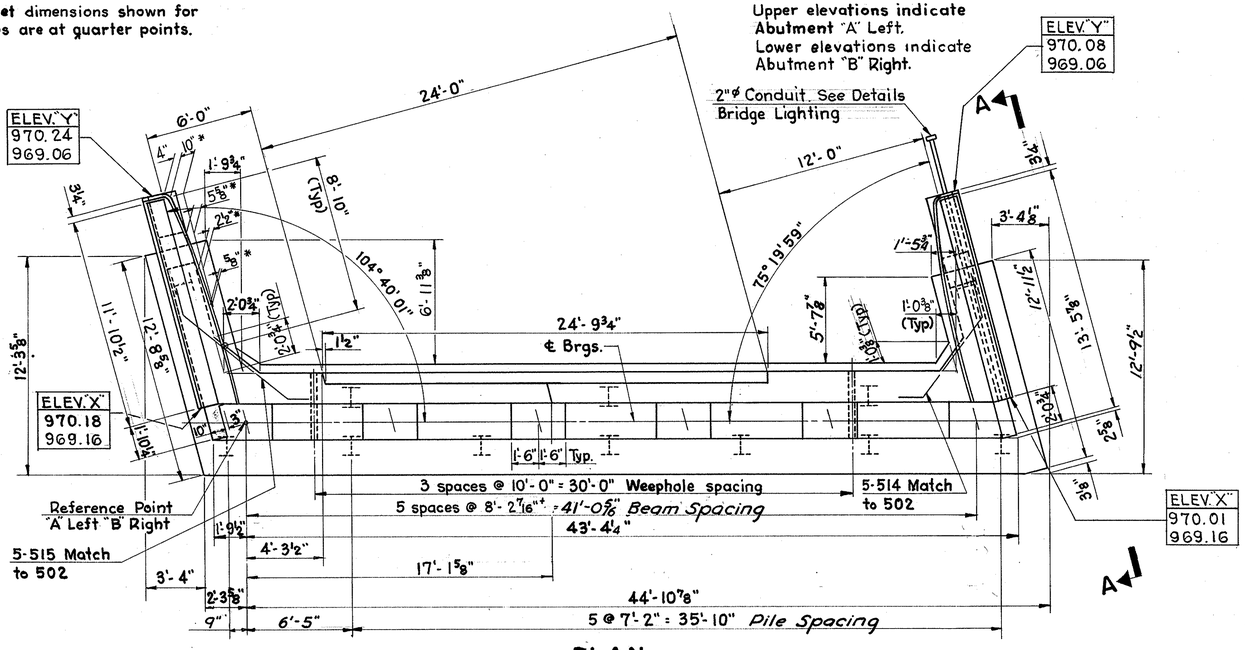
| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EFR | EFR | P.T.R. | KAE | [illegible] | 8-16-63 | |

| FED. RD. DIVISION | STATE | PROJECT | | 257 |
|---|---|---|---|---|
| 2 | OHIO | | | |

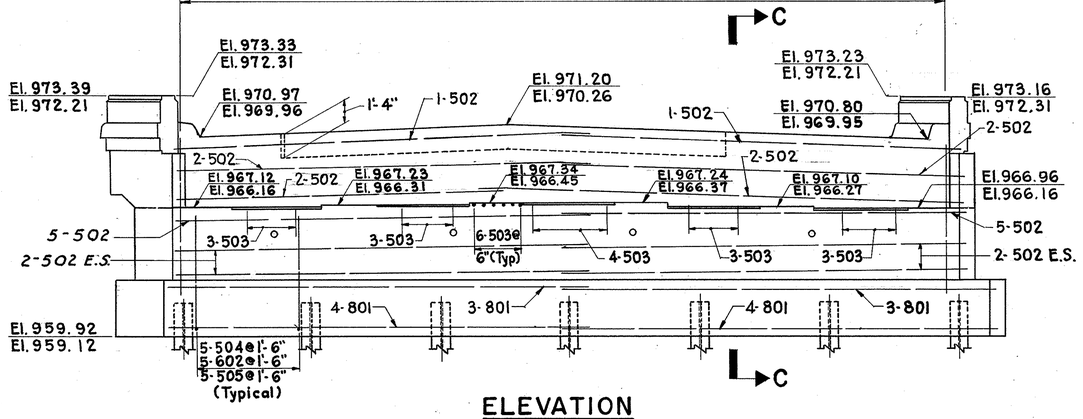
MAH-18-15.50
MAHONING COUNTY

* Offset dimensions shown for Curbs are at quarter points.

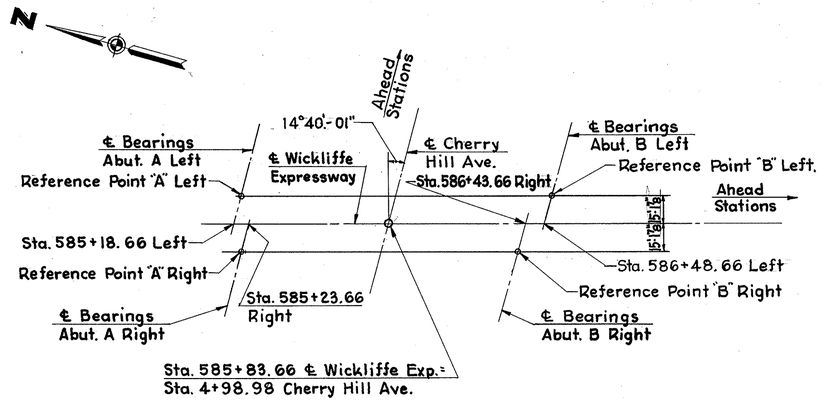
NOTE:
Upper elevations indicate Abutment "A" Left.
Lower elevations indicate Abutment "B" Right.



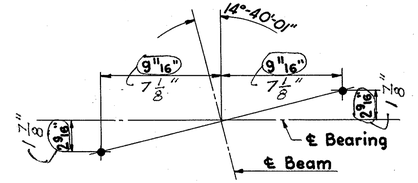

PLAN




ELEVATION




ABUTMENT LAYOUT PLAN




ANCHOR ROD LAYOUT DIAGRAM

NOTE:
For Curb Details, View A-A, Section B-B, Section C-C, Curb Reinforcement and Notes see Sheet No. 3.

NOTE:
Bar Marks B___ are for Abutment B Right.
Bar Marks C___ are for Abutment A Left.

LEGEND
N. S. = Near Side
F. S. = Far Side
E. S. = Each Side

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENTS "A" LT., "B" RT.

BRIDGE NO. MAH-18-1678 L&R.

OVER CHERRY HILL AVENUE

MAHONING COUNTY
STA. 585+16.33 L.B., STA. 585+21.33 R.B.
STA. 586+50.99 L.B., STA. 586+45.99 R.B.

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EPR | EPR | P.T.R. | KAE | BJK | 6-16-63 | 1-20-66 |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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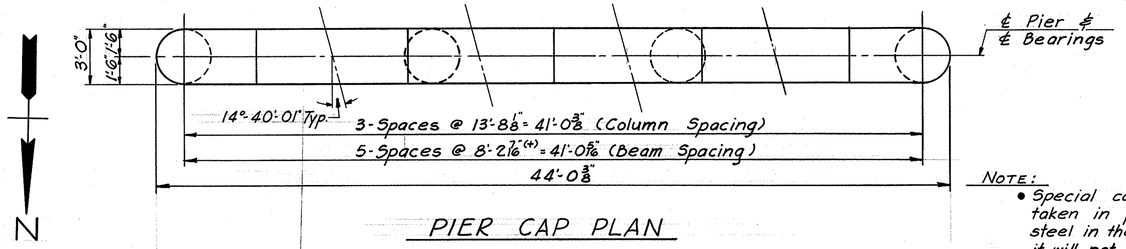
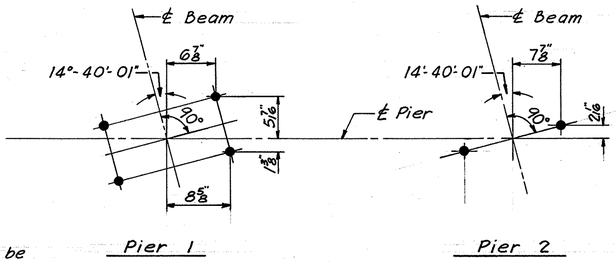
MAH-18-15.50
MAHONING COUNTY



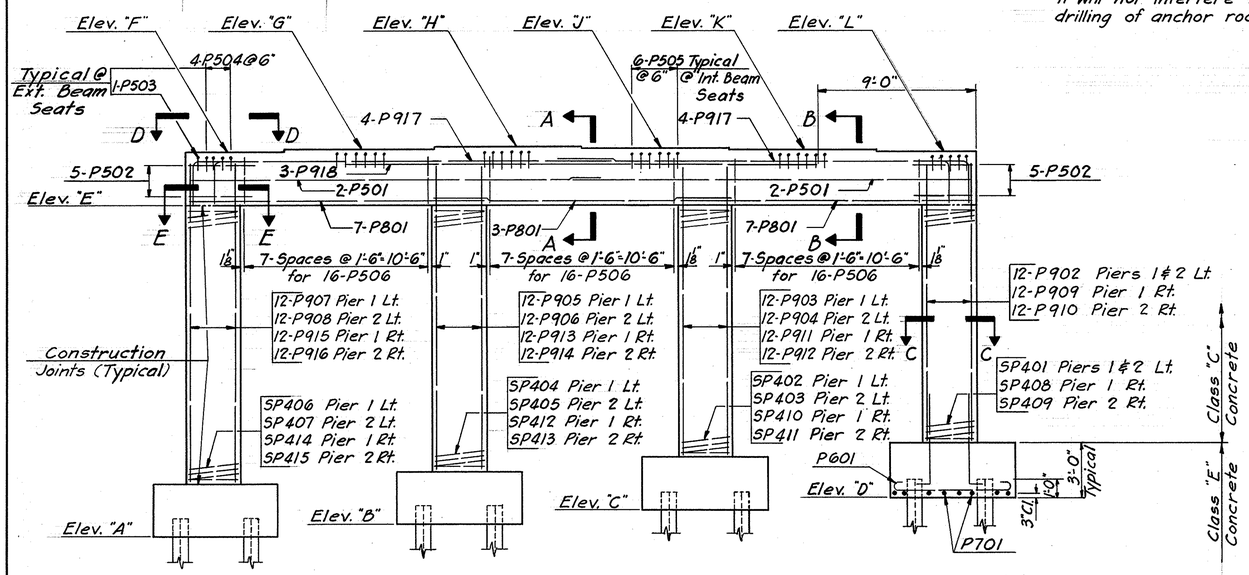

PIER CAP PLAN

NOTE:
- Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the drilling of anchor rod holes

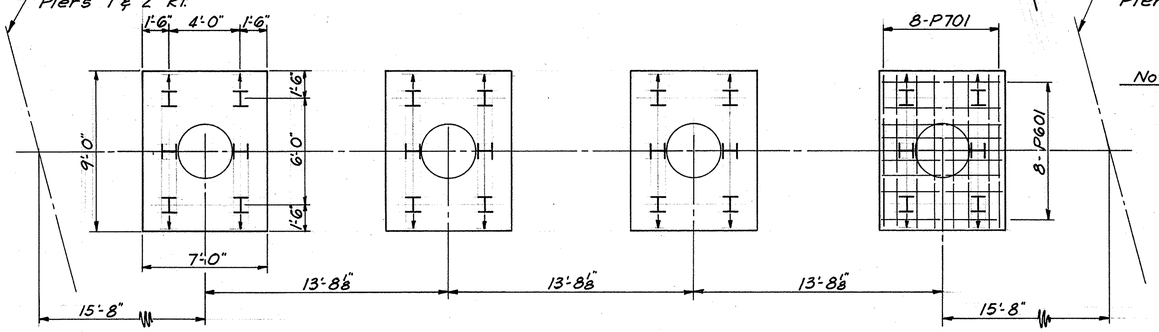



Pier 1 Pier 2

ANCHOR ROD LAYOUTS

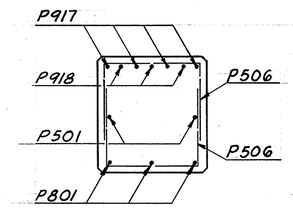



ELEVATION

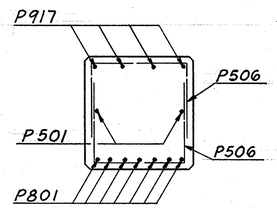



FOOTING PLAN

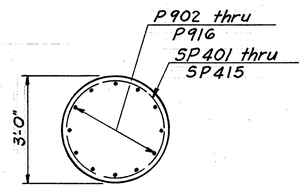
NOTE:
- Piles shown thus ↑ are to be battered 1:4 in direction indicated by arrow.



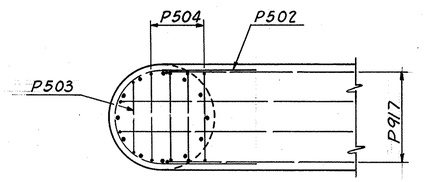

SECTION A-A



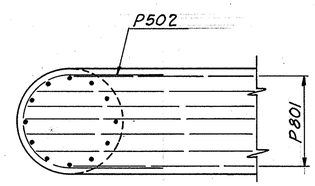

SECTION B-B




SECTION C-C




VIEW D-D




SECTION E-E

NOTE:
- Super-Structure Ground-A No. 1/0 AWG 7 strand soft annealed bare copper cable shall be encased in the outside column of pier No. 1. Connect (by Exothermic weld process) lower end of cable to a steel pile. Extend cable (in one continuous length) through top of pier with lead of sufficient length to exothermic weld upper end of cable to outside beam of super-structure
- Payment for electrical grounds is included in the lump sum bid for S-25 "Electrical Lighting System Complete"

TABLE OF ELEVATIONS

| Location | | Elev. "A" | Elev. "B" | Elev. "C" | Elev. "D" | Elev. "E" | Elev. "F" | Elev. "G" | Elev. "H" | Elev. "J" | Elev. "K" | Elev. "L" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lt. Bridge | Pier 1 | 942.39 | 942.89 | 943.39 | 943.89 | 963.39 | 966.39 | 966.53 | 966.67 | 966.79 | 966.68 | 966.57 |
| | Pier 2 | 941.90 | 942.30 | 943.00 | 943.70 | 963.17 | 966.17 | 966.31 | 966.46 | 966.57 | 966.46 | 966.35 |
| Rt. Bridge | Pier 1 | 945.90 | 946.60 | 947.50 | 948.30 | 963.67 | 966.68 | 966.82 | 966.96 | 966.89 | 966.78 | 966.67 |
| | Pier 2 | 945.20 | 946.00 | 946.80 | 947.60 | 963.46 | 966.46 | 966.57 | 966.67 | 966.75 | 966.61 | 966.46 |
| | | | | | | | | 966.61 | 966.75 | 966.67 | 966.57 | |

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# PIERS

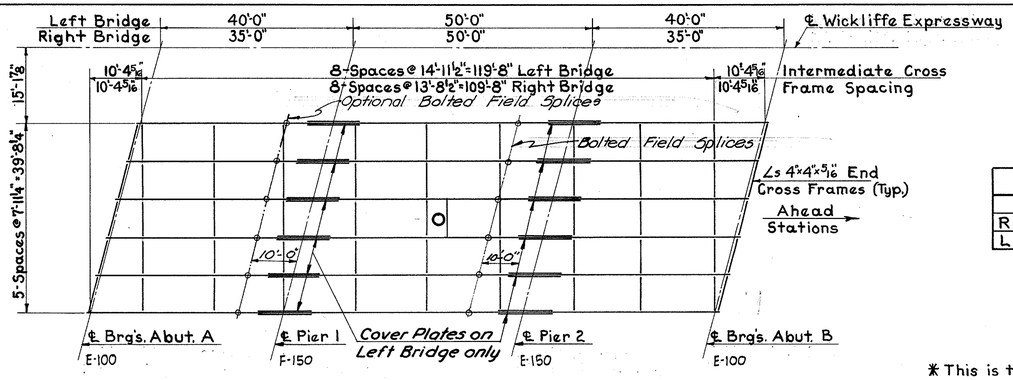
BRIDGE NO. MAH-18-1678 L.&R.
OVER CHERRY HILL AVENUE

MAHONING COUNTY
STA. 585+16.33 L.B., STA. 585+21.33 R.B.
STA. 586+50.99 L.B., STA. 586+45.99 R.B.

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| RLS | K.G. | RC | V.K. | GJK | 8-16-63 | 1-20-66 |

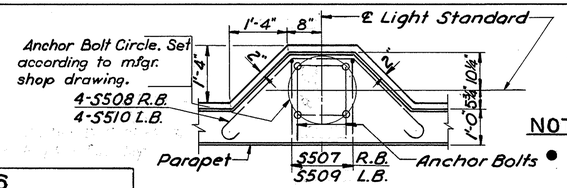
| FED. RD. DIVISION | STATE | PROJECT | | 259 |
|---|---|---|---|---|
| 2 | OHIO | | | |

# MAH-18-15.50
# MAHONING COUNTY




## STEEL FRAMING PLAN

| BEAMS | Span 1 | Span 2 | Span 3 |
|---|---|---|---|
| Right Bridge | 33 WF 118 | 33 WF 118 | 33 WF 118 |
| Left Bridge | 33 WF 118 | 33 WF 118 | 33 WF 118 |

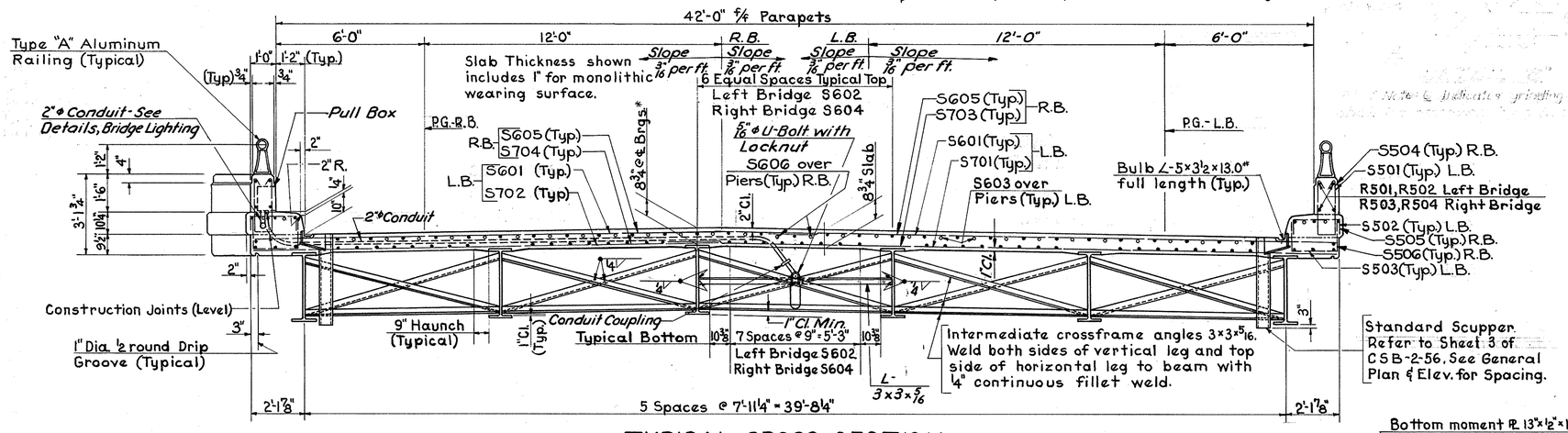



## LIGHT STANDARD DETAIL

## NOTES:

- Refer to Standard Drawing AR-1-57 for details of Type "A" aluminum railing and concrete parapet.
- Concrete and reinforcing steel above parapet construction joint shall be included with railing for payment.
- See General Plan and Elevation for location of scuppers, 2"ø pipe drains and railing posts.
- Refer to Standard Drawing CSB-2-56, Sheets 2 & 3 of 6 for details of expansion dams, end crossframes, 2"ø pipe drains, curb plates and scuppers.
- CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.
- DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" except that the maximum slope shall not exceed 3 inches per foot. Payment for deck slab concrete shall be based on the 9" width.
- MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.
- ELECTRICAL LIGHTING SYSTEM: For additional details, refer to drawings, "Details - Bridge Lighting" and "General Lighting Notes."

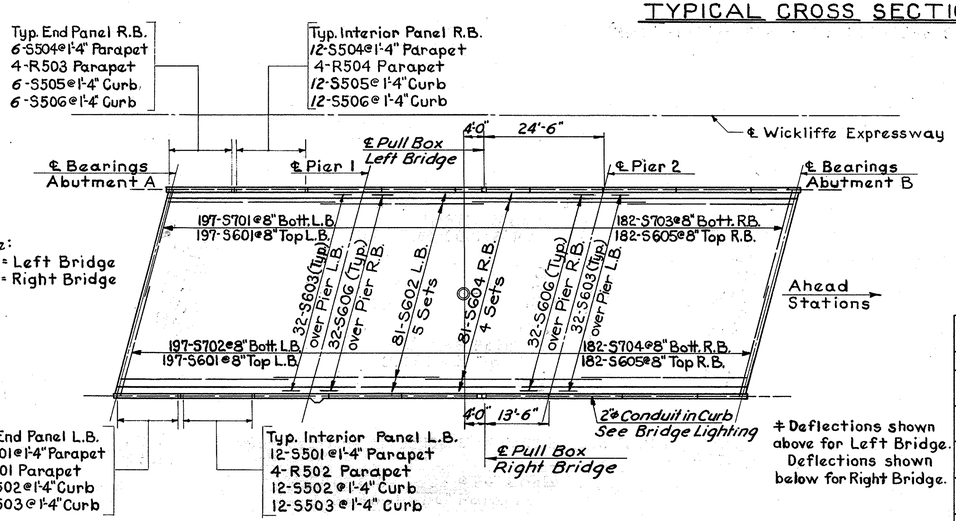
* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.



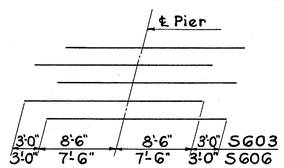

## TYPICAL CROSS SECTION

- All concrete shall be class "C"

FOR BOLTED FIELD SPLICE DETAILS see Standard Drawing 30-2-64.



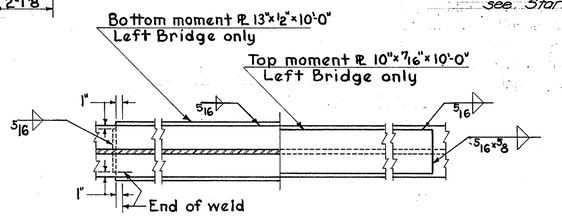

## DECK REINFORCING PLAN



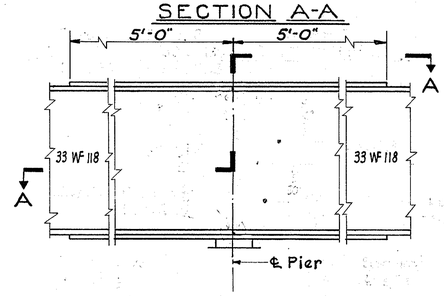

## DIAGRAM SHOWING STAGGER OF S603 & S606 BARS

| DEFLECTIONS AND CAMBER+ | | | |
|---|---|---|---|
| LOCATION | SPAN 1 | SPAN 2 | SPAN 3 |
| Deflection due to weight of steel | 0" | 0" | 0" |
| Deflection due to remaining D.L. | 1/8" | 1/8" | 1/8" |
| | 1/16" | 3/16" | 1/16" |
| Convexity required for vertical curve | 3/16" | 0" | 0" |
| | 1/8" | 0" | 0" |
| Sum of deflections and convexity | 5/16" | 1/8" | 1/8" |
| | 3/16" | 1/4" | 1/16" |
| Required Camber | 0" | 0" | 0" |
| | 0" | 0" | 0" |

+ Deflections shown above for Left Bridge. Deflections shown below for Right Bridge.




## SECTION A-A



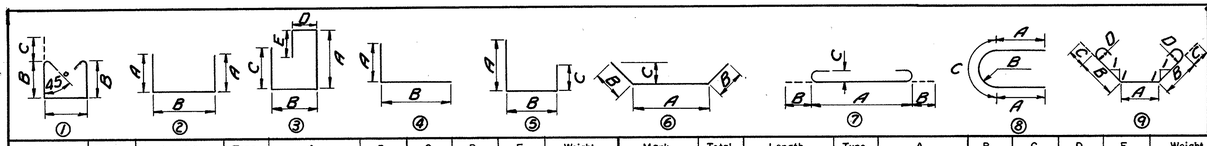

## MOMENT PLATE DETAIL

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

## SUPERSTRUCTURE DETAILS
BRIDGE NO. MAH-18-1678 L&R
OVER CHERRY HILL AVENUE

MAHONING COUNTY
STA. 585+16.33 L.B., STA. 585+21.33 R.B.
STA. 586+50.99 L.B., STA. 586+45.99 R.B.

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EFR | EFR | JH | RLS | FJK | 8-16-63 | |




① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

## SPIRAL NOTES

- The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
- The "Number of Turns" shown in the steel list for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.
- Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.
- 1½" closed coils shall be provided at the ends of each spiral unit.
- Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the perifery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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**MAH-18-15.15**
**MAHONING COUNTY**

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | ABUTMENT "A" RIGHT | | | | | | | |
| A801 | 14 | 24'-9" | Str. | | | | | | 925 |
| A802 | 12 | 12'-0" | Str. | | | | | | 384 |
| | | | | | | | | | |
| A601 | 44 | 14'-3" | 3 | 5'-6" | 1'-5" | 4'-0" | 11" | 3'-0" | 942 |
| A602 | 30 | 14'-2" | 5 | 6'-6" | 5'-5" | 2'-7" | | | 638 |
| | | | | | | | | | |
| A501 | 18 | 6'-9" | 1 | 8" | 2'-9" | 5" | | | 127 |
| A502 | 28 | 23'-4" | Str. | | | | | | 681 |
| A503 | 52 | 7'-2" | 2 | 2'-0" | 3'-5 | | | | 389 |
| A504 | 30 | 7'-4" | 4 | 6'-6" | 1'-0" | | | | 229 |
| A505 | 30 | 8'-4" | 2 | 1'-7" | 5'-5" | | | | 261 |
| A506 | 12 | 10'-1" | 2 | 4'-7" | 1'-2" | | | | 126 |
| A507 | 10 | 11'-3" | Str. | | | | | | 117 |
| A508 | 10 | 11'-8" | Str. | | | | | | 122 |
| A509 | 22 | 3'-11" | 2 | 1'-3" | 1'-8" | | | | 90 |
| A510 | 28 | 3'-1" to 3'-10" | 2 | 1'-3" | 10 to 1'-7" | 4 each vary 8" by 1½" | | | 101 |
| A511 | 12 | 9'-4" | Str. | | | | | | 117 |
| A512 | 12 | 8'-1" | Str. | | | | | | 101 |
| A513 | 12 | 8'-4" | Str. | | | | | | 104 |
| A514 | 5 | 8'-6" | 6 | 5'-4" | 1'-7" | 1'-4" | | | 44 |
| A515 | 5 | 10'-6" | 6 | 7'-4" | 1'-7" | 10" | | | 55 |
| A516 | 4 | 4'-6" | Str. | | | | | | 19 |
| A517 | 8 | 3'-6" | Str. | | | | | | 29 |
| A518 | 6 | 7'-9" | 2 | 3'-5" | 1'-2" | | | | 48 |
| A519 | 32 | 7'-1" | 2 | 2'-1" | 3'-2" | | | | 236 |
| A520 | 8 | 6'-6" | Str. | | | | | | 54 |
| | | | | | | | Total = | | 5939 |
| R505 | 4 | 11'-0" | Str. | Included with railing | | | | | — |
| R506 | 4 | 11'-6" | Str. | for payment | | | | | — |
| | | | | | | | | | |
| | | ABUTMENT "B" LEFT | | | | | | | |
| D801 | 14 | 24'-9" | Str. | | | | | | 925 |
| D802 | 12 | 12'-0" | Str. | | | | | | 384 |
| | | | | | | | | | |
| D601 | 44 | 14'-3" | 3 | 5'-6" | 1'-5" | 4'-0" | 11" | 3'-0" | 942 |
| D602 | 30 | 14'-2" | 5 | 6'-6" | 5'-5" | 2'-7" | | | 638 |
| | | | | | | | | | |
| D501 | 18 | 6'-9" | 1 | 8" | 2'-9" | 5" | | | 127 |
| D502 | 28 | 23'-4" | Str. | | | | | | 681 |
| D503 | 52 | 7'-2" | 2 | 2'-0" | 3'-5" | | | | 389 |
| D504 | 30 | 7'-4" | 4 | 6'-6" | 1'-0" | | | | 229 |
| D505 | 30 | 8'-4" | 2 | 1'-7" | 5'-5" | | | | 261 |
| D506 | 12 | 10'-1" | 2 | 4'-7" | 1'-2" | | | | 126 |
| D507 | 10 | 11'-3" | Str. | | | | | | 117 |
| D508 | 10 | 11'-8" | Str. | | | | | | 122 |
| D509 | 22 | 3'-11" | 2 | 1'-3" | 1'-8" | | | | 90 |
| D510 | 28 | 3'-1" to 3'-10" | 2 | 1'-3" | 10 to 1'-7" | 4 each vary 8" by 1½" | | | 101 |
| D511 | 12 | 9'-4" | Str. | | | | | | 117 |
| D512 | 12 | 8'-1" | Str. | | | | | | 101 |
| D513 | 12 | 8'-4" | Str. | | | | | | 104 |
| D514 | 5 | 8'-6" | 6 | 5'-4" | 1'-7" | 1'-4" | | | 44 |
| D515 | 5 | 10'-6" | 6 | 7'-4" | 1'-7" | 10" | | | 55 |
| D516 | 4 | 4'-6" | Str. | | | | | | 19 |
| D517 | 8 | 3'-6" | Str. | | | | | | 29 |
| D518 | 6 | 7'-9" | 2 | 3'-5" | 1'-2" | | | | 48 |
| D519 | 32 | 7'-1" | 2 | 2'-1" | 3'-2" | | | | 236 |
| D520 | 8 | 6'-6" | Str. | | | | | | 54 |
| | | | | | | | Total = | | 5939 |
| R505 | 4 | 11'-0" | Str. | Included with railing | | | | | — |
| R506 | 4 | 11'-6" | Str. | for payment | | | | | — |
| | | | | | | | | | |
| B801 | 14 | 24'-9" | Str. | | | | | | 925 |
| B802 | 12 | 12'-0" | Str. | | | | | | 384 |
| | | | | | | | | | |
| B601 | 44 | 14'-3" | 3 | 5'-6" | 1'-5" | 4'-0" | 11" | 3'-0" | 942 |
| B602 | 30 | 14'-2" | 5 | 6'-6" | 5'-5" | 2'-7" | | | 638 |
| | | | | | | | | | |
| B501 | 18 | 6'-9" | 1 | 8" | 2'-9" | 5" | | | 127 |
| B502 | 28 | 23'-4" | Str. | | | | | | 681 |
| B503 | 52 | 7'-2" | 2 | 2'-0" | 3'-5" | | | | 389 |
| B504 | 30 | 7'-4" | 4 | 6'-6" | 1'-0" | | | | 229 |
| B505 | 30 | 8'-4" | 2 | 1'-7" | 5'-5" | | | | 261 |
| B506 | 12 | 10'-1" | 2 | 4'-7" | 1'-2" | | | | 126 |
| B507 | 10 | 11'-3" | Str. | | | | | | 117 |
| B508 | 10 | 11'-8" | Str. | | | | | | 122 |
| B509 | 22 | 3'-11" | 2 | 1'-3" | 1'-8" | | | | 90 |
| B510 | 28 | 3'-1" to 3'-10" | 2 | 1'-3" | 10 to 1'-7" | 4 each vary 8" by 1½" | | | 101 |
| B511 | 12 | 9'-4" | Str. | | | | | | 117 |
| B512 | 12 | 8'-1" | Str. | | | | | | 101 |
| B513 | 12 | 8'-4" | Str. | | | | | | 104 |
| B514 | 5 | 8'-6" | 6 | 5'-4" | 1'-7" | 1'-4" | | | 44 |
| B515 | 5 | 10'-6" | 6 | 7'-4" | 1'-7" | 10" | | | 55 |
| B516 | 4 | 4'-6" | Str. | | | | | | 19 |
| B517 | 8 | 3'-6" | Str. | | | | | | 29 |
| B518 | 6 | 7'-9" | 2 | 3'-5" | 1'-2" | | | | 48 |
| B519 | 32 | 7'-1" | 2 | 2'-1" | 3'-2" | | | | 236 |
| B520 | 8 | 6'-6" | Str. | | | | | | 54 |
| | | | | | | | Total = | | 5939 |
| R505 | 4 | 11'-0" | Str. | Included with railing | | | | | — |
| R506 | 4 | 11'-6" | Str. | for payment | | | | | — |
| | | | | | | | | | |
| C801 | 14 | 24'-9" | Str. | | | | | | 925 |
| C802 | 12 | 12'-0" | Str. | | | | | | 384 |
| | | | | | | | | | |
| C601 | 44 | 14'-3" | 3 | 5'-6" | 1'-5" | 4'-0" | 11" | 3'-0" | 942 |
| C602 | 30 | 14'-2" | 5 | 6'-6" | 5'-5" | 2'-7" | | | 638 |
| | | | | | | | | | |
| C501 | 18 | 6'-9" | 1 | 8" | 2'-9" | 5" | | | 127 |
| C502 | 28 | 23'-4" | Str. | | | | | | 681 |
| C503 | 52 | 7'-2" | 2 | 2'-0" | 3'-5" | | | | 389 |
| C504 | 30 | 7'-4" | 4 | 6'-6" | 1'-0" | | | | 229 |
| C505 | 30 | 8'-4" | 2 | 1'-7" | 5'-5" | | | | 261 |
| C506 | 12 | 10'-1" | 2 | 4'-7" | 1'-2" | | | | 126 |
| C507 | 10 | 11'-3" | Str. | | | | | | 117 |
| C508 | 10 | 11'-8" | Str. | | | | | | 122 |
| C509 | 22 | 3'-11" | 2 | 1'-3" | 1'-8" | | | | 90 |
| C510 | 28 | 3'-1" to 3'-10" | 2 | 1'-3" | 10 to 1'-7" | 4 each vary 8" by 1½" | | | 101 |
| C511 | 12 | 9'-4" | Str. | | | | | | 117 |
| C512 | 12 | 8'-1" | Str. | | | | | | 101 |
| C513 | 12 | 8'-4" | Str. | | | | | | 104 |
| C514 | 5 | 8'-6" | 6 | 5'-4" | 1'-7" | 1'-4" | | | 44 |
| C515 | 5 | 10'-6" | 6 | 7'-4" | 1'-7" | 10" | | | 55 |
| C516 | 4 | 4'-6" | Str. | | | | | | 19 |
| C517 | 8 | 3'-6" | Str. | | | | | | 29 |
| C518 | 6 | 7'-9" | 2 | 3'-5" | 1'-2" | | | | 48 |
| C519 | 32 | 7'-1" | 2 | 2'-1" | 3'-2" | | | | 236 |
| C520 | 8 | 6'-6" | Str. | | | | | | 54 |
| | | | | | | | Total = | | 5939 |
| R505 | 4 | 11'-0" | Str. | Included with railing | | | | | — |
| R506 | 4 | 11'-6" | Str. | for payment | | | | | — |
| | | | | | | | | | |
| | | PIERS - RIGHT | | | | | | | |
| P901 | 96 | 6'-6" | 4 | 5'-6" | 1'-3" | | | | 2122 |
| P902 | 24 | 19'-4" | Str. | | | | | | 1578 |
| P903 | 12 | 19'-10" | Str. | | | | | | 809 |
| P904 | 12 | 20'-0" | Str. | | | | | | 816 |
| P905 | 12 | 20'-4" | Str. | | | | | | 830 |
| P906 | 12 | 20'-8" | Str. | | | | | | 843 |
| P907 | 12 | 20'-9" | Str. | | | | | | 847 |
| P908 | 12 | 21'-0" | Str. | | | | | | 857 |
| P917 | 16 | 25'-8" | 4 | 23'-3" | 2'-8" | | | | 1396 |
| P918 | 6 | 26'-0" | Str. | | | | | | 530 |
| P801 | 34 | 16'-3" | Str. | | | | | | 1475 |
| P701 | 64 | 10'-4" | 7 | 8'-8" | 10" | 7" | | | 1352 |
| P601 | 64 | 8'-0" | 7 | 6'-8" | 8" | 6" | | | 769 |
| P501 | 8 | 21'-4" | Str. | | | | | | 178 |
| P502 | 20 | 7'-4" | 8 | 1'-7" | 1'-4" | 4'-2" | | | 153 |
| P503 | 4 | 3'-0" | 2 | | 9" | 1'-9" | | | 13 |
| P504 | 16 | 3'-7" | 2 | | 9" | 2'-4" | | | 60 |
| P505 | 48 | 3'-11" | 2 | | 9" | 2'-8" | | | 196 |
| P506 | 96 | 6'-11" | 2 | 2'-3" | 2'-8" | | | | 693 |
| | | | | | | | Total = | | 14,349 |
| | | PIERS - LEFT | | | | | | | |
| P901 | 96 | 6'-6" | 4 | 5'-6" | 1'-3" | | | | 2122 |
| P902 | 24 | 19'-4" | Str. | | | | | | 1578 |
| P903 | 12 | 19'-10" | Str. | | | | | | 809 |
| P904 | 12 | 20'-0" | Str. | | | | | | 816 |
| P905 | 12 | 20'-4" | Str. | | | | | | 830 |
| P906 | 12 | 20'-8" | Str. | | | | | | 843 |
| P907 | 12 | 20'-9" | Str. | | | | | | 847 |
| P908 | 12 | 21'-0" | Str. | | | | | | 857 |
| P917 | 16 | 25'-8" | 4 | 23'-3" | 2'-8" | | | | 1396 |
| P918 | 6 | 26'-0" | Str. | | | | | | 530 |
| P801 | 34 | 16'-3" | Str. | | | | | | 1475 |
| P701 | 64 | 10'-4" | 7 | 8'-8" | 10" | 7" | | | 1352 |
| P601 | 64 | 8'-0" | 7 | 6'-8" | 8" | 6" | | | 769 |
| P501 | 8 | 21'-4" | Str. | | | | | | 178 |
| P502 | 20 | 7'-4" | 8 | 1'-7" | 1'-4" | 4'-2" | | | 153 |
| P503 | 4 | 3'-0" | 2 | | 9" | 1'-9" | | | 13 |
| P504 | 16 | 3'-7" | 2 | | 9" | 2'-4" | | | 60 |
| P505 | 48 | 3'-11" | 2 | | 9" | 2'-8" | | | 196 |
| P506 | 96 | 6'-11" | 2 | 2'-3" | 2'-8" | | | | 693 |
| | | | | | | | Total = | | 14,349 |
| | | PIERS - LEFT | | | | | | | |
| P901 | 96 | 6'-6" | 4 | 5'-6" | 1'-3" | | | | 2122 |
| P902 | 24 | 19'-4" | Str. | | | | | | 1578 |
| | | | | | | | | | |
| | | SUPERSTRUCTURE-LEFT | | | | | | | |
| S701 | 197 | 27'-0" | Str. | | | | | | 10,872 |
| S702 | 197 | 19'-0" | Str. | | | | | | 7,651 |
| | | | | | | | | | |
| S601 | 394 | 22'-10" | Str. | | | | | | 13,512 |
| S602 | 405 | 27'-9" | Str. | | | | | | 16,881 |
| S603 | 64 | 20'-0" | Str. | | | | | | 1,923 |
| S501 | 208 | 5'-8" | 1 | 8" | 2'-2" | 7" | | | 1,229 |
| S502 | 208 | 3'-0" | 2 | 8" | 1'-11" | | | | 651 |
| S503 | 208 | 4'-2" | 2 | 1'-4" | 1'-9" | | | | 904 |
| S509 | 2 | 6'-6" | 2 | 2'-0" | 2'-9" | | | | 14 |
| S510 | 4 | 7'-7" | 9 | 1'-4" | 2'-7" | 7" | 5" | | 32 |
| R501 | 16 | 12'-2" | Str. | Included with railing | | | | | — |
| R502 | 56 | 15'-0" | Str. | for payment | | | | | — |
| | | | | | | | | Total = | 53,669 |
| | | SUPERSTRUCTURE-RIGHT | | | | | | | |
| S703 | 182 | 27'-0" | Str. | | | | | | 10,044 |
| S704 | 182 | 19'-0" | Str. | | | | | | 7,068 |
| | | | | | | | | | |
| S604 | 324 | 31'-8" | Str. | | | | | | 15,411 |
| S605 | 364 | 22'-10" | Str. | | | | | | 12,483 |
| S606 | 64 | 18'-0" | Str. | | | | | | 1,730 |
| S504 | 192 | 5'-8" | 1 | 8" | 2'-2" | 7" | | | 1,135 |
| S505 | 192 | 3'-0" | 2 | 8" | 1'-11" | | | | 601 |
| S506 | 192 | 4'-2" | 2 | 1'-4" | 1'-9" | | | | 834 |
| S507 | 2 | 6'-6" | 2 | 2'-0" | 2'-9" | | | | 14 |
| S508 | 4 | 7'-7" | 9 | 1'-4" | 2'-7" | 7" | 5" | | 32 |
| R503 | 16 | 6'-10" | Str. | Included with railing | | | | | — |
| R504 | 56 | 15'-0" | Str. | for payment | | | | | — |
| | | | | | | | | Total = | 49,352 |

## ESTIMATED QUANTITIES

NOTE: Optional Bolted Field Splice weights not included in 5.7 or 5.8.

| Item | Total | Unit | Description | RIGHT STRUCTURE Superstr. | Abuts. | Piers | General | LEFT STRUCTURE Superstr. | Abuts. | Piers | General |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E-2 | 790 | cu.yds. | Unclassified excavation. | | 250 | 155 | | | 250 | 135 | |
| S-1 | 340 | cu.yds. | Class "C" concrete, superstructure. | 163 | | | | 177 | | | |
| S-1 | 128 | cu.yds. | Class "C" concrete, pier caps & columns. | | | 60 | | | | 68 | |
| S-1 | 182 | cu.yds. | Class "E" concrete, abutments above footings | | 91 | | | | 91 | | |
| S-1 | 268 | cu.yds. | Class "E" concrete, footings. | | 78 | 56 | | | 78 | 56 | |
| S-4 | 161,259 | lbs. | Reinforcing steel. | 49,352 | 11,878 | 16,408 | | 53,669 | 11,878 | 18,074 | |
| S-7 | 240,650 | lbs. | Structural steel. | 114,350 | (114,350) | | | 126,300 | (126,300) | | |
| S-8 | 240,650 | lbs. | Field painting of structural steel. | 114,350 | | | | 126,300 | | | |
| S-14 | 599.78 | lin. ft. | Railing (aluminum rail and supports, concrete parapet. Type "A" | 243.29 | 46.60 | | | 263.29 | 46.60 | | |
| S-16 | lump sum | | First test pile.* | | | | | | | | |
| S-18 | 3,120 | lin. ft. | 10BP42 steel piles. | | 600 | 960 | | | 600 | 960 | |
| S-25 | lump sum | | Electrical lighting system, complete.* | | | | | | | | |
| S-29 | 60 | cu.yds. | Porous backfill. | | 30 | | | | 30 | | |
| S-29 | 22 | each | Scuppers, including supports. | 10 | | | | 12 | | | |
| S-101 | 340 | each | Water-reducing, set-retarding admixture | 163 | | | | 177 | | | |
| I-10 | 985 | sq.yds. | Concrete slope protection. | | | | 390 | | | | 595 |
| | | | *See General Summary-Lighting Sheet. | | | | | | | | |

*Payment will be made for only one first test pile. It may be driven for either the Right or Left Bridge.

## SPIRAL BARS

| | Mark | Total | Length | Size | Pitch | No. Turns | Core Dia. | Weight |
|---|---|---|---|---|---|---|---|---|
| LEFT BRIDGE | SP401 | 2 | 16'-6" | ½"ϕ | 4½" | 47 | 2'-8" | 608 |
| | SP402 | 1 | 17'-0" | ½"ϕ | 4½" | 48 | 2'-8" | 311 |
| | SP403 | 1 | 17'-2" | ½"ϕ | 4½" | 49 | 2'-8" | 317 |
| | SP404 | 1 | 17'-6" | ½"ϕ | 4½" | 50 | 2'-8" | 324 |
| | SP405 | 1 | 17'-10" | ½"ϕ | 4½" | 51 | 2'-8" | 330 |
| | SP406 | 1 | 18'-0" | ½"ϕ | 4½" | 51 | 2'-8" | 330 |
| | SP407 | 1 | 18'-3" | ½"ϕ | 4½" | 52 | 2'-8" | 337 |
| | | | | | | Total | | 2557 |
| RIGHT BRIDGE | SP408 | 1 | 12'-4" | ½"ϕ | 4½" | 36 | 2'-8" | 232 |
| | SP409 | 1 | 12'-10" | ½"ϕ | 4½" | 37 | 2'-8" | 239 |
| | SP410 | 1 | 13'-2" | ½"ϕ | 4½" | 38 | 2'-8" | 245 |
| | SP411 | 1 | 13'-8" | ½"ϕ | 4½" | 39 | 2'-8" | 252 |
| | SP412 | 1 | 14'-1" | ½"ϕ | 4½" | 41 | 2'-8" | 265 |
| | SP413 | 1 | 14'-5" | ½"ϕ | 4½" | 42 | 2'-8" | 271 |
| | SP414 | 1 | 14'-9" | ½"ϕ | 4½" | 42 | 2'-8" | 271 |
| | SP415 | 1 | 15'-3" | ½"ϕ | 4½" | 44 | 2'-8" | 284 |
| | | | | | | Total | | 2059 |


RE401

## REPLACEMENT BARS

| Mark | Total | Length | Type |
|---|---|---|---|
| RE901 | 1 | 6'-10" | Str. |
| RE801 | 1 | 6'-6" | Str. |
| RE701 | 2 | 6'-3" | Str. |
| RE601 | 4 | 5'-11" | Str. |
| RE501 | 2 | 5'-7" | Str. |
| RE401 | 1 | 5'-3" | Bent |

## BAR SIZE

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A601 is a number 6 size bar.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE & ESTIMATED QUANTITIES

BRIDGE NO. MAH-18-1678 L&R
OVER CHERRY HILL AVENUE
MAHONING COUNTY
STA. 585+16.33 L.B. STA. 585+21.33 R.B.
STA. 586+50.99 L.B. STA. 586+45.99 R.B.

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| — | — | — | — | GJR | 8-16-63 | |

| FED. RD. DIVISION | STATE | PROJECT | | 261 |
|---|---|---|---|---|
| 2 | OHIO | | | |

**MAH-18-15.50**
**MAHONING COUNTY**

**℄ R.R. RIGHT OF WAY**

P.I. Sta. 90+83.37
Δ = 07° 30'
Dc = 02° 50' 01"
T = 132.54'
L = 264.68
R = 2022.17
P.C. Sta. 89+51.19
P.T. Sta. 92+15.87

P.V.I. Sta. 583+00
Elev. 972.99
G1 = +2.58 %
G2 = - 0.856 %

Slope Transition from 1.8:1 to 2:1.

Proposed 12"ϕ Pipe

H.W.

I-10 Dumped Rock Fill (Roadway Item)

Special Berm & Slope Protection See Roadway Sheet

67°02'00" Tangent to R.R. curve

End Approach Slab Sta. 590+22.57

℄ Wickliffe Expressway

S. 16° 21' 04" E.

T.S. Sta. 592+54.10

Begin Approach Slab Sta. 592+09.46

P.T. Sta. 92+15.87

Sta. 591+13.93 ℄ = Sta. 91+57.78 ℄ R.R. Track

Critical Clearance Point

ERIE - LACKAWANNA RAILROAD

R/W

Slope Transition from 1.9:1 to 2:1

Special Berm & Slope Protection See Roadway Sheet

℄ Proposed 66" diameter pipe culvert (Roadway Item)

O.E.Co.

M.H.

Varies 11'-0" | 20'-0" | 20'-0" | 36'-0" | 11'-0"

8'-0" | 3'-0" | 3'-0" | 8'-0"

Bridge Limits = 186.89'

℄ 27" ϕ Concrete Combined Storm & Sanitary Sewer

967.85 | 967.00 | 590+22.57 | 966.14 | 965.29 | 592+09.46 | 964.43

- 0.856 %

El. 955.00 Abut. A
El. 954.70 Abut. C

Exp. | Slope Varies | Exp. | Fix | Exp.

El. 952.50 Abut. B
El. 952.00 Abut. D

12" ϕ Cast-in-place Reinf. Conc. Piles.
Estimated average pay length = 30' (Typ)

El. 926.00 Rt.
El. 924.00 Lt.

23'-0" Req'd Clear
31'-11" Actual Clear

27" Conc.

2:1 Normal

El. 926.00 Rt.
El. 925.50 Lt.

66" Pipe

I-10 Crushed Aggregate Slope Protection (Typical)

12" ϕ Cast-in-place Reinf. Concrete Piles. Estimated average pay length = 30' (Typical)

970 | 960 | 950 | 940 | 930 | 920 | 910 | 900

589 | 590 | 591 | 592 | 593

Elev. Elevations Based on Datum

● Indicates boring location

**FOUNDATION SOUNDINGS:** Foundation design and foundation quantities are based on a study of borings and soil-sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State assumes no responsibility for the accuracy thereof.

**BENCH MARK 200:** Top stem of hydrant on north side of Concord Avenue, 180 feet east from Gem Avenue. Elev. 948.204.

**BENCH MARK 201:** Top stem of hydrant on north side of Concord Avenue, 430 feet west from Gem Avenue. Elev. 965.264.

A.D.T. (1975) 44,910 (Each Structure)

## PROPOSED STRUCTURE

TYPE: 3-Span continuous steel beam with reinforced concrete deck and substructure.
SPANS: 56'-0", 70'-0", 56'-0"
ROADWAY: Right 50'-0" 5/8 parapets including 1'-2" curbs. Left varies.
LOAD FREQUENCY: CF 2000 (57) (Adequate for alternate A.A.S.H.O. Loading).
SKEW: 22° 58' L.F.
WEARING SURFACE: 1" Monolithic concrete.
APPROACH SLABS: AS-1-54 (25' long).
ALIGNMENT: Tangent.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

**SITE PLAN**

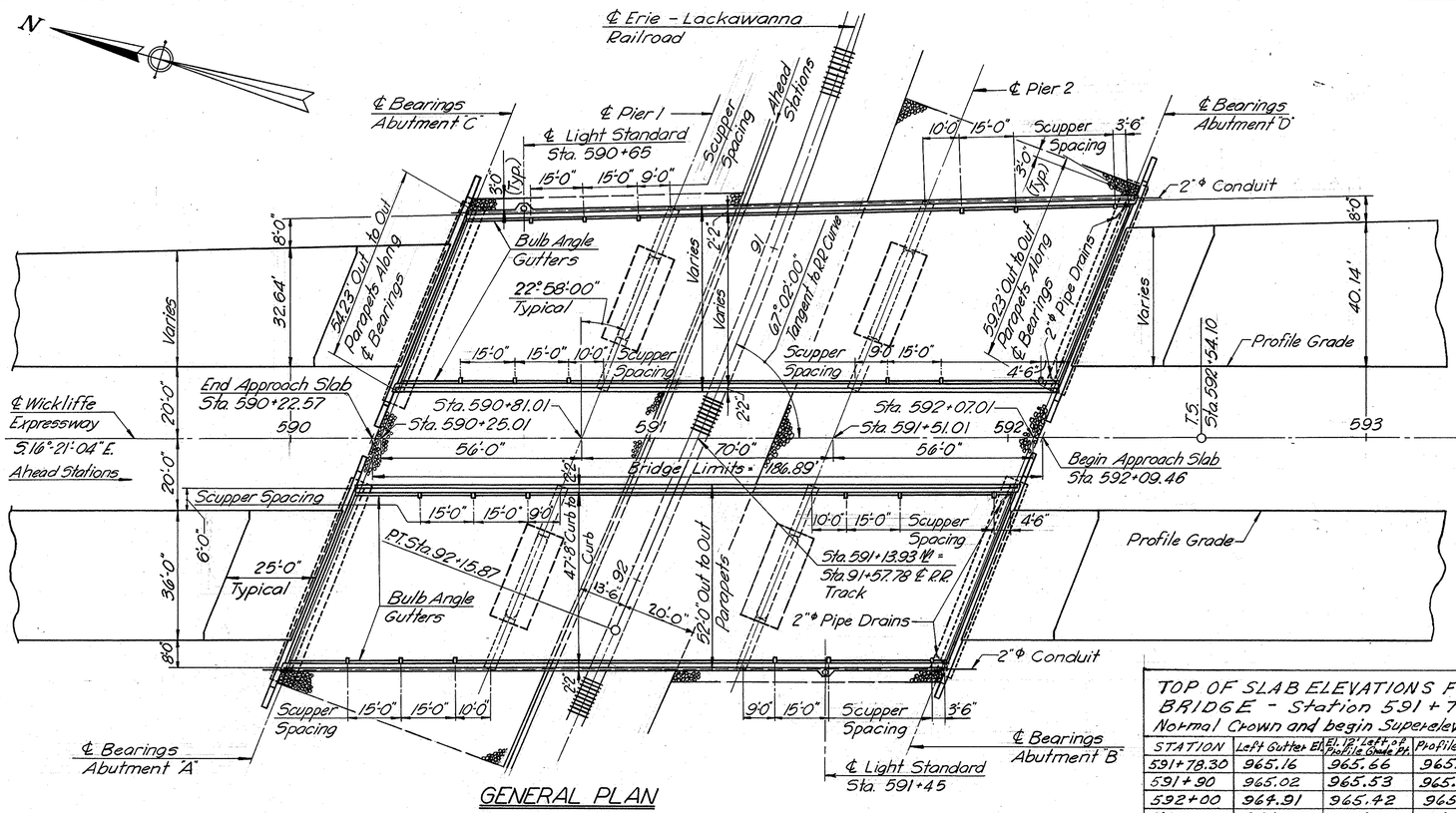
BRIDGE NO. MAH-18-1688 L. & R.
OVER ERIE - LACKAWANNA R.R.

MAHONING COUNTY — STA. 590+22.57 — STA. 592+09.46

| PRESENT TOPOGRAPHY | | PROPOSED WORK | | | |
|---|---|---|---|---|---|
| SURVEYED | DRAWN | DESIGNED | DRAWN | CHECKED | REVIEWED |
| Aurilio | C W C | DWN. | P.T.R. | V.E. | PJK 8/16-83 |

| FED. RD. DIVISION | STATE | PROJECT | | 262 |
|---|---|---|---|---|
| 2 | OHIO | | | |

**MAH-18-15.50**
**MAHONING COUNTY**




GENERAL PLAN

TOP OF SLAB ELEVATIONS FOR LEFT BRIDGE - Station 591+78.30 - End
Normal Crown and begin Super-elevation Runout

| STATION | Left Gutter El. | El. 12" Left of Profile Grade Pt. | Profile Grade El. | Right Gutter El. |
|---|---|---|---|---|
| 591+78.30 | 965.16 | 965.66 | 965.47 | 965.39 |
| 591+90 | 965.02 | 965.53 | 965.37 | 965.31 |
| 592+00 | 964.91 | 965.42 | 965.29 | 965.23 |
| 592+10 | 964.79 | 965.31 | 965.20 | 965.15 |
| 592+20 | 964.68 | 965.20 | | |
| 592+30 | 964.56 | | | |

Utility Lines

All expense involved in relocating affected utility lines shall be born by the owners. The Contractor and Owners are requested to cooperate by aranging their work in such a manner that inconvenience to either will be held to a minimum.

Extreme care must be used during the construction of these bridges due to the existing Ohio Edison Company power lines. These lines are located approximately in the area of the forward piers and are 65 ± ft above the final location of the pier piling.

## GENERAL NOTES:

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

REFERENCE shall be made to Standard Drawings CSB-2-56, Sheets 2 and 3 of 6, revised 2-2-59; AR-1-57 revised 4-2-62; FSB-1-62 revised 1-15-63; Supplemental Specifications S-101 dated 7-12-62 and AS-1-54 revised 7-5-62.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments and piers.

PILES shall be driven to a minimum bearing capacity of 31.3 tons per pile for the abutments and 39.1 tons per pile for the piers.

FOUNDATION BEARING PRESSURE: Abutment B and D footings are designed for a maximum bearing pressure of 1.8 tons per square foot.

WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

RAILROAD AERIAL LINES will be relocated by the railroad. The Contractor shall use all precautions necessary to see that the lines are not disturbed during the construction stage and shall cooperate with the railroad in the relocation of these lines. The cost of the relocation shall be included in the railroad force account work.

CONSTRUCTION CLEARANCE of 27'-0" vertically above the top of the railroad rails and 8'-0" horizontally from the center of tracks shall be maintained at all times.

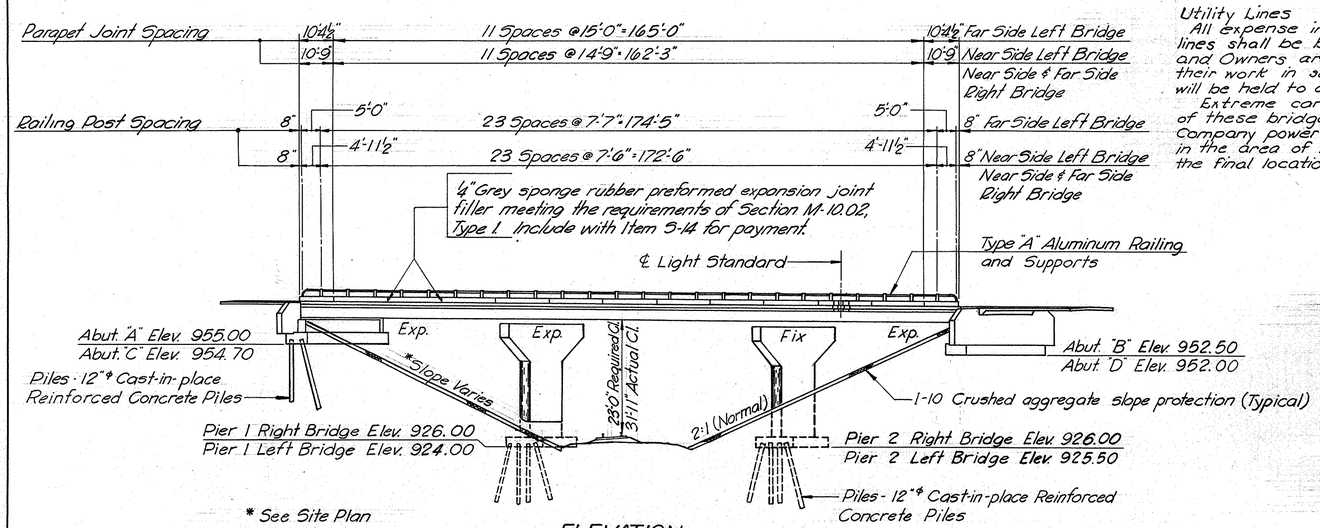
SHEETING AND BRACING: Before Construction is started, eight sets of prints showing details of the sheeting and bracing to be used for excavation adjacent to the railroad tracks shall be submitted to the Director for approval by the Department of Highways and by the railroad company.

ALIGNING RAILROAD TRACKS: After the Contractor has completed all excavation and backfill adjacent to the railroad tracks in compliance with Sec. E-2.04 and E-2.08 of the Construction and Material Specifications, subject to the supervision of the railroad company, nothing in Sec. E-2.04, E-2.08 or G-8.07 of the Specifications shall be construed to hold the Contractor liable for aligning and resurfacing the railroad tracks.

EMBANKMENT PROCEDURES: The embankment shall be placed and compacted up to the finished Spill-thru Slopes and to the level of the Subgrade for a distance of 200 feet back of the abutments, after which excavation shall be made for the abutments and for piers that are set in the filled area.

Special care shall be given to the Construction of the embankment between Stations 591+50 and 594+00 (parallel to abutments). All soils placed in embankment within these limits shall be spread in layers not greater than 6" loose depth and shall be compacted to not less than 102 percent of Laboratory Maximum Dry Weight. Each lift shall be approved before material for the next lift is brought in.

All shale or rock placed as fill in this area shall be spread in layers not greater than 8 inches loose depth. Rock which cannot be incorporated in an 8 inch lift shall either be reduced in size or excluded from this part of the embankment. All shale layers and layers containing a mixture of shale and rock shall be sprinkled as directed by the Engineer prior to or during compaction until the moisture content of the shale is not less than optimum minus 3 percent and not more than optimum. Each shale or rock layer shall be rolled with at least four complete coverages of a fully ballasted tamping roller and at least two complete coverages of fully ballasted 50 Ton pneumatic tired roller as specified in Supplemental Specification CE-101.04. All other provisions of Section E-1.08 of the general specifications shall remain in effect.




* See Site Plan

ELEVATION

REFERENCE shall be made to Supplemental Specification 3307 revised 10-1-64 and Standard Drawing SD-2-64 dated 11-25-64.

DESIGN LOADING: CF 2000 (57)

CONCRETE CLASS "C": Basic unit stress 1,333 p.s.i.

CONCRETE CLASS "E": Basic unit stress 1,133 p.s.i.

STRUCTURAL STEEL: ASTM A36 - basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted)

REINFORCING STEEL: ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, structural Grade with basic unit stress of 18,000 psi.

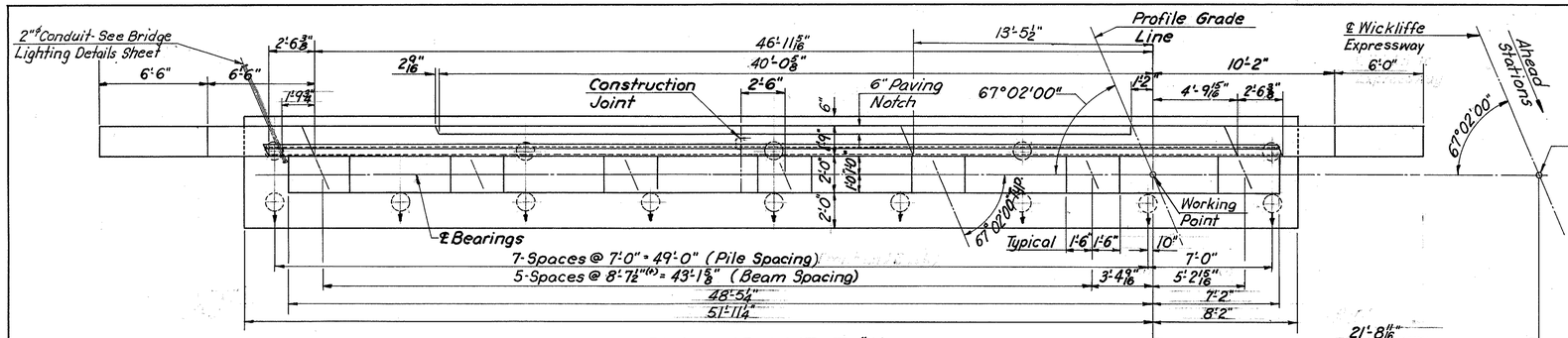
MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

**GENERAL PLAN & ELEVATION**
BRIDGE NO. MAH-18-1688 L. & R.
OVER ERIE - LACKAWANNA R.R.
STA. 590+22.57
STA. 592+09.46
MAHONING COUNTY

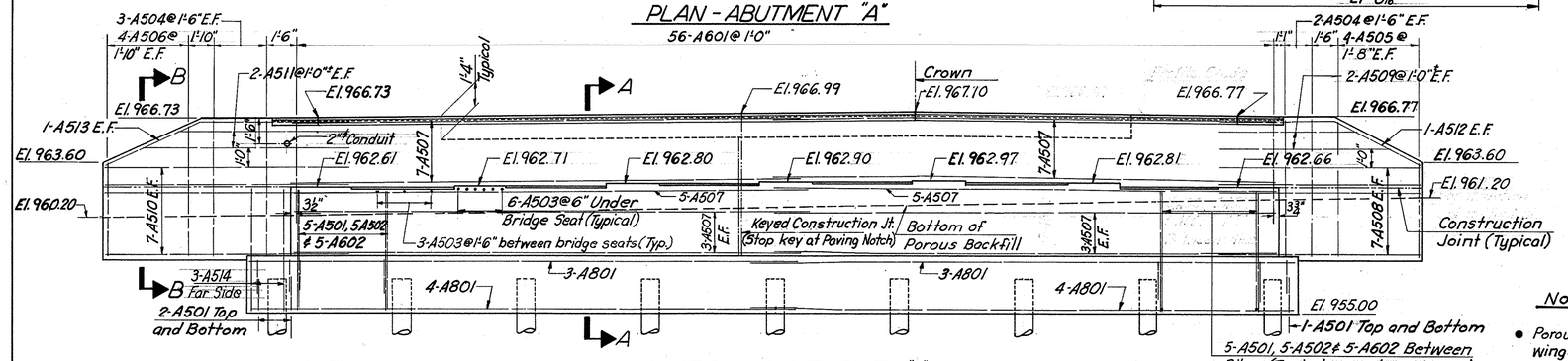
| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| DWM | E.J. | E.J. | M.K. | R.J.K. | 8-16-65 | 2-15-66 |

| FED. RD. DIVISION | STATE | PROJECT | | 263 |
|---|---|---|---|---|
| 2 | OHIO | | | |

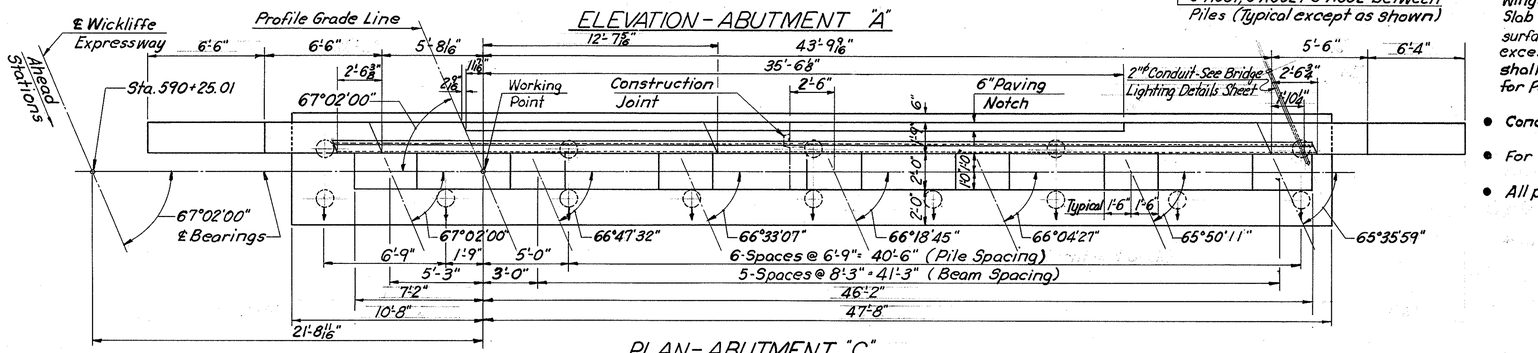
MAH-18-15.50
MAHONING COUNTY




## PLAN - ABUTMENT "A"




## ELEVATION - ABUTMENT "A"

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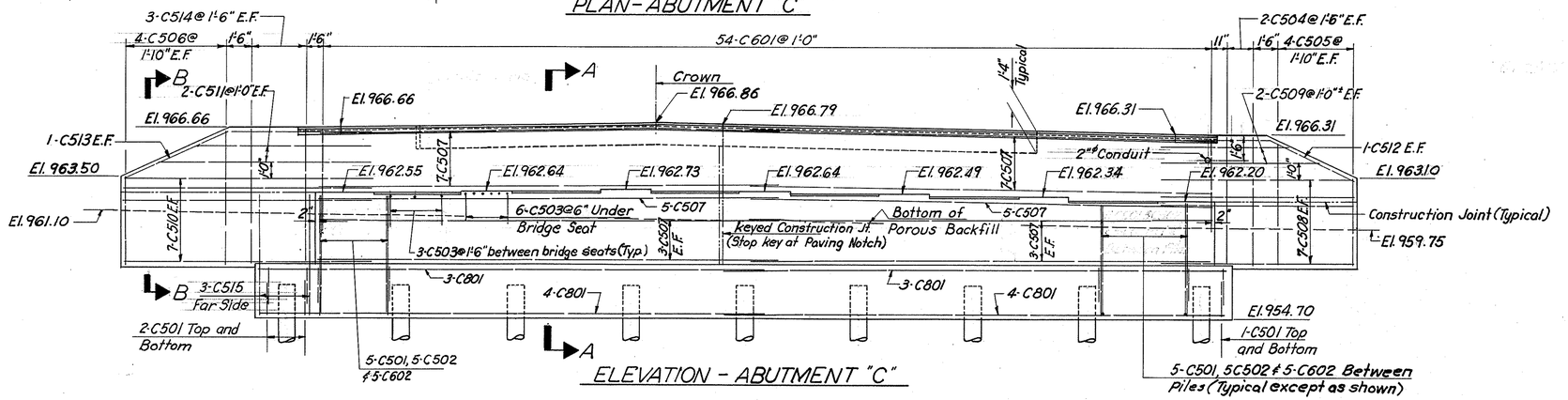
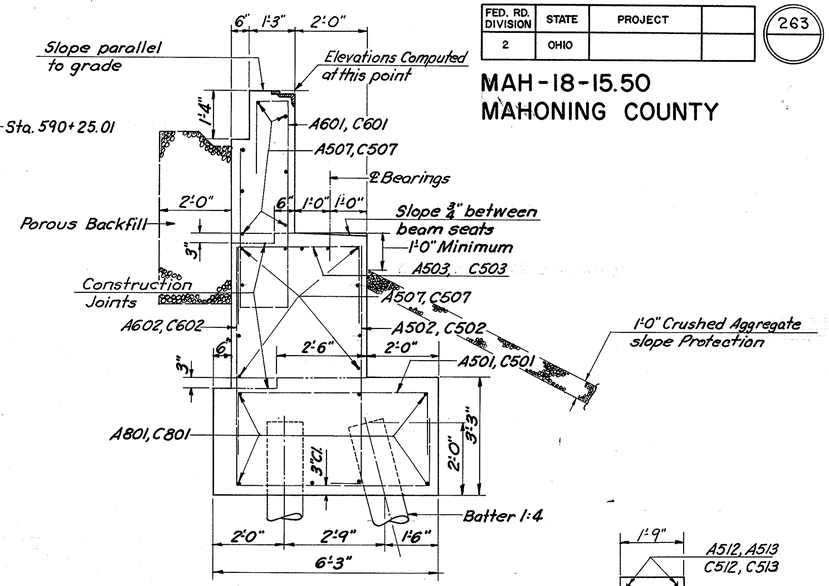
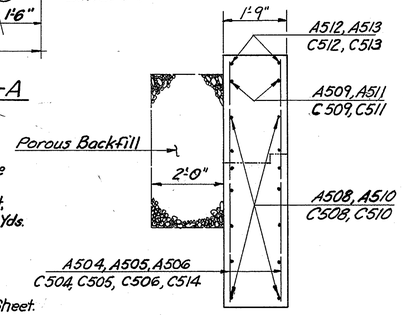



## ELEVATION - ABUTMENT "C"



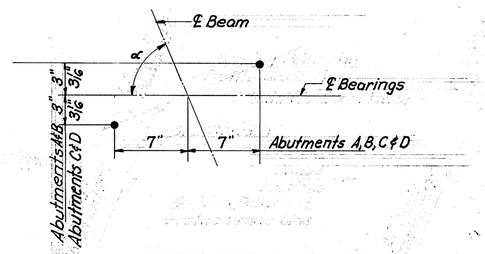

## SECTION A-A




## SECTION B-B

NOTES:

- Porous backfill 2 feet thick full length at abutments and wings shall extend up to the underside of the approach slab or to the finished ground surface and outward to the surface of the embankment slopes. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per Cu. Yds. for Porous Backfill.
- Concrete shall be Class "E"
- For Construction Joint Details, see Abutments B & D Sheet.
- All piles to be 12"ϕ Cast-in-Place Reinforced Concrete Piles.




## ANCHOR ROD LAYOUT

NOTE: For angle α, refer to "Abutment Plan."

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENTS A & C

BRIDGE NO. MAH-18-1688 L. & R.
OVER ERIE - LACKAWANNA R.R.

MAHONING COUNTY

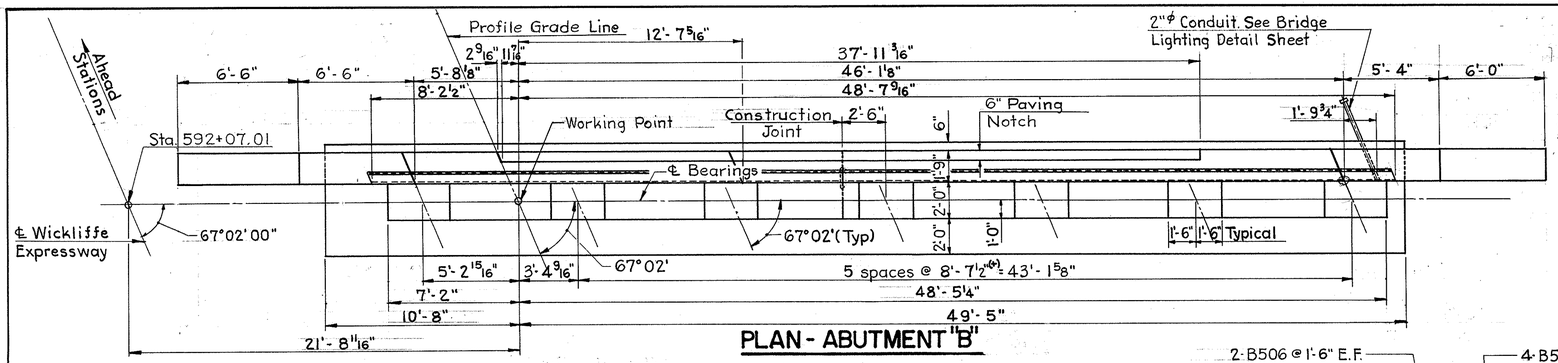
STA. 590+22.57
STA. 592+09.46

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| D.W.N. | D.W.N. | R.J. | V.K. | T.D.K. | 8-16-63 | |

| FED. RD/ DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

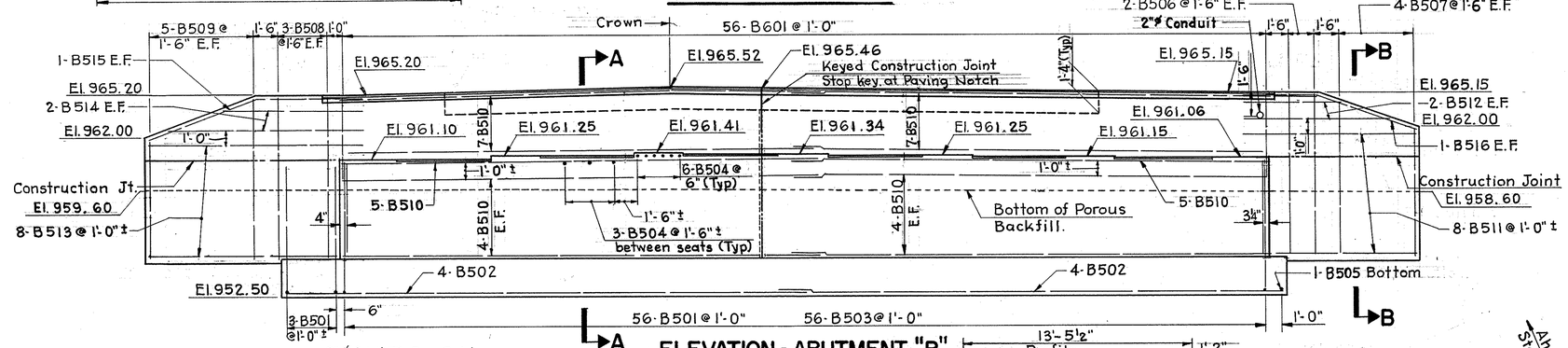
264

MAH-18-15.50
MAHONING COUNTY

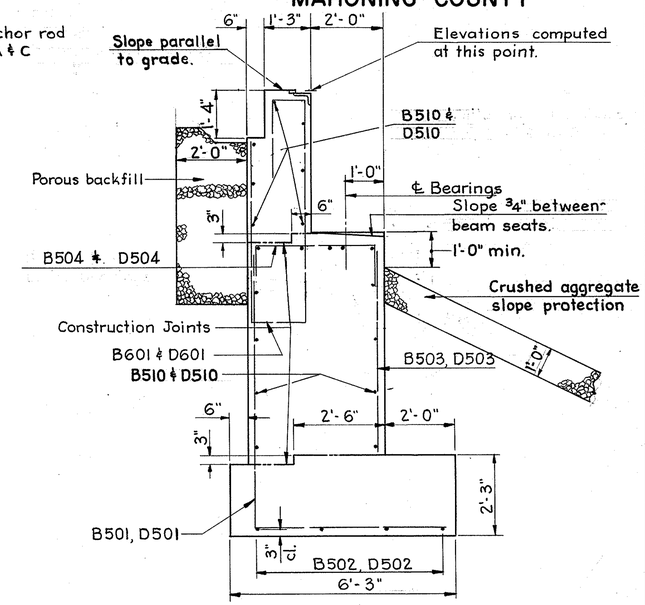



## PLAN - ABUTMENT "B"

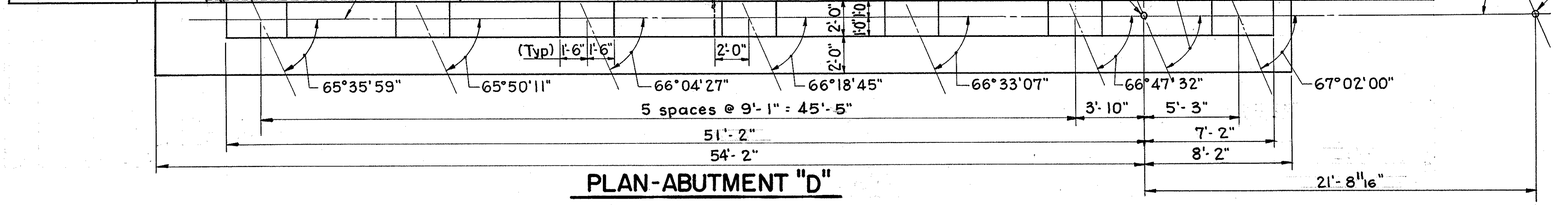
NOTE:
For notes and anchor rod layout see Abutments A & C Sheet



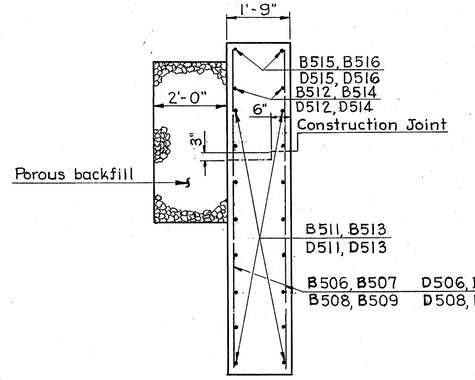

## ELEVATION - ABUTMENT "B"



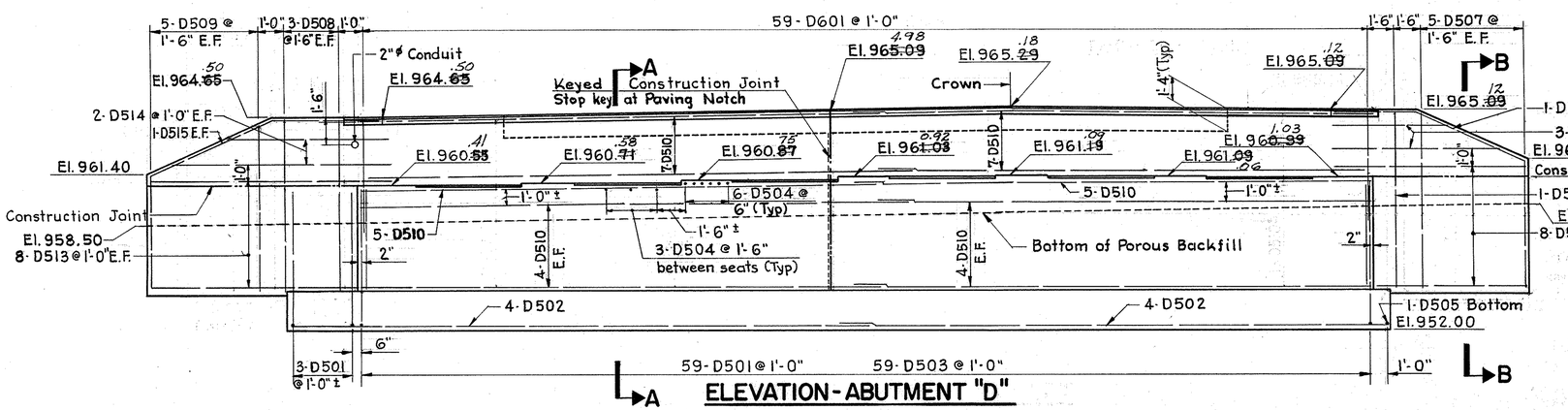

## SECTION A-A



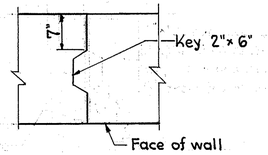

## PLAN-ABUTMENT "D"




## SECTION B-B




## ELEVATION-ABUTMENT "D"




## DETAIL OF CONSTRUCTION JOINT

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENTS B & D

BRIDGE NO. MAH-18-1688 L. & R.
OVER ERIE - LACKAWANNA R.R.

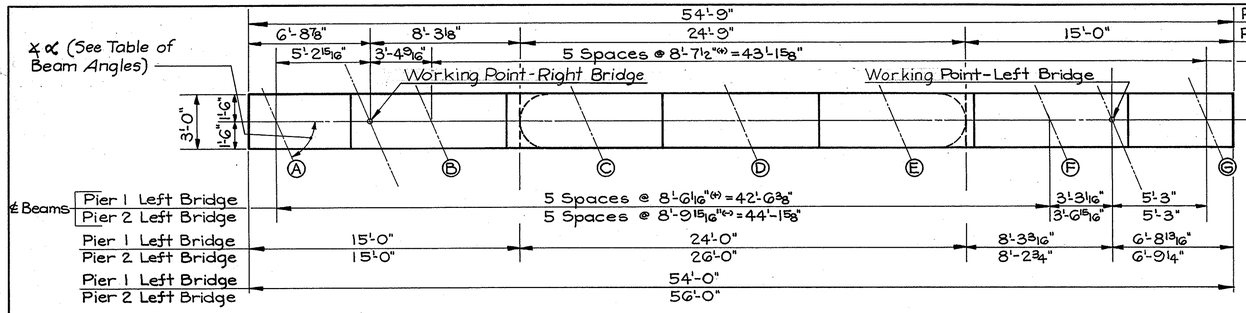
STA. 590+22.57
STA. 592+09.46

MAHONING COUNTY

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| DWN. | DWN | P.T.R. | V.M.C. | 8-16-63. | 2-1-66 |

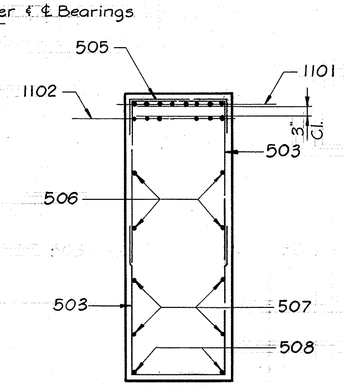
| FED. RD DIVISION | STATE | PROJECT | | 265 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAH-18-15.50
MAHONING COUNTY

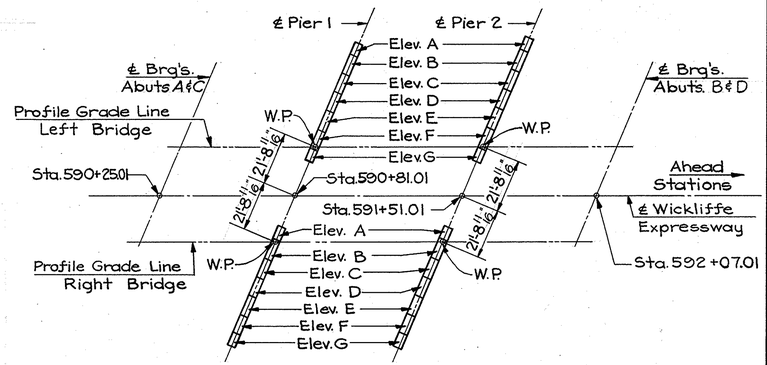



PIER CAP PLAN

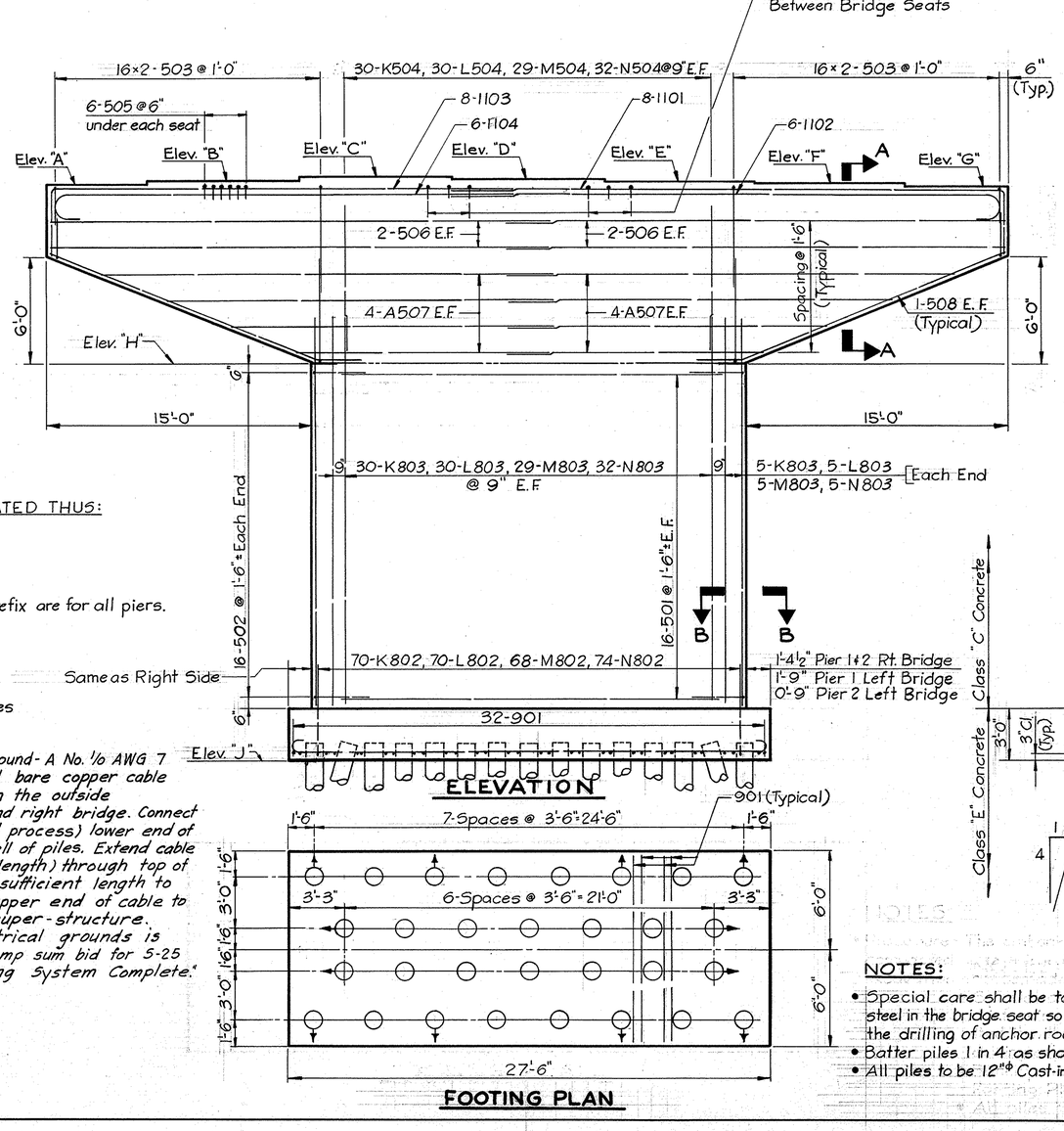
Pier 1 & 2 Right Bridge
Pier 1 & 2 Right Bridge
℄ Beams- Pier 1 & 2 Right Bridge




SECTION A-A




LOCATION OF PIERS

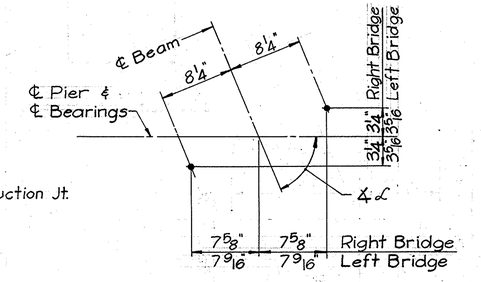



ELEVATION

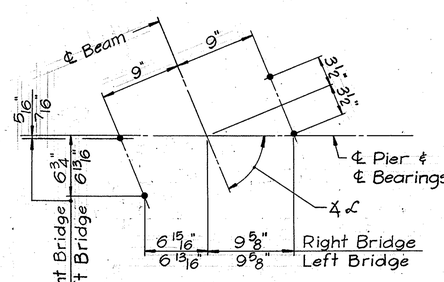



FOOTING PLAN

Construction Jt.

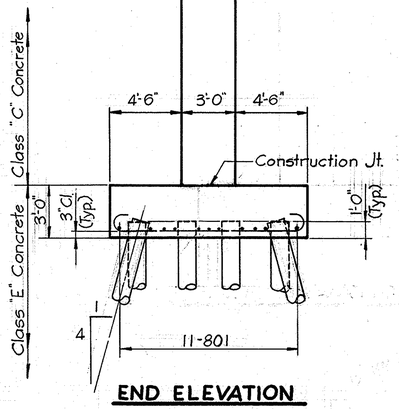



PIER 1




PIER 2

ANCHOR ROD LAYOUTS




END ELEVATION

TABLE OF BEAM ANGLES

| Location | Dimension | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| Pier 1 & 2 Left | ∝ | 65°-35'-59" | 65°-50'-11" | 66°-04'-27" | 66°-18'-45" | 66°-33'-07" | 66°-47'-32" | 67°-02'-00" |
| Pier 1 & 2 Right | ∝ | 67°-02'-00" | 67°-02'-00" | 67°-02'-00" | 67°-02'-00" | 67°-02'-00" | 67°-02'-00" | 67°-02'-00" |

TABLE OF ELEVATIONS

| Location | A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|---|
| Pier 1 Right | 962.14 | 962.29 | 962.44 | 962.38 | 962.28 | 962.19 | 962.09 | 952.09 | 926.00 |
| Pier 2 Right | 961.25 | 961.40 | 961.55 | 961.49 | 961.39 | 961.30 | 961.20 | 951.20 | 926.00 |
| Pier 1 Left | 961.65 | 961.80 | 961.95 | 962.10 | 962.22 | 962.12 | 962.03 | 951.65 | 924.00 |
| Pier 2 Left | 960.72 | 960.88 | 961.04 | 961.19 | 961.33 | 961.23 | 961.14 | 950.72 | 925.50 |

**NOTE:**

BARS ARE DESIGNATED THUS:
K - Pier 1 Right
L - Pier 2 Right
M - Pier 1 Left
N - Pier 2 Left

All bars without prefix are for all piers.

**LEGEND:**

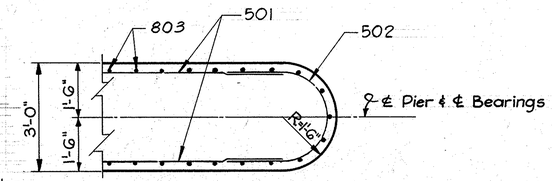
E.F. = Each Face
⊙ = Battered Piles

NOTES

- Super-Structure Ground- A No. 1/0 AWG 7 strand soft annealed bare copper cable shall be encased in the outside of pier No. 2 left and right bridge. Connect (by Exothermic weld process) lower end of cable to metal shell of piles. Extend cable (in one continuous length) through top of pier with lead of sufficient length to exothermic weld upper end of cable to outside beam of super-structure.
- Payment for electrical grounds is included in the lump sum bid for 5-25 "Electrical Lighting System Complete."

NOTES:

- Special care shall be taken in placing reinforcing steel in the bridge seat so that it will not interfere with the drilling of anchor rod holes.
- Batter piles 1 in 4 as shown on the FOOTING PLAN.
- All piles to be 12"ϕ Cast-in-place Reinforced Concrete Piles.




SECTION B-B

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# PIERS

BRIDGE NO. MAH-18-1688 L. & R.
OVER ERIE - LACKAWANNA R.R.

MAHONING COUNTY
STA. 590+22.57
STA. 592+09.46

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| DWN. | DWN. | J.H. | J.K. | JBK | 8-16-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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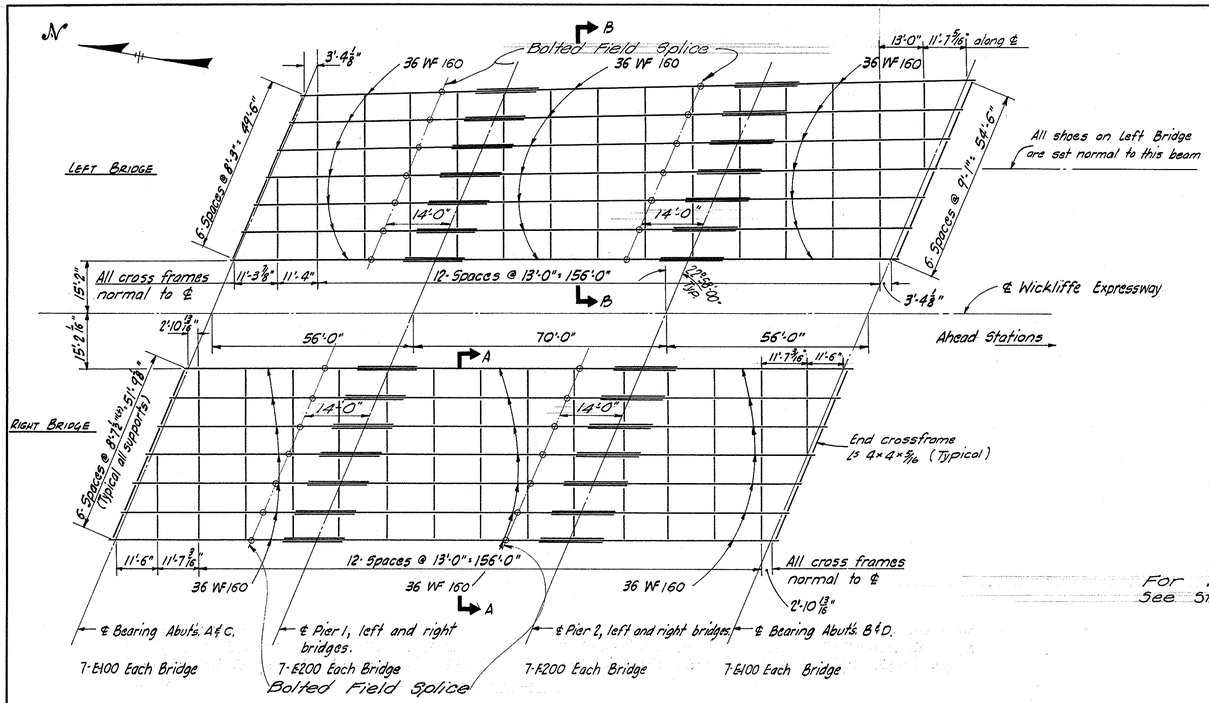
MAH-18-15.50
MAHONING COUNTY

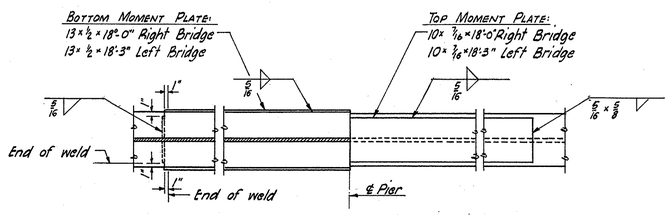



STEEL FRAMING PLAN

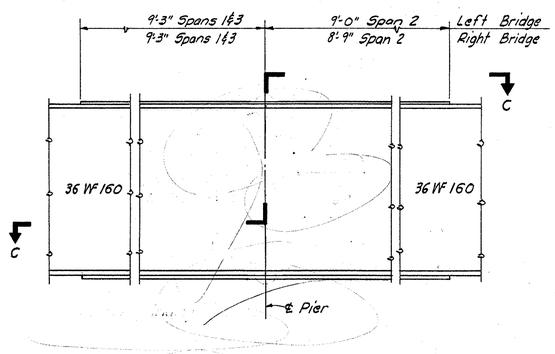
| DEFLECTION & CAMBER | | | |
|---|---|---|---|
| LOCATION | SPAN 1 | SPAN 2 | SPAN 3 |
| Deflection due to weight of steel | 1/16" | 1/16" | 1/16" |
| Deflection due to remaining Dead Load | 1/4" | 3/8" | 1/4" |
| Convexity required for vertical curve | 0" | 0" | 0" |
| Sum of deflections and convexity | 5/16" | 7/16" | 5/16" |
| Required Camber | 0" | 0" | 0" |

Place any natural camber up.

For BOLTED FIELD SPLICES DETAILS See Standard Drawing SD-2-64

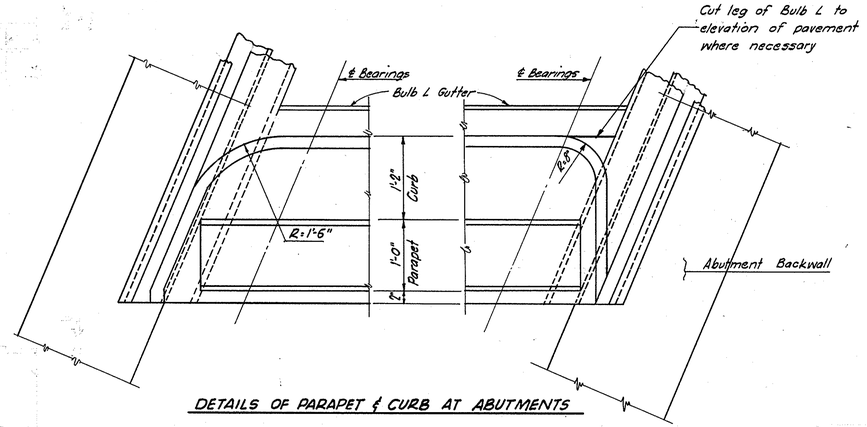



SECTION C-C




MOMENT PLATE DETAIL

NOTE: See other Superstructure Detail Sheet for Sections "A-A" & "B-B."




DETAILS OF PARAPET & CURB AT ABUTMENTS

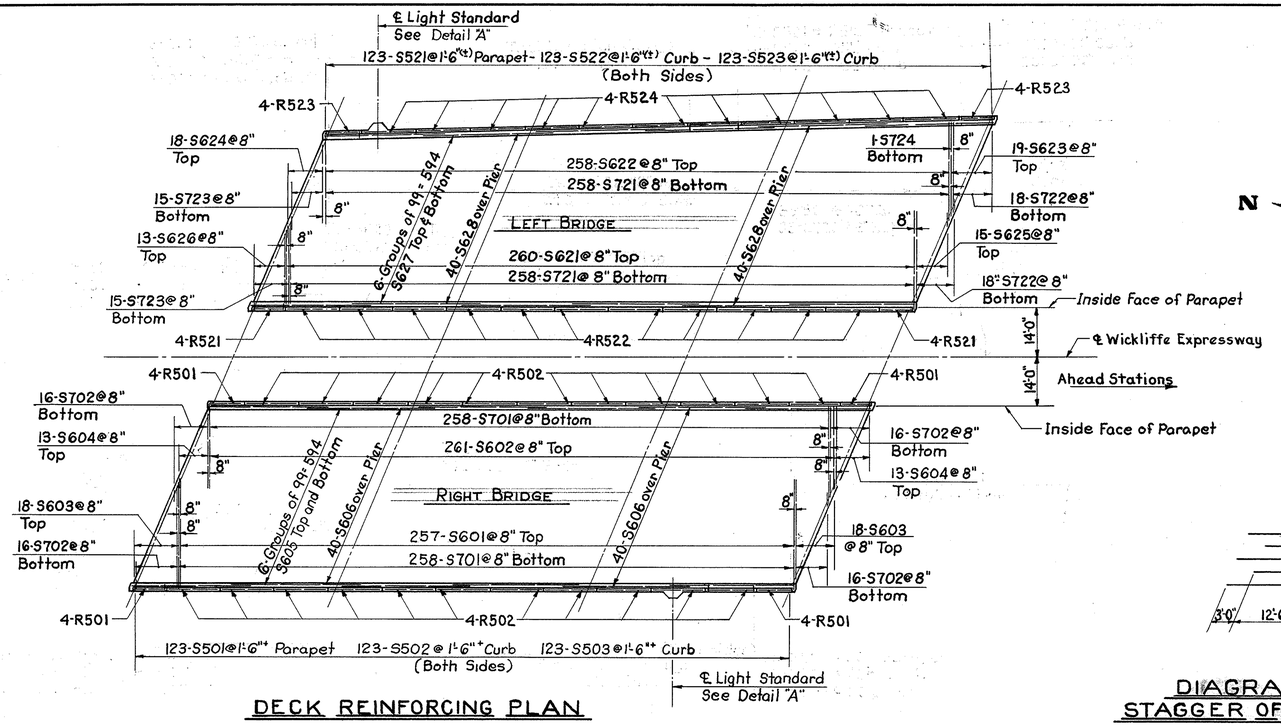
MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18-1688 L. & R.
OVER ERIE — LACKAWANNA R.R.

MAHONING COUNTY
STA. 590+22.57
STA. 592+09.46

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| D.W.N. | W.M. | W.M. | V.K. | [illegible] | 8-16-63 | |




DECK REINFORCING PLAN

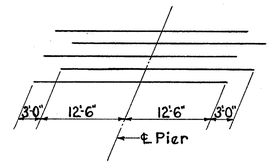
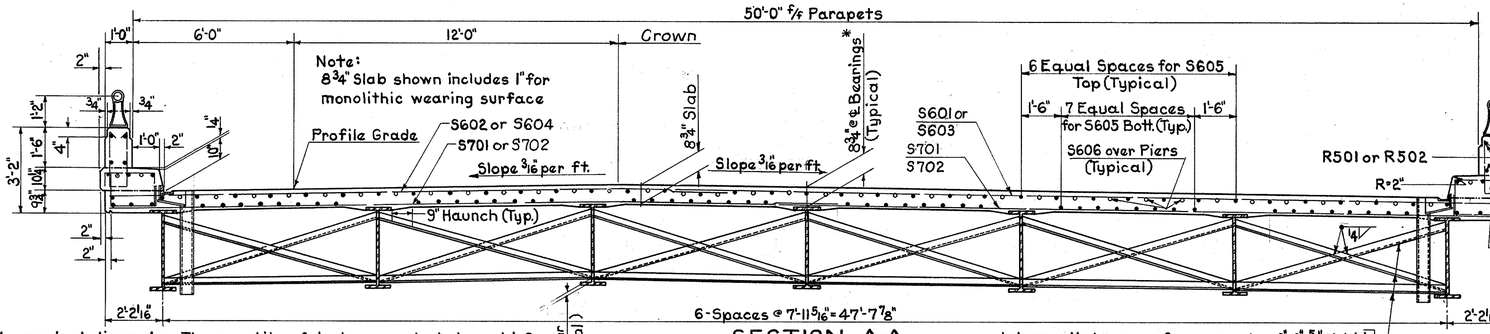


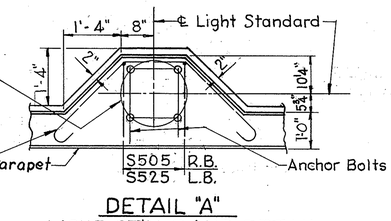

DIAGRAM SHOWING STAGGER OF S606 & S628 BARS



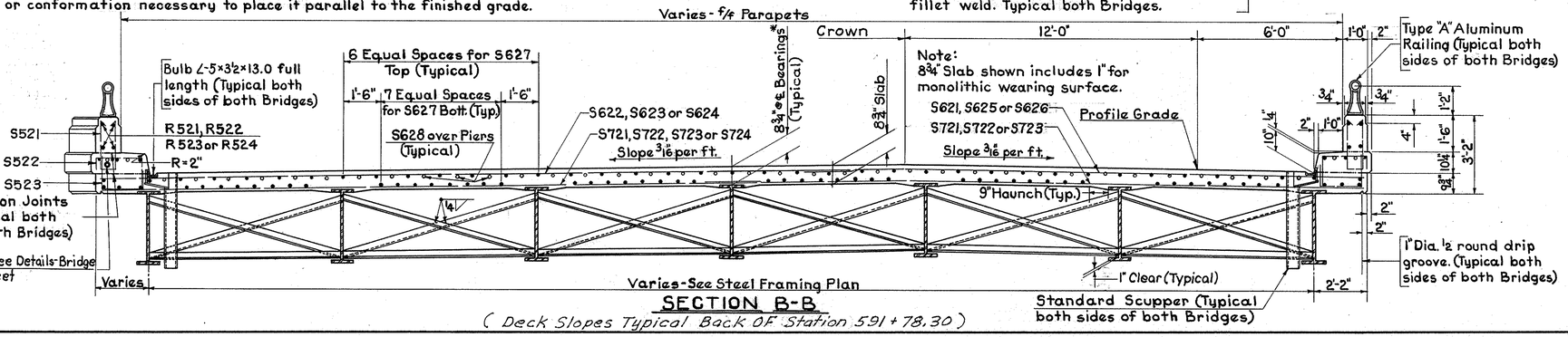

SECTION A-A

*This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation necessary to place it parallel to the finished grade.

Intermediate crossframe angles 3"x3"x5/16". Weld both sides of vertical leg and top side of horizontal leg to beam with ¼" continuous fillet weld. Typical both Bridges.




DETAIL "A"
LIGHT STANDARD DETAIL




SECTION B-B

( Deck Slopes Typical Back Of Station 591+78.30 )

| FED. RD. DIVISION | STATE | PROJECT | | 267 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAH-18-15.50
MAHONING COUNTY

## NOTES:

- Refer to Standard Drawing CSB-2-56, Sheets 2&3 of 6 for details of End Dams, End Crossframes, 2"ø Pipe Drains, Scuppers and to Standard Drawing AR-1-57 for details of Type "A" Aluminum Railing and Concrete Parapet and to Standard Drawing FSB-1-62 for details of fixed and sliding bearings.
- CONCRETE shall be class "C" Concrete and reinforcing steel above parapet construction joint shall be included with railing for payment.
- See General Plan and Elevation for location of scuppers, 2"ø pipe drains, parapet joints and railing posts.
- CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.
- DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" except that the maximum slope shall not exceed 3 inches per foot. Payment for deck slab concrete shall be based on the 9" width.
- MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# SUPERSTRUCTURE DETAILS

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STA. 590+22.57
STA. 592+09.46
MAHONING COUNTY

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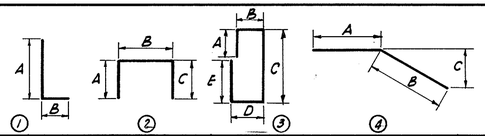
|---|---|---|---|---|---|---|
| D.M.N. | D.M.N. | O.B. | K.F. | F.J.K. | 8-16-63 | 2-15-66 |




All dimensions are out to out

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

268

# MAH-18-15.50
# MAHONING COUNTY

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **ABUTMENT "A"** | | | | | |
| A801 | 14 | 31'-2" | Str. | | | | | | 1,165 |
| A601 | 56 | 15'-6" | 3 | 2'-11" | 11" | 6'-1" | 1'-5" | 4'-9" | 1,304 |
| A602 | 40 | 14'-5" | 2 | 2'-4" | 5'-5" | 7'-0" | | | 866 |
| A501 | 46 | 9'-10" | 2 | 2'-4" | 5'-5" | 2'-4" | | | 472 |
| A502 | 40 | 7'-4" | 1 | 7'-0" | 6" | | | | 306 |
| A503 | 60 | 7'-0" | 2 | 1'-11" | 3'-5" | 1'-11" | | | 438 |
| A504 | 10 | 8'-5" | Str. | | | | | | 88 |
| A505 | 8 | 5'-4" to 8'-4" | Str. | 2-Each vary by 1'-0" | | | | | 57 |
| A506 | 8 | 5'-5" to 8'-2" | Str. | 2-Each vary by 11" | | | | | 57 |
| A507 | 36 | 28'-5" | Str. | | | | | | 1,067 |
| A508 | 14 | 11'-0" | Str. | | | | | | 161 |
| A509 | 4 | 7'-6" to 9'-6" | Str. | 2-Each vary by 2'-0" | | | | | 35 |
| A510 | 14 | 13'-6" | Str. | | | | | | 197 |
| A511 | 4 | 9'-0" to 11'-0" | Str. | 2-Each vary by 2'-0" | | | | | 42 |
| A512 | 2 | 12'-2" | 4 | 5'-6" | 6'-8" | 3'-2" | | | 25 |
| A513 | 2 | 13'-8" | 4 | 6'-8" | 7'-0" | -3'-0" | | | 29 |
| A514 | 3 | 7'-3" | Str. | | | | | | 23 |
| | | | | **ABUTMENT "B"** | | | | | |
| B601 | 56 | 15'-6" | 3 | 2'-11" | 11" | 6'-1" | 1'-5" | 4'-9" | 1,304 |
| B501 | 59 | 13'-2" | 1 | 7'-11" | 5'-5" | | | | 810 |
| B502 | 8 | 30'-8" | Str. | | | | | | 256 |
| B503 | 56 | 6'-0" | Str. | | | | | | 350 |
| B504 | 60 | 7'-0" | 2 | 1'-11" | 3'-5" | 1'-11" | | | 438 |
| B505 | 1 | 5'-11" | Str. | | | | | | 6 |
| B506 | 4 | 10'-4" | Str. | | | | | | 43 |
| B507 | 8 | 7'-3" to 9'-6" | Str. | 2-Each vary by 9" | | | | | 70 |
| B508 | 6 | 10'-4" | Str. | | | | | | 65 |
| B509 | 10 | 7'-3" to 10'-3" | Str. | 2-Each vary by 9" | | | | | 91 |
| B510 | 40 | 28'-5" | Str. | | | | | | 1,186 |
| B511 | 16 | 11'-0" | Str. | | | | | | 184 |
| B512 | 4 | 7'-6" to 9'-6" | Str. | 2-Each vary by 2'-0" | | | | | 35 |
| B513 | 16 | 13'-6" | Str. | | | | | | 225 |
| B514 | 4 | 9'-6" to 11'-6" | Str. | 2-Each vary by 2'-0" | | | | | 44 |
| B515 | 2 | 14'-6" | 4 | 7'-6" | 7'-0" | 3'-0" | | | 30 |
| B516 | 2 | 11'-8" | 4 | 5'-0" | 6'-8" | 3'-2" | | | 24 |
| | | | | | | | | TOTAL = | 11,493 |
| | | | | **ABUTMENT "C"** | | | | | |
| C801 | 14 | 30'-3" | Str. | | | | | | 1,131 |
| C601 | 54 | 15'-6" | 3 | 2'-11" | 11" | 6'-1" | 1'-5" | 4'-9" | 1,257 |
| C602 | 40 | 14'-3" | 2 | 2'-4" | 5'-5" | 6'-10" | | | 856 |
| C501 | 46 | 9'-10" | 2 | 2'-4" | 5'-5" | 2'-4" | | | 472 |
| C502 | 40 | 7'-3" | 1 | 6'-11" | 6" | | | | 302 |
| C503 | 60 | 7'-0" | 2 | 1'-11" | 3'-5" | 1'-11" | | | 438 |
| C504 | 4 | 8'-2" | Str. | | | | | | 35 |
| C505 | 8 | 5'-0" to 8'-0" | Str. | 2-Each vary by 1'-0" | | | | | 54 |
| C506 | 8 | 5'-6" to 8'-3" | Str. | 2-Each vary by 11" | | | | | 57 |
| C507 | 36 | 27'-4" | Str. | | | | | | 1,026 |
| C508 | 14 | 11'-0" | Str. | | | | | | 161 |
| C509 | 4 | 7'-6" to 9'-6" | Str. | 2-Each vary by 2'-0" | | | | | 35 |
| C510 | 14 | 13'-6" | Str. | | | | | | 197 |
| C511 | 4 | 9'-6" to 11'-6" | Str. | 2-Each vary by 2'-0" | | | | | 44 |
| C512 | 2 | 12'-8" | 4 | 6'-0" | 6'-8" | 3'-2" | | | 26 |
| C513 | 2 | 14'-6" | 4 | 7'-6" | 7'-0" | 3'-0" | | | 30 |
| C514 | 6 | 8'-7" | Str. | | | | | | 54 |
| C515 | 3 | 7'-5" | Str. | | | | | | 23 |
| | | | | **ABUTMENT "D"** | | | | | |
| D601 | 59 | 15'-6" | 3 | 2'-11" | 11" | 6'-1" | 1'-5" | 4'-9" | 1,374 |
| D501 | 62 | 13'-2" | 1 | 7'-11" | 5'-5" | | | | 851 |
| D502 | 8 | 31'-10" | Str. | | | | | | 266 |
| D503 | 59 | 6'-0" | Str. | | | | | | 369 |
| D504 | 60 | 7'-0" | 2 | 1'-11" | 3'-5" | 1'-11" | | | 438 |
| D505 | 1 | 5'-11" | Str. | | | | | | 6 |
| D506 | 2 | 10'-9" | Str. | | | | | | 22 |
| D507 | 10 | 7'-8" to 10'-8" | Str. | 2-Each vary by 9" | | | | | 96 |
| D508 | 6 | 10'-4" | Str. | 10'-0" | | | | | 65 |
| D509 | 10 | 7'-0" to 10'-9" | Str. | 2-Each vary by 10'-9" | | | | | 90 |
| D510 | 40 | 29'-10" | Str. | | | | | | 1,245 |
| D511 | 16 | 11'-0" | Str. | | | | | | 184 |
| D512 | 6 | 7'-6" to 11'-0" | Str. | 2-Each vary by 1'-9" | | | | | 58 |
| D513 | 16 | 13'-0" | Str. | | | | | | 217 |
| D514 | 4 | 9'-6" to 11'-6" | Str. | 2-Each vary by 2'-0" | | | | | 44 |
| D515 | 2 | 13'-3" | 4 | 6'-7" | 6'-8" | 3'-2" | | | 28 |
| D516 | 2 | 13'-2" | 4 | 6'-6" | 6'-8" | 3'-0" | | | 27 |
| | | | | | | | | TOTAL = | 14,578 |
| | | | | **PIER 1 (RIGHT)** | | | | | |
| K1101 | 8 | 35'-2" | 1 | 32'-0" | 3'-6" | | | | 1,495 |
| K1102 | 6 | 33'-0" | 7 | 31'-5" | 1'-7" | 1'-2" | | | 1,052 |
| K901 | 32 | 14'-2" | 5 | 11'-8" | 1'-3" | 11⅛" | | | 1,542 |
| K801 | 11 | 29'-4" | 5 | 27'-2" | 1'-1" | 10" | | | 862 |
| K803 | 70 | 26'-0" | Str. | | | | | | 4,859 |
| K501 | 32 | 21'-9" | Str. | | | | | | 726 |
| K502 | 32 | 7'-2" | 6 | 1'-7" | 4'-0" | | | | 239 |
| K503 | 64 | 8'-2" to 14'-5" | 2 | 2'-10½" to 6'-0" | 2'-8" | 2'-10½" to 6'-0" | 4-Eq. vary 4½° by 2¾" | | 754 |
| K505 | 48 | 5'-7" | 2 | 1'-7" | 2'-8" | 1'-7" | | | 280 |
| K506 | 8 | 28'-0" | Str. | | | | | | 234 |
| K507 | 16 | 14'-4" to 25'-1" | Str. | 4-Each vary by 3'-7" | | | | | 329 |
| K508 | 4 | 18'-1" | 4 | 1'-7" | 16'-6" | 6'-2" | | | 75 |
| K1103 | 8 | 29'-2" | 1 | 26'-0" | 3'-6" | | | | 1,239 |
| K1104 | 6 | 27'-0" | 7 | 25'-5" | 1'-7" | 1'-2" | | | 861 |
| | | | | | | | | TOTAL = | 32,340 |
| | | | | **PIER 1 (LEFT)** | | | | | |
| M1101 | 8 | 34'-10" | 1 | 31'-8" | 3'-6" | | | | 1,481 |
| M1102 | 6 | 32'-8" | 7 | 31'-1" | 1'-7" | 1'-2" | | | 1,041 |
| M901 | 32 | 14'-2" | 5 | 11'-8" | 1'-3" | 11⅛" | | | 1,542 |
| M801 | 11 | 29'-4" | 5 | 27'-2" | 1'-1" | 10" | | | 862 |
| M802 | 68 | 6'-2" | 1 | 5'-3" | 1'-2" | | | | 1,120 |
| M803 | 68 | 27'-6" | Str. | | | | | | 4,993 |
| M501 | 32 | 21'-0" | Str. | | | | | | 701 |
| M502 | 32 | 7'-2" | 6 | 1'-7" | 4'-0" | | | | 239 |
| M503 | 64 | 8'-2" to 14'-5" | 2 | 2'-10½" to 6'-0" | 2'-8" | 2'-10½" to 6'-0" | 4-Eq. vary 4½° by 2¾" | | 754 |
| M504 | 58 | 9'-0" | Str. | | | | | | 544 |
| M505 | 48 | 5'-7" | 2 | 1'-7" | 2'-8" | 1'-7" | | | 280 |
| M506 | 8 | 27'-8" | Str. | | | | | | 231 |
| M507 | 16 | 14'-0" to 24'-9" | Str. | 4-Each vary by 3'-7" | | | | | 323 |
| M508 | 4 | 18'-1" | 4 | 1'-7" | 16'-6" | 6'-2" | | | 75 |
| M1103 | 8 | 28'-10" | 1 | 25'-8" | 3'-6" | | | | 1,225 |
| M1104 | 6 | 26'-8" | 7 | 25'-1" | 1'-7" | 1'-2" | | | 850 |
| | | | | **PIER 2 (LEFT)** | | | | | |
| N1101 | 8 | 35'-10" | 1 | 32'-8" | 3'-6" | | | | 1,573 |
| N1102 | 6 | 33'-8" | 7 | 32'-1" | 1'-7" | 1'-2" | | | 1,073 |
| N901 | 32 | 14'-2" | 5 | 11'-8" | 1'-3" | 11⅛" | | | 1,542 |
| N801 | 11 | 29'-4" | 5 | 27'-2" | 1'-1" | 10" | | | 862 |
| N802 | 74 | 6'-2" | 1 | 5'-3" | 1'-2" | | | | 1,218 |
| N803 | 74 | 25'-0" | Str. | | | | | | 4,940 |
| N501 | 32 | 23'-0" | Str. | | | | | | 768 |
| N502 | 32 | 7'-2" | 6 | 1'-7" | 4'-0" | | | | 239 |
| N503 | 64 | 8'-2" to 14'-5" | 2 | 2'-10½" to 6'-0" | 2'-8" | 2'-10½" to 6'-0" | 4-Eq. vary 4½° by 2¾" | | 754 |
| N504 | 60 | 9'-0" | Str. | | | | | | 563 |
| N505 | 48 | 5'-7" | 2 | 1'-7" | 2'-8" | 1'-7" | | | 280 |
| N506 | 8 | 28'-8" | Str. | | | | | | 239 |
| N507 | 16 | 15'-0" to 25'-9" | Str. | 4-Each vary by 3'-7" | | | | | 340 |
| N508 | 4 | 18'-1" | 4 | 1'-7" | 16'-6" | 6'-2" | | | 75 |
| N1103 | 8 | 29'-10" | 1 | 26'-8" | 3'-6" | | | | 1,268 |
| N1104 | 6 | 27'-8" | 7 | 26'-1" | 1'-7" | 1'-2" | | | 882 |
| | | | | | | | | TOTAL = | 32,827 |
| | | | | **SUPERSTRUCTURE - RIGHT BRIDGE** | | | | | |
| S701 | 516 | 27'-0" | Str. | | | | | | 28,477 |
| S702 | 64 | 2'-11" to 25'-5" | Str. | 4-Each vary by 1'-6" | | | | | 1,853 |
| SG01 | 257 | 30'-0" | Str. | | | | | | 11,580 |
| SG02 | 261 | 23'-8" | Str. | | | | | | 9,278 |
| SG03 | 36 | 3'-0" to 28'-6" | Str. | 2-Each vary by 1'-6" | | | | | 852 |
| SG04 | 26 | 4'-2" to 22'-2" | Str. | 2-Each vary by 1'-6" | | | | | 514 |
| SG05 | 594 | 32'-1" | Str. | | | | | | 28,624 |
| SG06 | 80 | 28'-0" | Str. | | | | | | 3,364 |
| S501 | 246 | 5'-3" | 8 | 2'-0" | 8" | 5" | | | 1,347 |
| S502 | 246 | 2'-11" | 2 | 8" | 1'-10" | 8" | | | 748 |
| S503 | 246 | 4'-1" | 2 | 1'-4" | 1'-8" | 1'-4" | | | 1,048 |
| S504 | 4 | 7'-7" | 9 | 7" | 2'-7" | 5" | 1'-4" | | 32 |
| S505 | 2 | 6'-6" | 2 | 2'-0" | 2'-9" | 2'-0" | | | 14 |
| R501 | 16 | 10'-5" | Str. | Included with railing for payment | | | | | ——— |
| R502 | 88 | 14'-5" | Str. | | | | | | ——— |
| | | | | | | | | TOTAL = | 87,731 |
| | | | | **SUPERSTRUCTURE - LEFT BRIDGE** | | | | | |
| S721 | 516 | 26'-1" to 28'-2" | Str. | 6-Groups of 86-Each vary by 5" | | | | | 28,609 |
| S722 | 36 | 2'-8" to 28'-2" | Str. | 2-Each vary by 1'-6" | | | | | 1,134 |
| S723 | 30 | 2'-5" to 24'-7" | Str. | 2-Each vary by 1'-7" | | | | | 828 |
| S724 | 1 | 28'-2" | Str. | | | | | | 58 |
| SG21 | 260 | 22'-0" to 24'-0" | Str. | 13-Groups of 20-Each vary by 2" | | | | | 8,982 |
| SG22 | 258 | 29'-11" to 32'-0" | Str. | 6-Groups of 43-Each vary by 5" | | | | | 11,997 |
| SG23 | 19 | 2'-9" to 30'-6" | Str. | 1-Each vary by 1'-6½" | | | | | 474 |
| SG24 | 18 | 2'-1" to 29'-0" | Str. | 1-Each vary by 1'-7" | | | | | 420 |
| SG25 | 15 | 2'-6" to 23'-6" | Str. | 1-Each vary by 1'-6" | | | | | 293 |
| SG26 | 13 | 3'-0" to 23'-0" | Str. | 1-Each vary by 1'-8" | | | | | 254 |
| SG27 | 594 | 32'-5" | Str. | | | | | | 28,922 |
| SG28 | 80 | 28'-0" | Str. | | | | | | 3,364 |
| S521 | 246 | 5'-3" | 8 | 2'-0" | 8" | 5" | | | 1,347 |
| S522 | 246 | 2'-11" | 2 | 8" | 1'-10" | 8" | | | 748 |
| S523 | 246 | 4'-1" | 2 | 1'-4" | 1'-8" | 1'-4" | | | 1,048 |
| S524 | 4 | 7'-7" | 9 | 7" | 2'-7" | 5" | 1'-4" | | 32 |
| S525 | 2 | 6'-6" | 2 | 2'-0" | 2'-9" | 2'-0" | | | 14 |
| R521 | 8 | 10'-5" | Str. | Included with railing for payment | | | | | ——— |
| R522 | 44 | 14'-5" | Str. | | | | | | ——— |
| R523 | 8 | 10'-0" | Str. | | | | | | ——— |
| R524 | 44 | 14'-8" | Str. | | | | | | ——— |
| | | | | | | | | TOTAL = | 88,524 |

## ESTIMATED QUANTITIES

| Item | Total | Unit | Description | RIGHT STRUCTURE Superstr. | Abuts. | Piers | General | LEFT STRUCTURE Superstr. | Abuts. | Piers | General |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E-2 | 1,233 | Cu. Yds. | Unclassified Excavation | | 320 | 290 | | | 320 | 303 | |
| S-1 | 580 | Cu. Yds. | Class "C" Concrete, Superstructure | 289 | | | | 291 | | | |
| S-1 | 458 | Cu. Yds. | Class "C" Concrete, Piers above footings | | | 225 | | | | 233 | |
| S-1 | 278 | Cu. Yds. | Class "E" Concrete, Abutments above footings | | 137 | | | | 141 | | |
| S-1 | 296 | Cu. Yds. | Class "E" Concrete, Footings | | 75 | 73 | | | 75 | 73 | |
| S-4 | 264,493 | Pounds | Reinforcing Steel | 87,731 | 11,493 | 32,340 | | 88,524 | 11,578 | 32,827 | |
| S-7 | 521,800 | Pounds | Structural Steel | 260,700 | | | | 261,100 | | | |
| S-8 | 521,800 | Pounds | Field painting of structural steel | 260,700 | | | | 261,100 | | | |
| S-14 | 737.00 | Lin. Ft. | Railing Type "A" (Aluminum rail & supports, and conc. parapet) | 367.50 | | | | 369.50 | | | |
| S-16** | Lump Sum | | First Test Pile | | | | L.S. | | | | L.S. |
| S-18 | 4,440 | Lin. Ft. | 12"* Cast-in-place reinforced concrete piles | | 420 | 1,800 | | | 420 | 1,800 | |
| S-25* | | | Electrical lighting system complete | | | | | | | | |
| S-29 | 115 | Cu. Yds. | Porous backfill | | 57 | | | | 58 | | |
| S-29 | 24 | Each | Scuppers, including supports | 12 | | | | 12 | | | |
| I-10 | 2,625 | Sq. Yds. | Crushed aggregate slope protection | | | | 1,325 | | | | 1,300 |
| S-101 | 580 | Each | Water-reducing, set-retarding admixture | 289 | | | | 291 | | | |
| E-2 | Lump Sum | | Cofferdams, Cribs & Sheeting | | | | L.S. | | | | L.S. |

## BAR SIZE

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A601 is a number 6 size bar.

## REPLACEMENT BARS

| Mark | Total | Length | Type |
|---|---|---|---|
| RE1101 | 1 | 7'-7" | Str. |
| RE901 | 1 | 8'-7" | 7 |
| RE801 | 2 | 6'-6" | Str. |
| RE701 | 4 | 6'-3" | Str. |
| REG01 | 6 | 5'-11" | Str. |
| RE501 | 2 | 5'-7" | Str. |

* See General Summary - Lighting Sheet.

** Payment will be made for only one First Test Pile. It may be driven for either the Right or Left Bridge.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE & ESTIMATED QUANTITIES

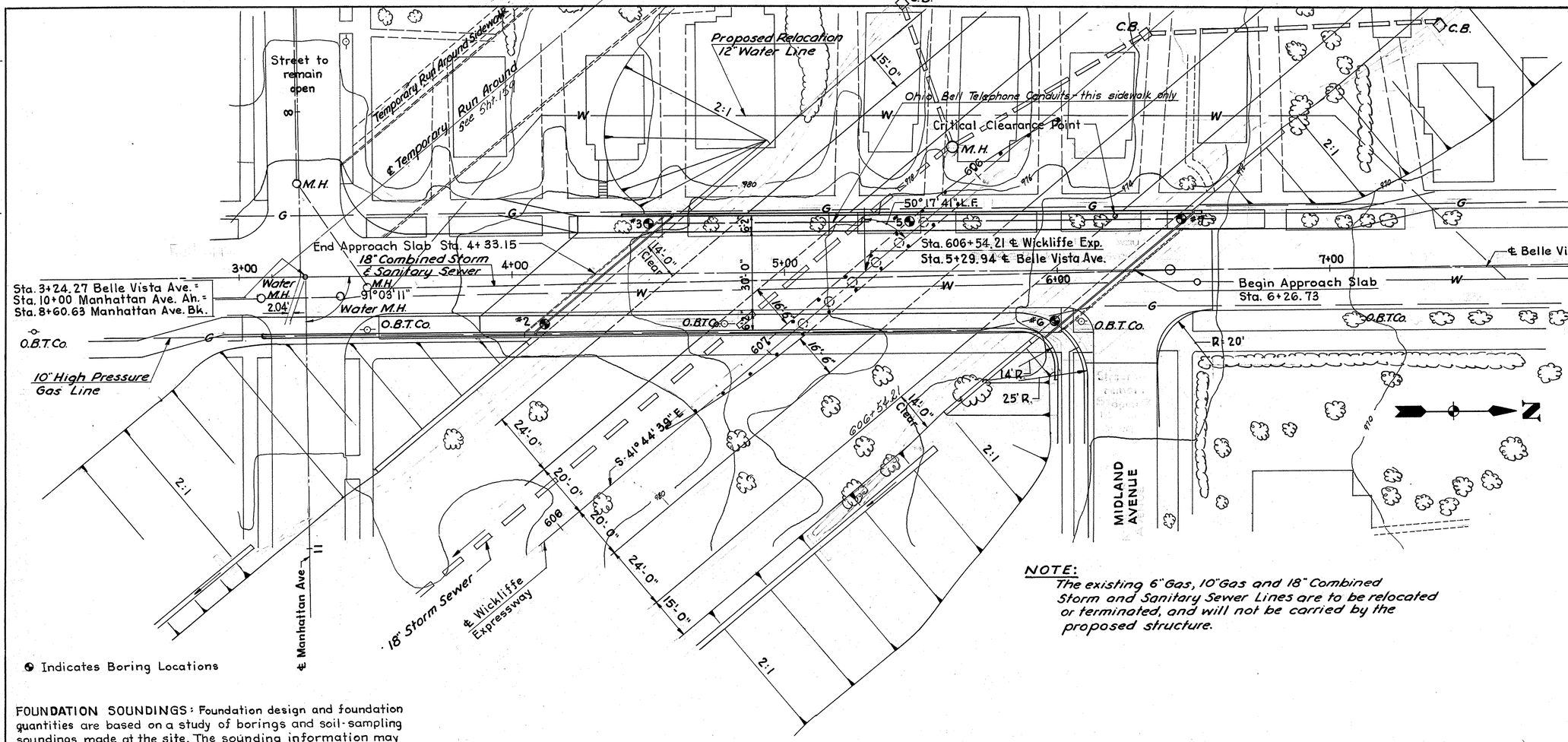
BRIDGE NO. MAH-18-1688 L & R.
OVER ERIE - LACKAWANNA R.R.
STA. 590+22.57
MAHONING COUNTY STA. 592+09.46

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| D.M. | M.M. | P.T.R. | J.B.C. | F.J.P. 8-16-63 | | 2-15-66 |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

269

# MAHONING COUNTY
# MAH-18-15.50



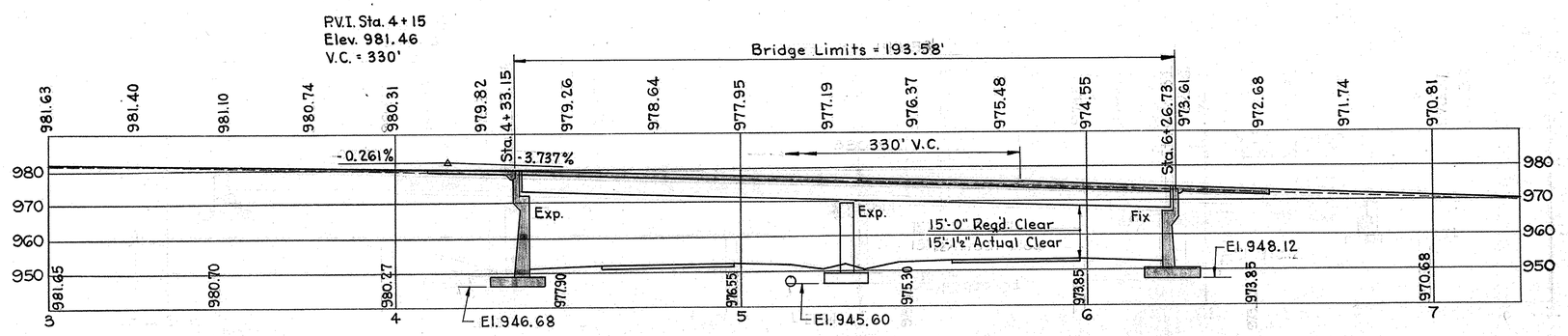

B.M. 107: Top stem of hydrant North side of Manhattan Avenue 32' E. on Manhattan Avenue from Belle Vista Avenue Elev. 984.68.

B.M. 109: Top stem of hydrant N.W. corner Smithfield and Belle Vista Avenue 50' S.W. on Smithfield from Belle Vista Avenue.

● Indicates Boring Locations

**NOTE:**
*The existing 6" Gas, 10" Gas and 18" Combined Storm and Sanitary Sewer Lines are to be relocated or terminated, and will not be carried by the proposed structure.*

**FOUNDATION SOUNDINGS:** Foundation design and foundation quantities are based on a study of borings and soil-sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division Office, but the State assumes no responsibility for the accuracy thereof.




PROFILE ALONG ℄ BELLE VISTA AVENUE

A.D.T. (1975) 23,280 (16% Type "B" & "C" vehicles)

## PROPOSED STRUCTURE

**TYPE:** Continuous Steel Girder with reinforced concrete deck and substructure
**SPANS:** 92'-10½", 92'-10½"
**ROADWAY:** 30' ⅝ 6'-2" Sidewalks
**LOAD FREQUENCY:** CF 2000 (57)
**SKEW:** 50° 17' 41" L.F.
**WEARING SURFACE:** 1" Monolithic Conc.
**APPROACH SLAB:** Forward-Special Design (25' long) Rear-AS-1-54 (25' long)
**ALIGNMENT:** Tangent

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

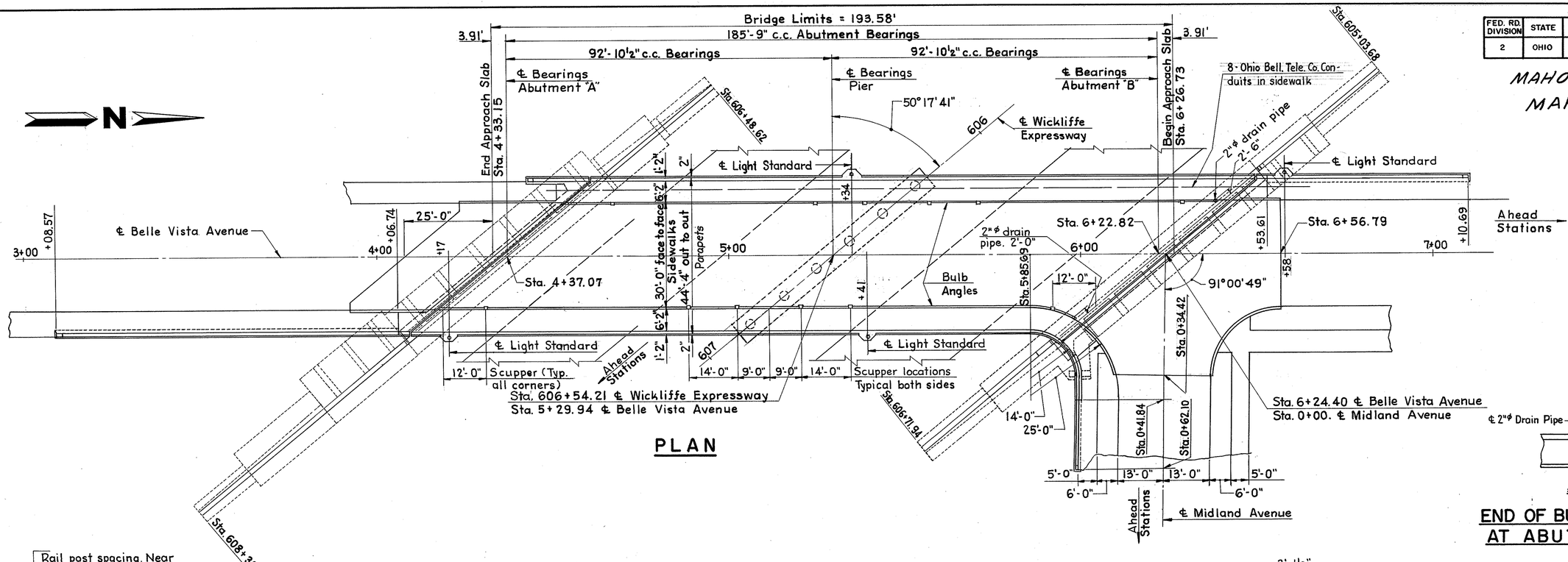
SITE PLAN
BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE

MAHONING COUNTY — STA. 606+54.21

| PRESENT TOPOGRAPHY | | PROPOSED WORK | | | |
|---|---|---|---|---|---|
| SURVEYED | DRAWN | DESIGNED | DRAWN | CHECKED | REVIEWED |
| Aurilio | mm | FJK | J.H. | EFR | FK 10-14-65 |

| FED. RD. DIVISION | STATE | PROJECT | | 270 |
|---|---|---|---|---|
| 2 | OHIO | | | |

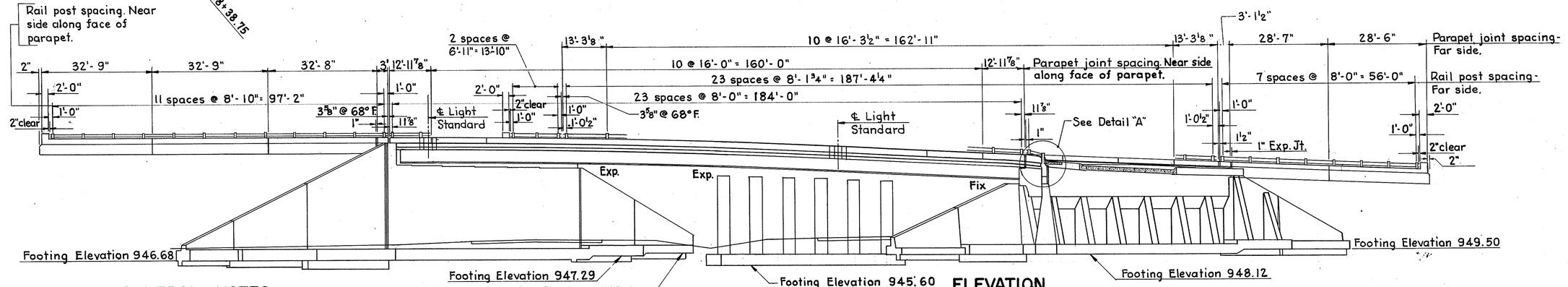
MAHONING COUNTY
MAH-18-15.50




PLAN




END OF BULB ANGLES AT ABUTMENT B




ELEVATION

## GENERAL NOTES

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

REFERENCE shall be made to Standard Drawings CSB-2-56, Sheets 2 and 3 of 6, revised 2-2-59; AR-1-57 revised 4-2-62; FSB-1-62 revised 1-15-63; AS-1-54 revised 7-5-62; Supplemental Specifications S-101 dated 7-12-62; RB-1-55 revised 2-2-59; and Supplemental Specification No. S-307, *revised 10-1-64*

DESIGN LOADING - CF 2000 (57).
CONCRETE CLASS C - basic unit stress 1,333 p.s.i.
CONCRETE CLASS E - basic unit stress 1,133 p.s.i.
STRUCTURAL STEEL - ASTM A36-basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted).
REINFORCING STEEL - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

FOUNDATION BEARING PRESSURE: Abutment footings are designed for a maximum bearing pressure of 3.4 tons per square foot, pier footings for 3.3 tons per square foot.

FOOTING KEYS shall be placed against undisturbed earth.

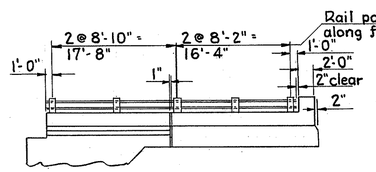
WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

[illegible] the superstructure around top and bottom surfaces of sidewalks and roadway.

[illegible] the entire system of [illegible] and expansion joints except bridge seats, [illegible]

SUPERSTRUCTURE GROUND: A No. 1/0 AWG 7 Strand, soft annealed bare copper cable shall be encased in the stem of Abutment B. Lower end of cable to extend to bottom of the abutment footing, and an additional 25' length of cable shall be looped under the footing and separated from the concrete with two (2) layers of tar paper. Extend cable (in one continuous length) through top of abutment seat with lead of sufficient length to exothermic weld upper end of cable to outside girder of superstructure. Payment for electrical grounds is included in the [illegible] bid for S-25, "Electrical Lighting System Complete."

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the Owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.




DETAIL "A"

*5-7.10 HIGH STRENGTH STEEL BOLTS: High strength bolts that are used as fitting-up bolts may be used in the final assembly if, after all bolts are placed and tightened, the fitting-up are subsequently loosened and retightened by the turn of nut method.*

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# GENERAL PLAN & ELEVATION

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE
MAHONING COUNTY — STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| EFR | EJ | R.T.R. | R.L.S | F.K. 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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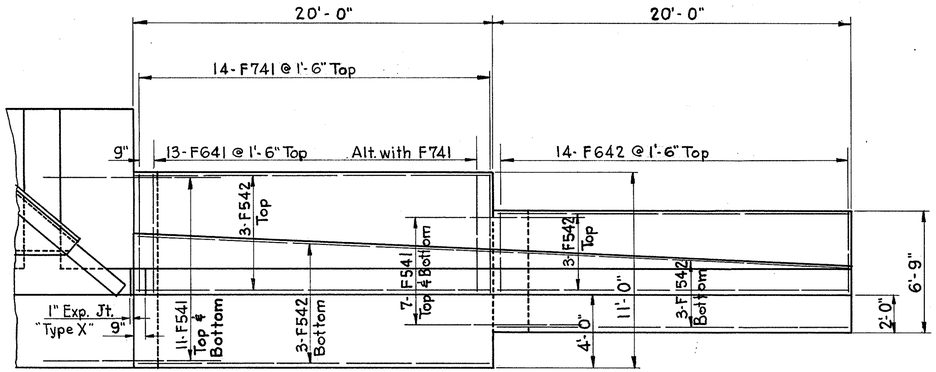
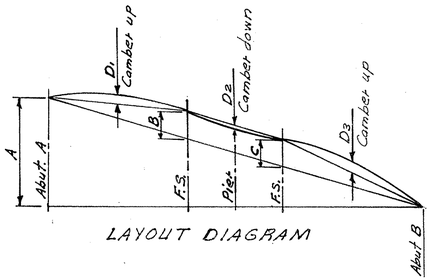
MAHONING COUNTY
MAH-18-15.50




PLAN



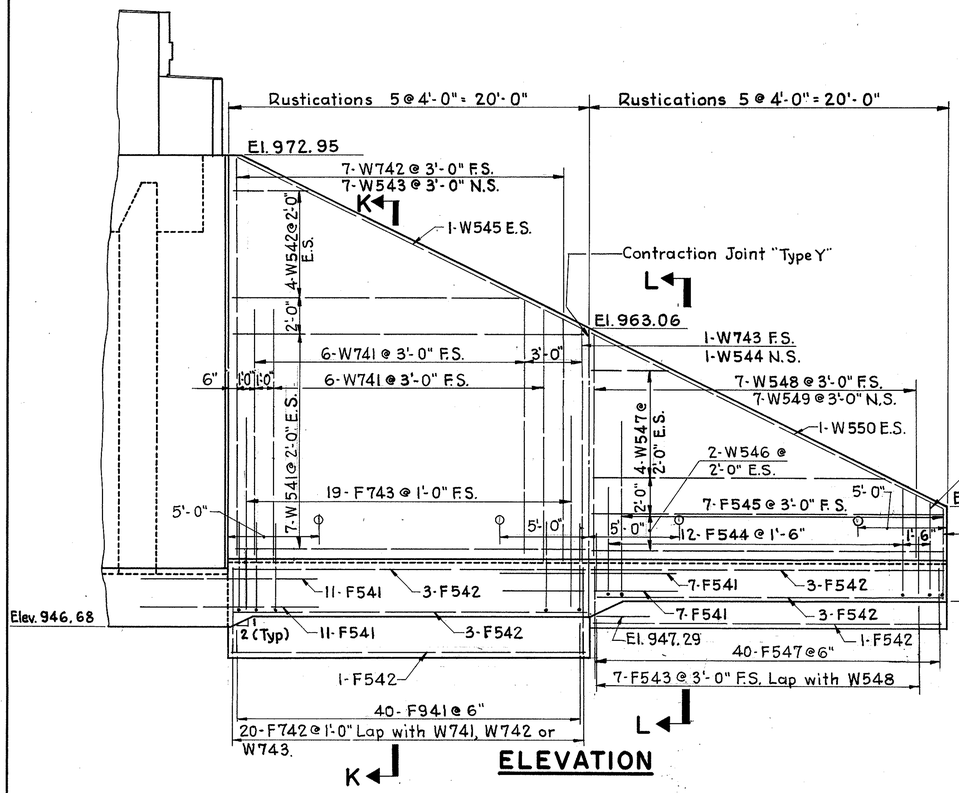

LAYOUT DIAGRAM

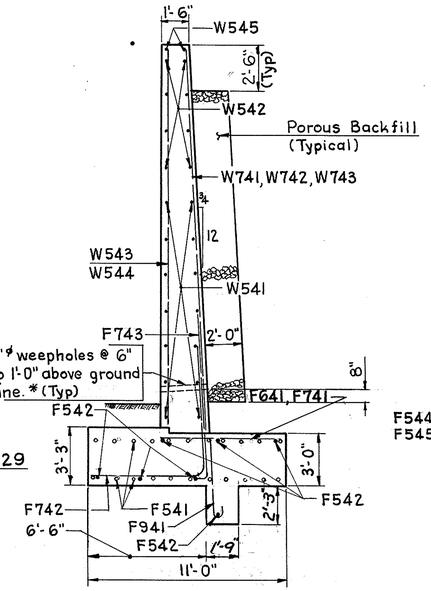
DEFLECTIONS TO BE USED FOR SETTING BULB ANGLE GUTTERS

| Spans 1 & 2. Points → | 1/4 | 1/2 | 3/4 |
|---|---|---|---|
| Deflection due to Steel | 3/16" | 1/4" | 1/8" |
| Defl. due to Remaining D.L. | 11/16" | 1/2" | 3/8" |
| Total D.L. Deflection | 7/8" | 1 1/16" | 1/2" |

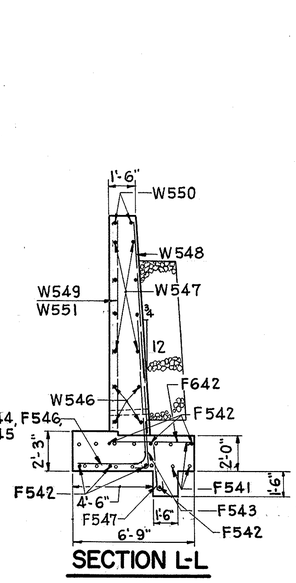
DATA FOR CAMBERING GIRDERS

| | | | | Camber @ mid-Point | | |
|---|---|---|---|---|---|---|
| Girder | A | B | C | $D_1$ | $D_2$ | $D_3$ |
| 6 | 6'-2 1/4" | 4 3/16" | 3 3/8" | 1 3/16" | 3/16" | 13/16" |
| 5 | 6'-0 13/16" | 4 3/8" | 4 5/16" | 1 3/16" | 3/16" | 7/8" |
| 4 | 5'-11 1/16" | 5 1/16" | 4 3/8" | 1 3/16" | 3/16" | 1" |
| 3 | 5'-9 1/16" | 5 1/4" | 5 1/16" | 1 3/16" | 3/16" | 1 1/8" |
| 2 | 5'-7 3/16" | 5 1/16" | 5 5/16" | 1 3/16" | 3/16" | 1 1/16" |
| 1 | 5'-5 13/16" | 5 1/2" | 5 7/16" | 1 3/16" | 3/16" | 1 1/16" |

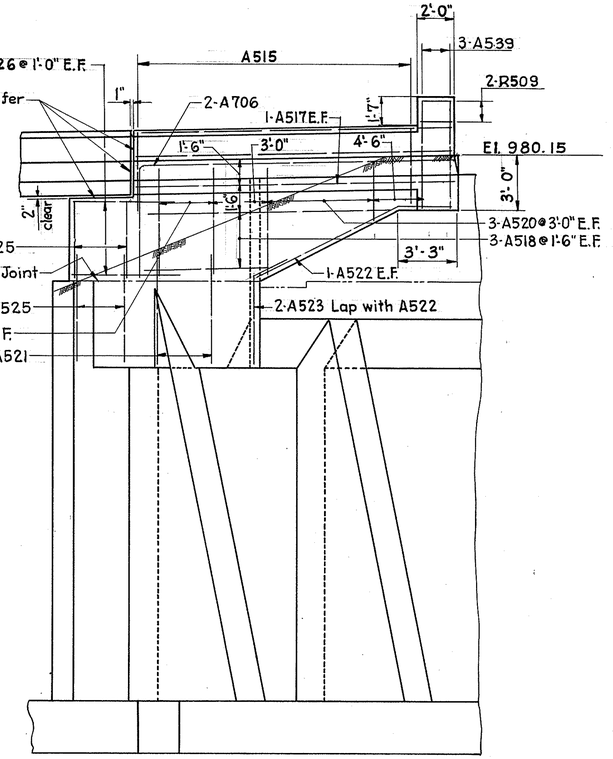



SECTION K-K




SECTION L-L




VIEW D-D

See Abutment "A" Sheet

LEGEND
E.S. = Each Side
F.S. = Far Side
N.S. = Near Side

* Locate weepholes as shown on Elevation.

NOTE:
For joint and rustication groove details see Left Retaining Wall Abutment "B".

Porous backfill, 2 ft. thick, full length of abutments and wings shall extend up to the underside of the approach slab or within 2'-6" of the top of the wings.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# LEFT RETAINING WALL ABUTMENT "A"

BRIDGE NO. MAH-18-1715

UNDER BELLE VISTA AVENUE

MAHONING CO. STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| RLS | EFR | P.T.R. | EFR | F.K. 10-14-63 | 2-23-66 |

| FEDERAL RD DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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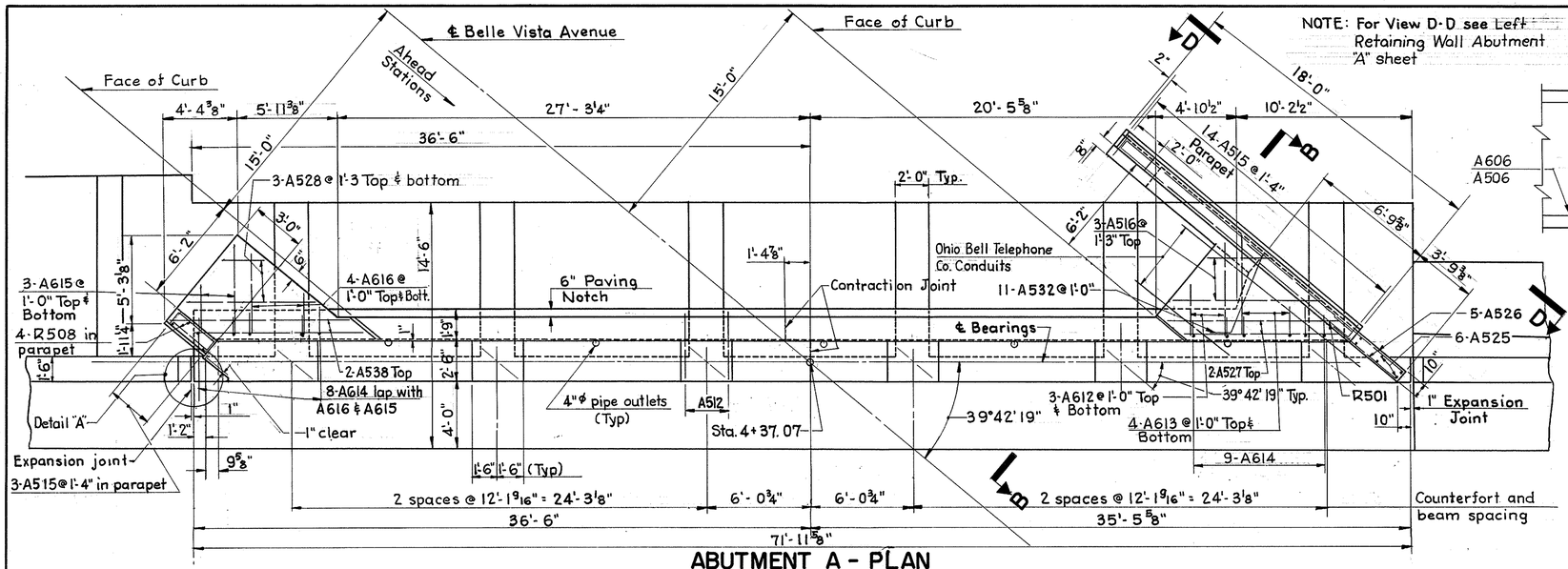
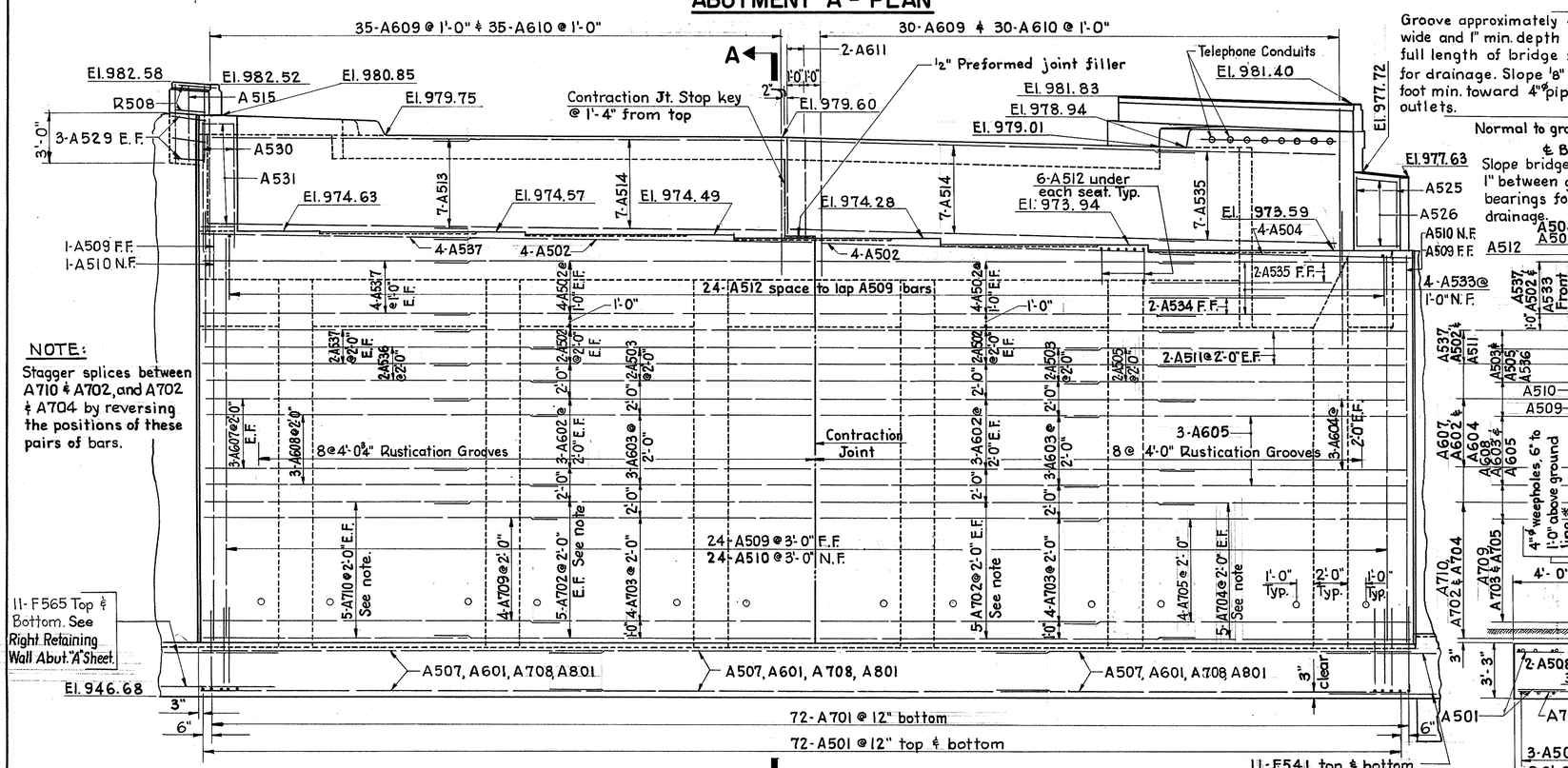
MAHONING COUNTY
MAH-18-15.50

NOTE: For View D-D see Left Retaining Wall Abutment "A" sheet




## ABUTMENT A - PLAN

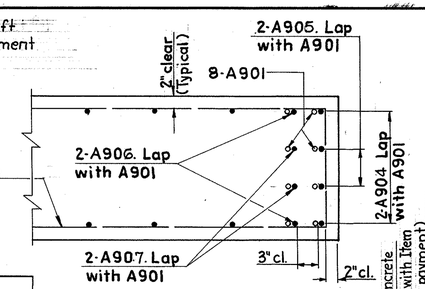



NOTE:
Stagger splices between A710 & A702, and A702 & A704 by reversing the positions of these pairs of bars.

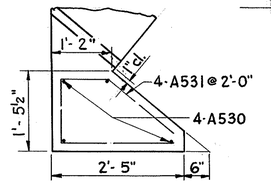
NOTE:
For joint and rustication groove details see Left Retaining Wall Abutment "B".

A ELEVATION

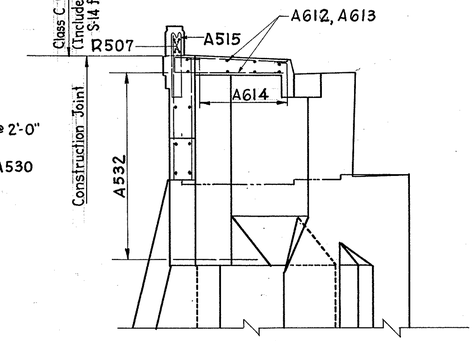
* Locate weepholes as shown in Elevation.



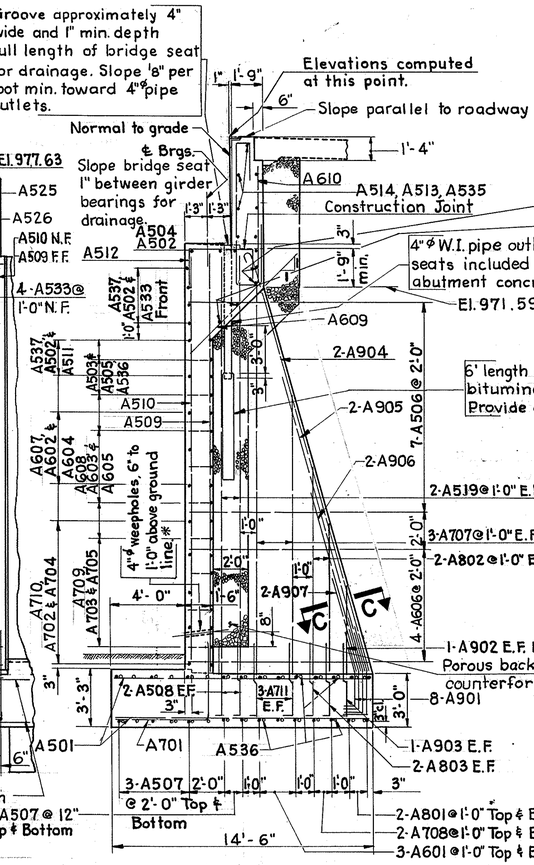

SECTION C-C



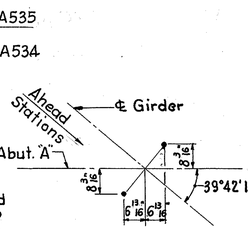

DETAIL "A"




SECTION B-B




SECTION A-A




ANCHOR ROD LAYOUT

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENT "A"

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE

MAHONING CO. STA. 606 + 54.21

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| DWN. | EFR | P.T.R. | EFR | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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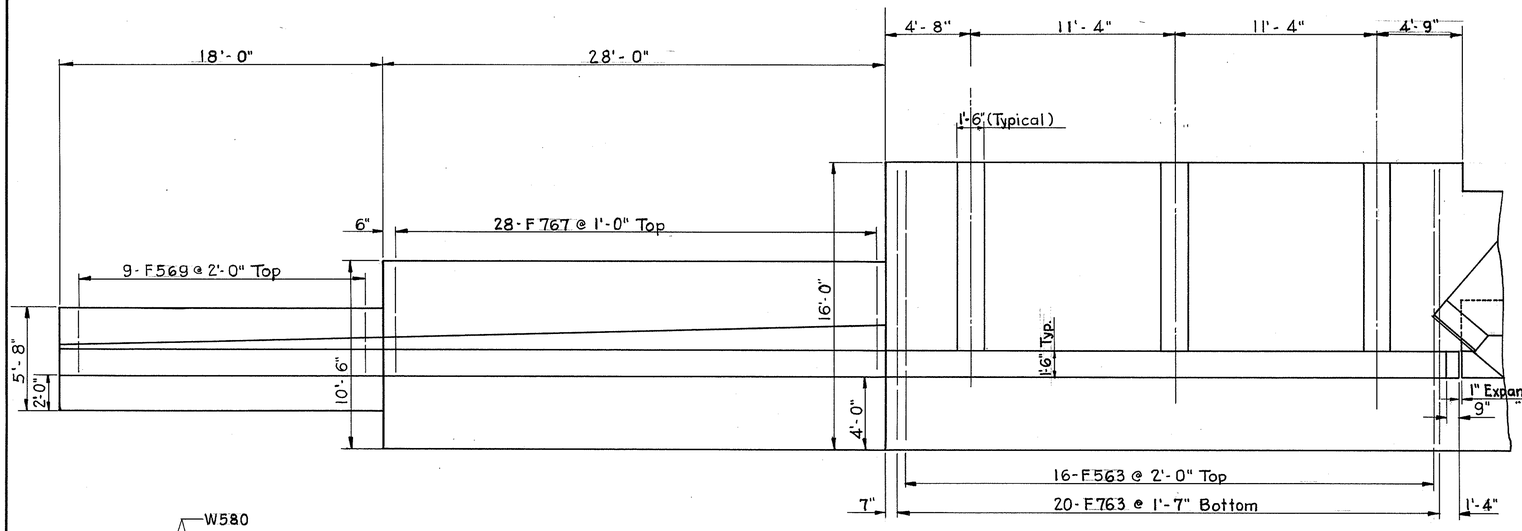
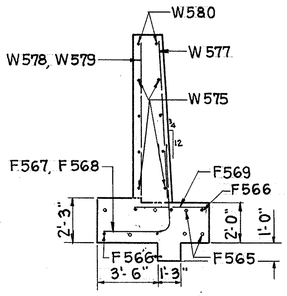
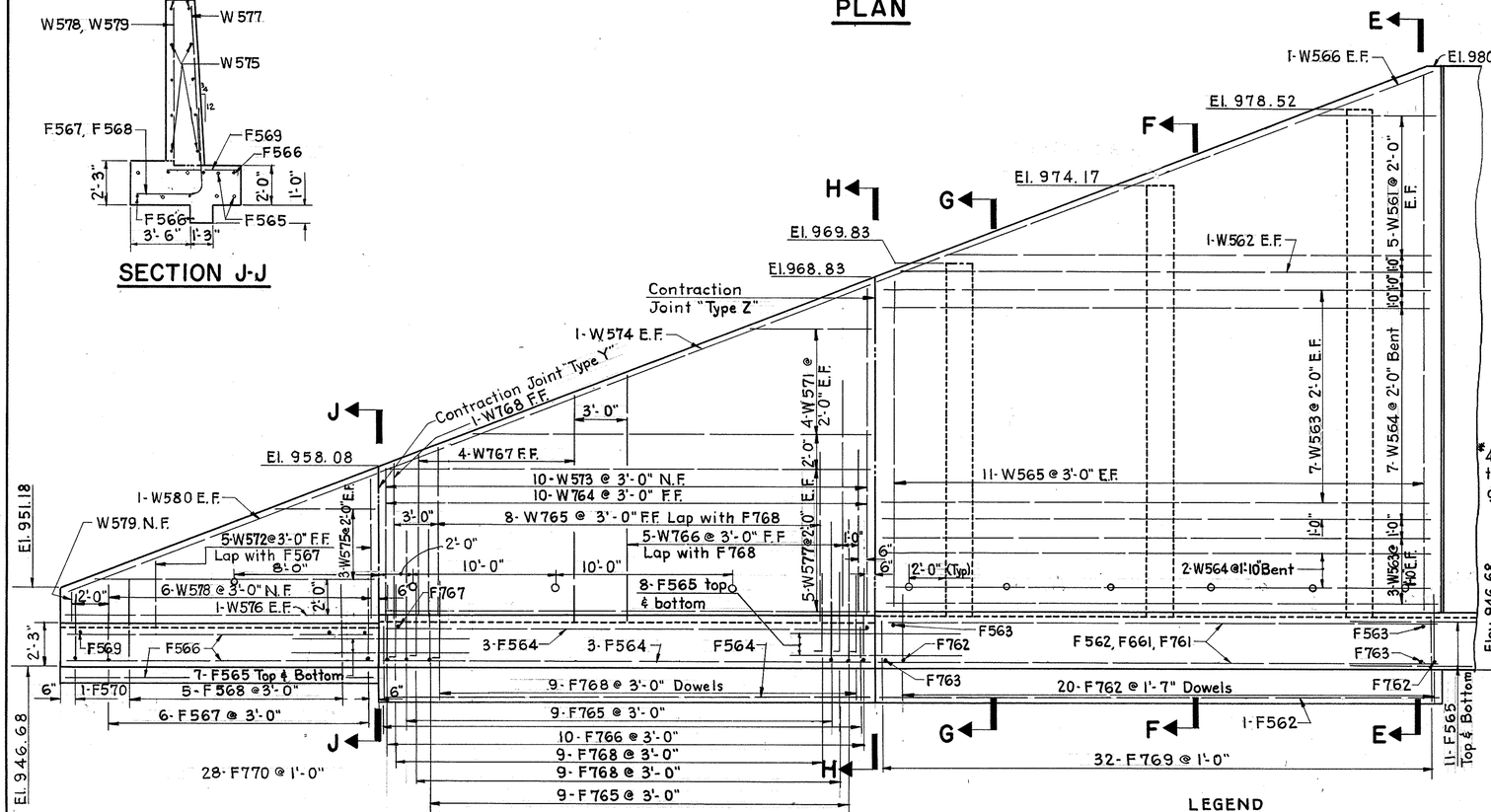
MAHONING COUNTY
MAH-18-15.50




PLAN



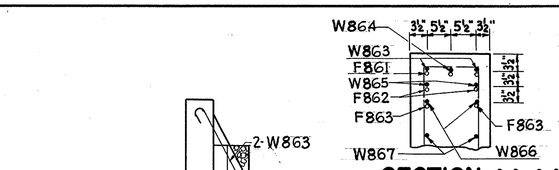

SECTION J-J



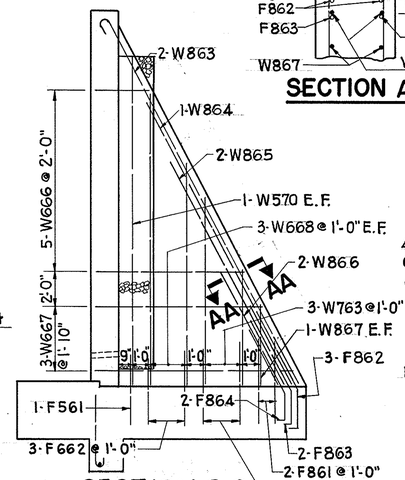

ELEVATION

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

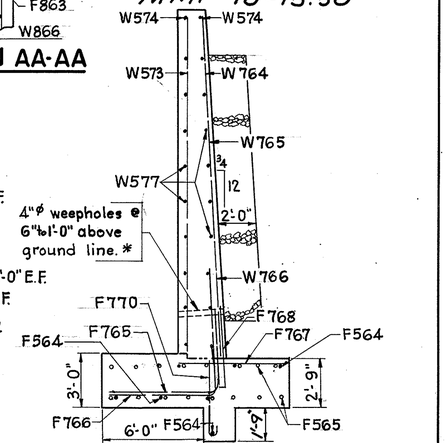
* Locate weepholes as shown in Elevation.



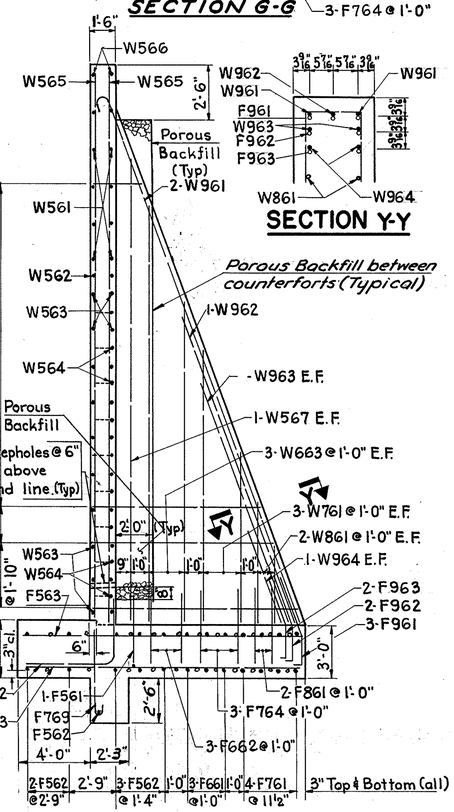

SECTION AA-AA



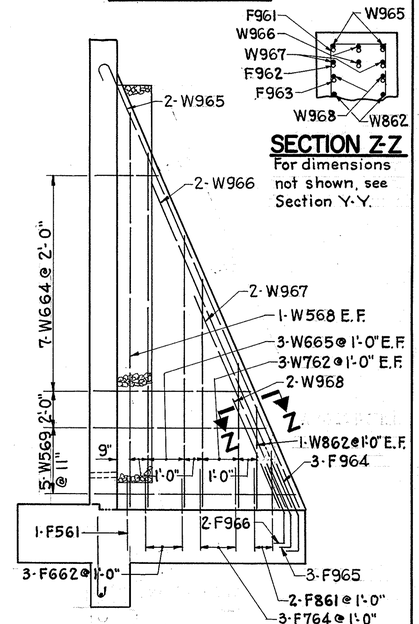

SECTION G-G




SECTION H-H




SECTION E-E




SECTION F-F

NOTE:
For joint and rustication groove details see Left Retaining Wall Abutment "B".

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# RIGHT RETAINING WALL ABUTMENT "A"

BRIDGE NO. MAH-18-1715

UNDER BELLE VISTA AVENUE

MAHONING CO. STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| RLS | EFR | P.T.R. | EFR | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|---|---|---|---|
| 2 | OHIO | | |

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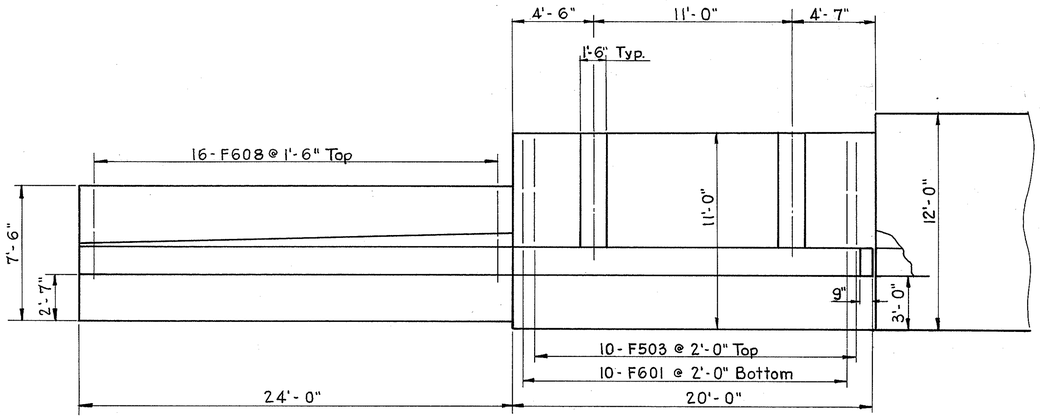
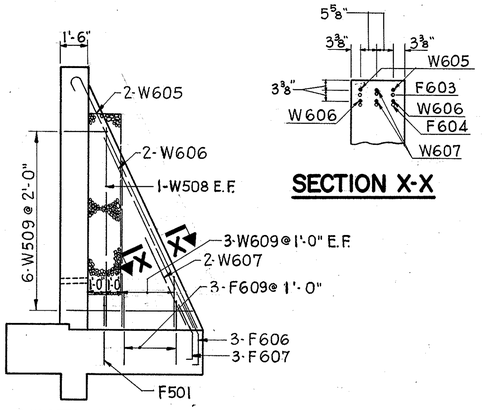
MAHONING COUNTY
MAH-18-15.50




PLAN

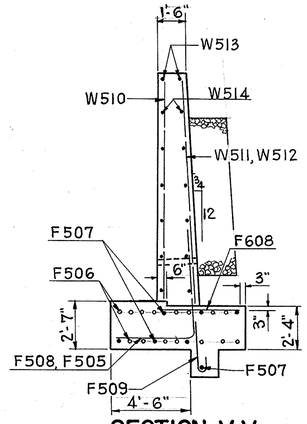



SECTION U-U

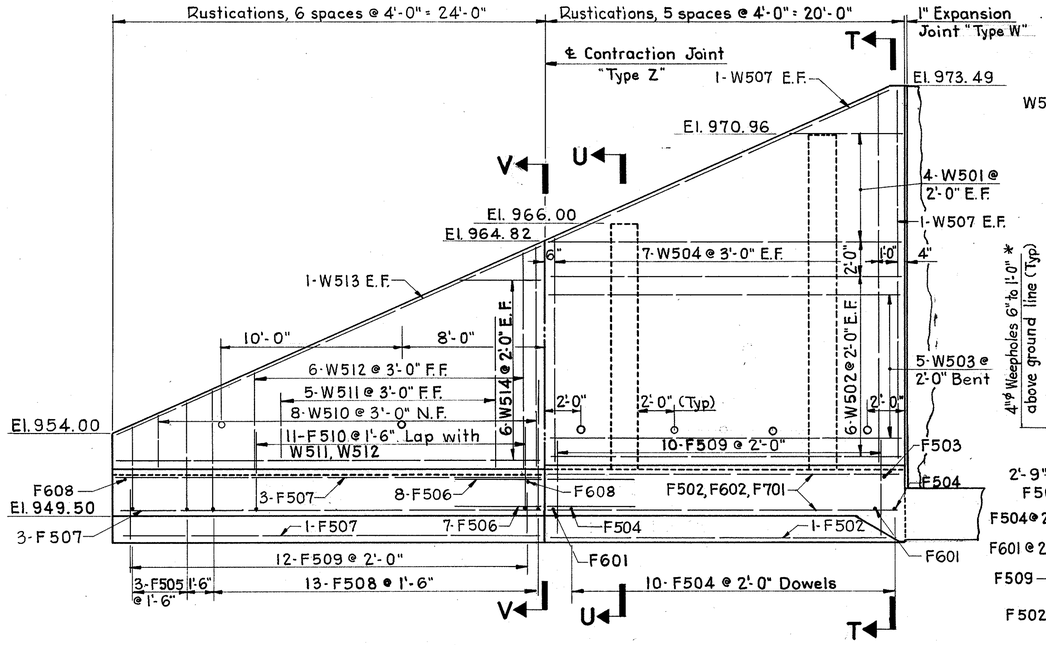
Similar to Section T-T except as noted.



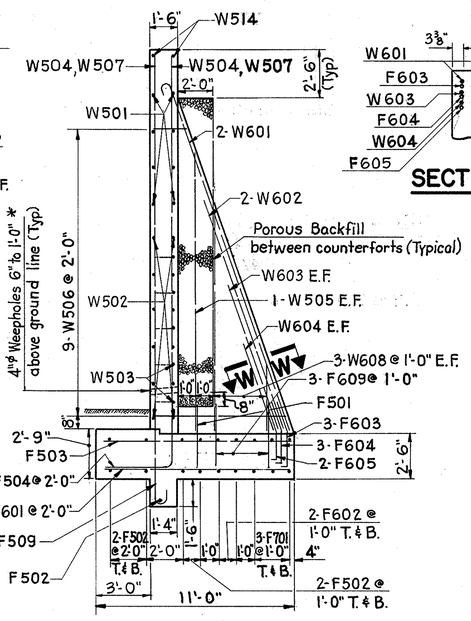

SECTION X-X




SECTION V-V

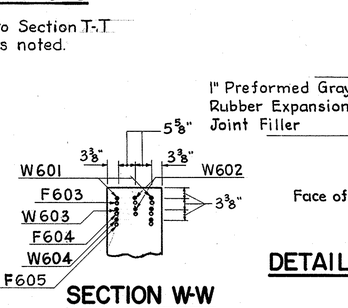



ELEVATION

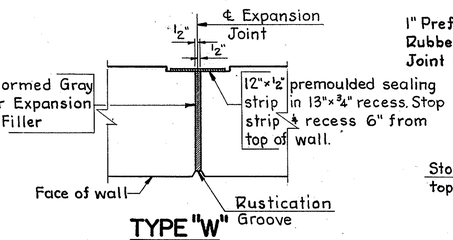



SECTION T-T

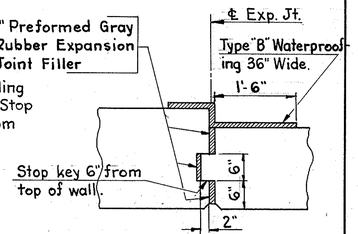
* Locate weepholes as shown in elevation.



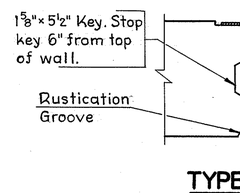

SECTION W-W



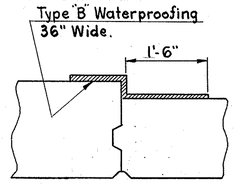

TYPE "W"
DETAIL OF EXPANSION JOINT



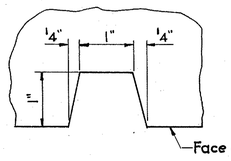

"TYPE X"




TYPE "Y"
DETAIL OF CONTRACTION JOINT




"TYPE Z"




DETAIL OF RUSTICATION

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face
T.&B. = Top & Bottom

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# LEFT RETAINING WALL ABUTMENT "B"

BRIDGE NO. MAH-18-1715

UNDER BELLE VISTA AVENUE

MAHONING CO. STA. 606 + 54.21

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED DATE | REVISED |
|---|---|---|---|---|---|
| RLS | EFR | P.T.R. | EFR | F.K. 10-14-63 | |

MAHONING COUNTY
MAH-18-15.50

| FEDERAL RD DIVISION | STATE | PROJECT | | |
|---|---|---|---|---|
| 2 | OHIO | | | |

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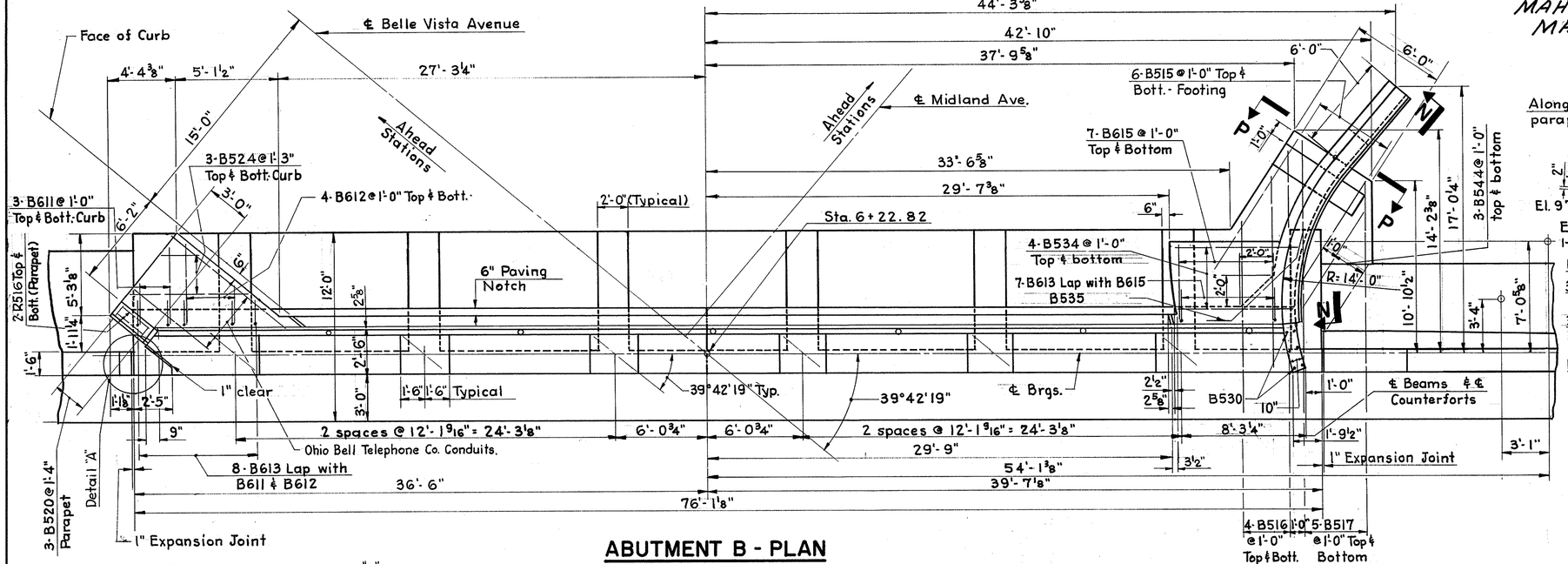
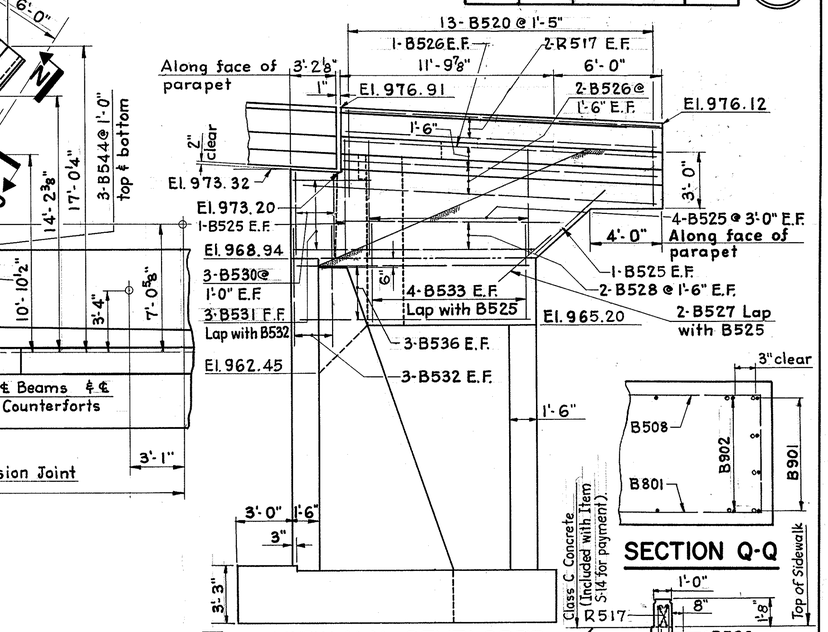
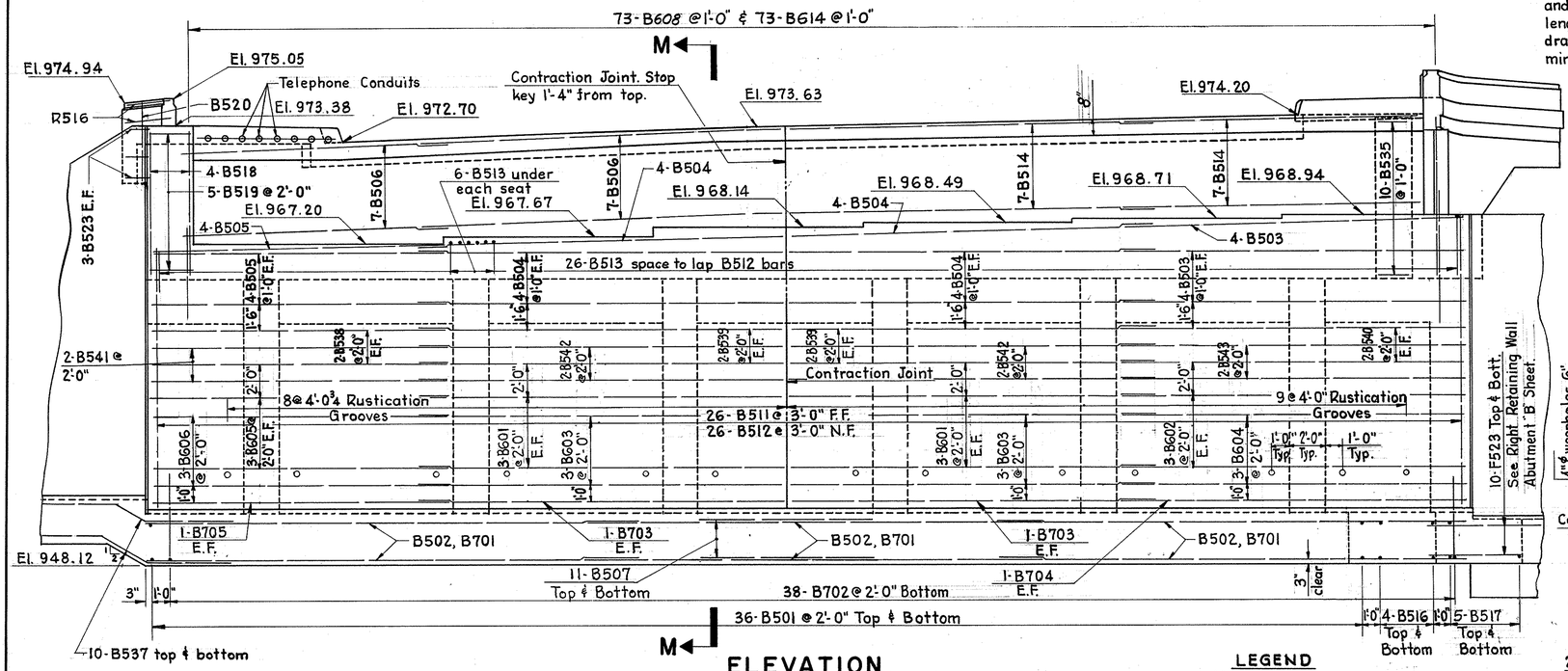
# ABUTMENT B - PLAN




NOTE: For Detail "A" see Abutment "A" Sheet.



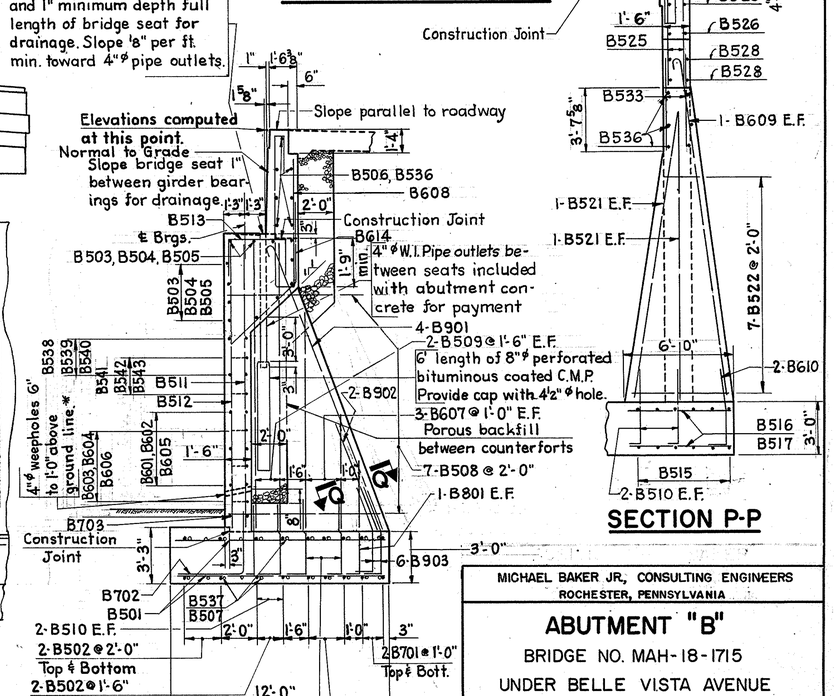




# ELEVATION

NOTE:
- For joint and rustication groove details see Left Retaining Wall Abutment "B"
- For ground details, see General Notes on Gen. Plan & Elev. Sheet.

NOTE:
For Anchor Rod Layout see Right Retaining Wall Abutment "B" Sheet.

LEGEND
N.F. = Near Face
F.F. = Far Face
E.F. = Each Face




# SECTION M-M

* Locate weepholes as shown in Elevation.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

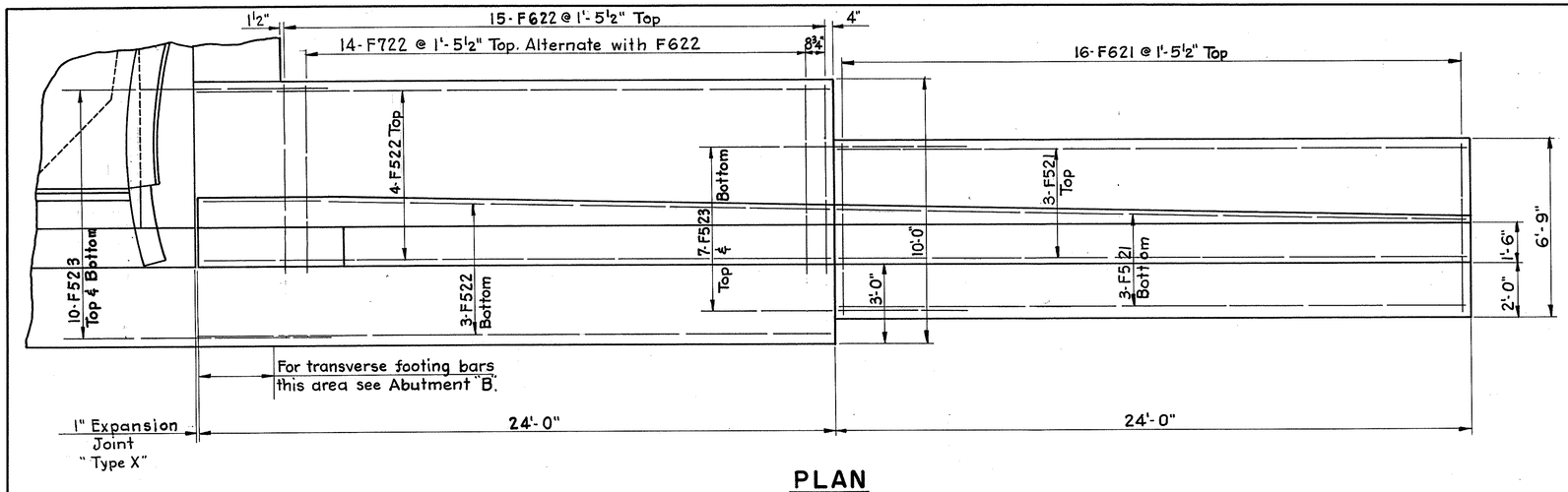
## ABUTMENT "B"

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE
MAHONING CO. STA. 606+54.21

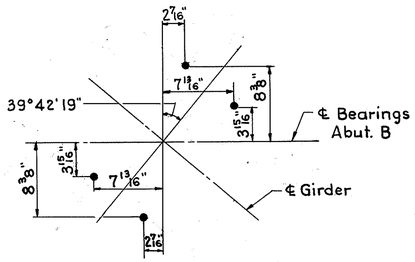
| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EFR | EFR | P.T.R. | R.L.S | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | | 276 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAHONING COUNTY
MAH - 18 - 15.50

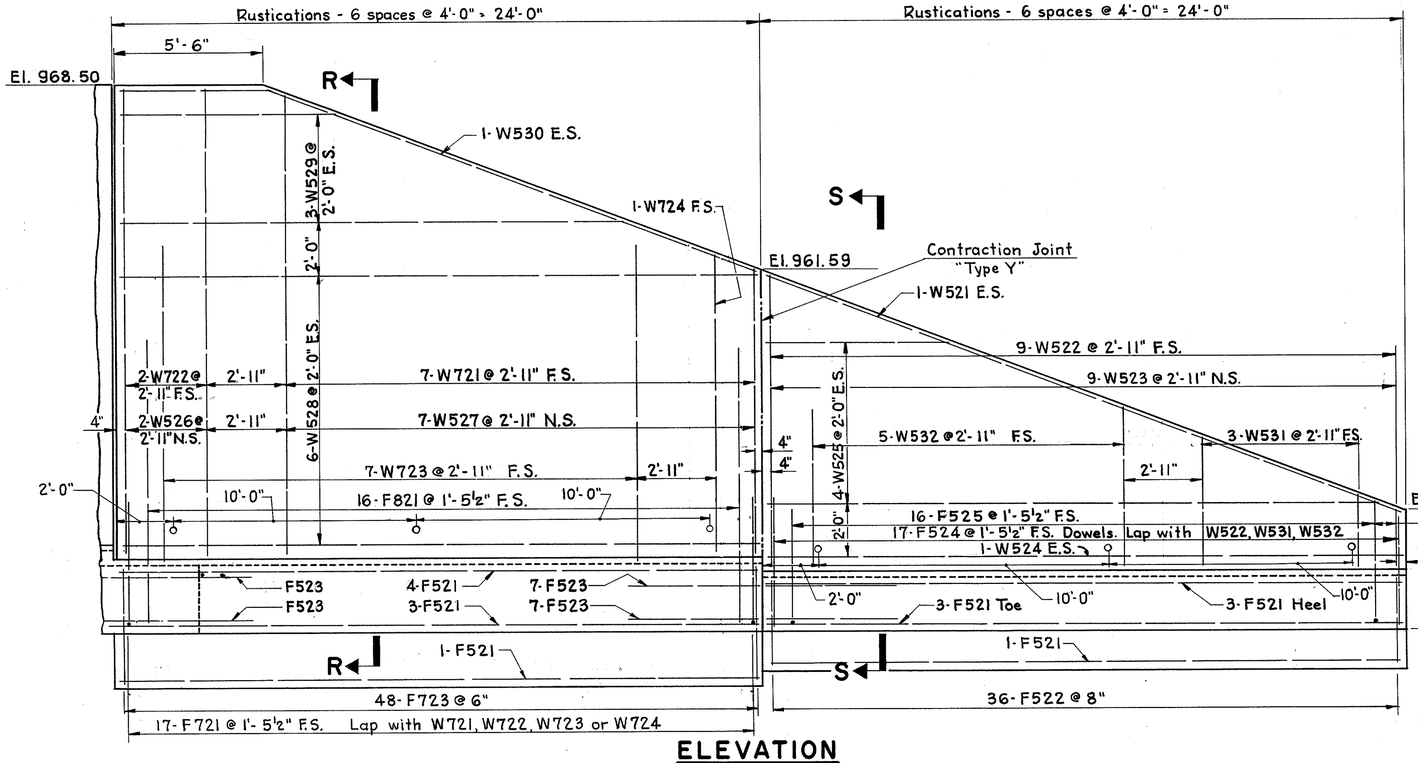



## PLAN

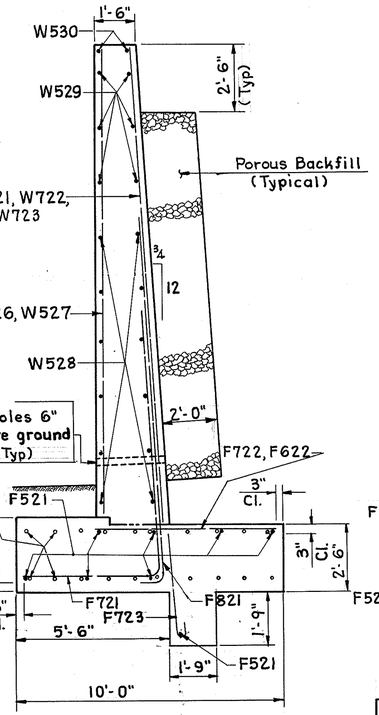



## ANCHOR ROD LAYOUT

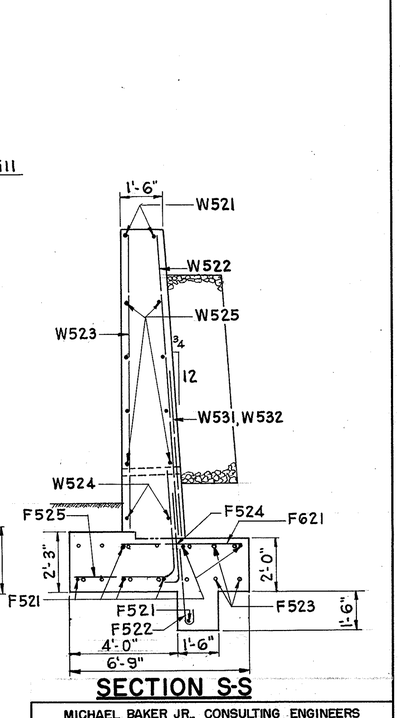
Abutment B




## ELEVATION




## SECTION R-R




## SECTION S-S

NOTE:
For joint and rustication groove details see Left Retaining Wall Abutment "B".

LEGEND
F.S. = Far Side
E.S. = Each Side
N.S. = Near Side

* Locate weepholes as shown on Elevation.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# RIGHT RETAINING WALL ABUTMENT "B"

BRIDGE NO. MAH-18-1715

UNDER BELLE VISTA AVENUE

MAHONING CO. STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| RLS. | EFR. | P.T.R. | EFR. | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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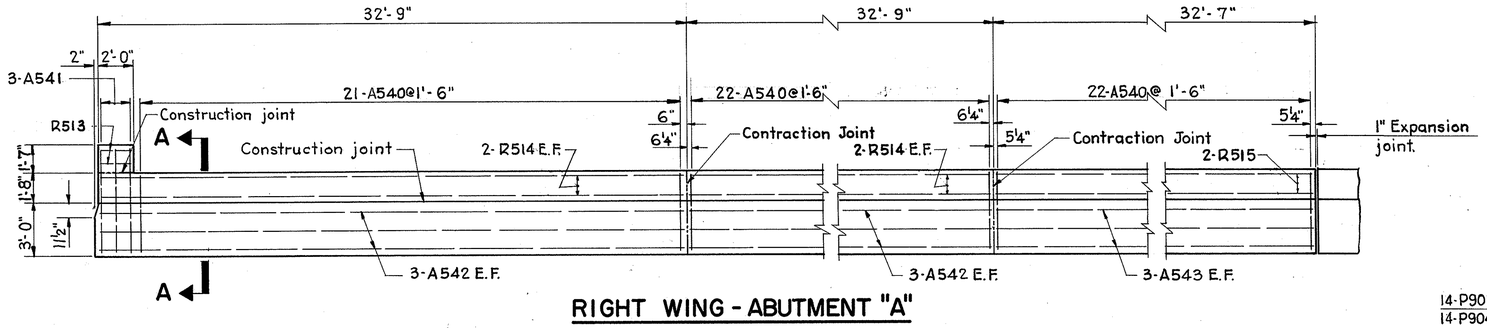
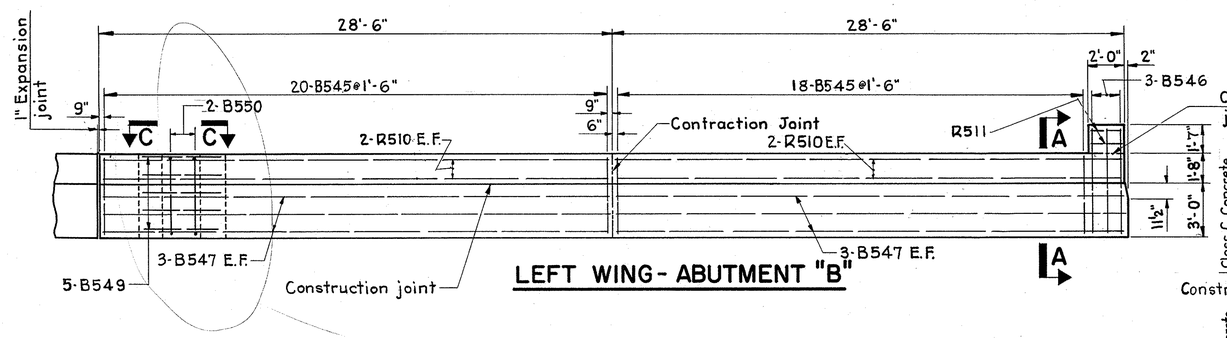
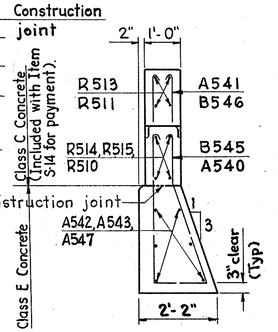
MAHONING COUNTY
MAH-18-15.50



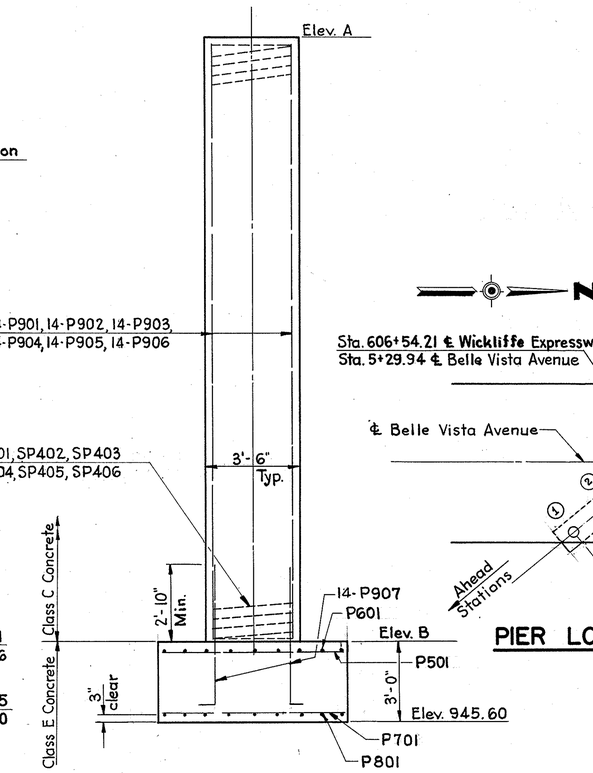

## RIGHT WING - ABUTMENT "A"



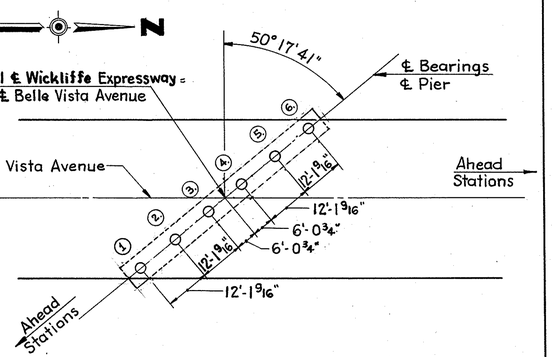

## LEFT WING - ABUTMENT "B"




## SECTION A-A

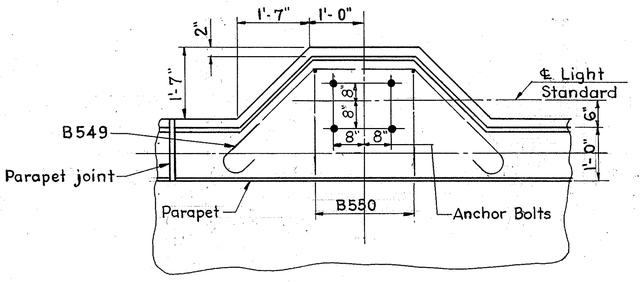



## PIER-ELEVATION



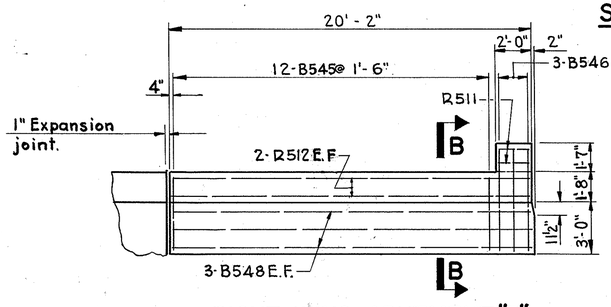

## PIER LOCATION SKETCH

| PIER DATA | | | | |
|---|---|---|---|---|
| Column | Elev. A | Elev. B | Reinforcement | |
| 1 | 971.19 | 948.60 | P901 | SP401 |
| 2 | 971.03 | 948.60 | P902 | SP402 |
| 3 | 970.86 | 948.60 | P903 | SP403 |
| 4 | 970.56 | 948.60 | P904 | SP404 |
| 5 | 970.13 | 948.60 | P905 | SP405 |
| 6 | 969.69 | 948.60 | P906 | SP406 |

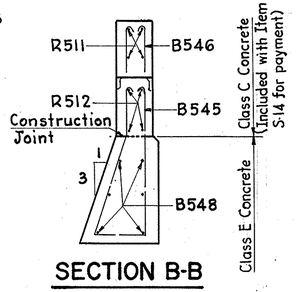



For details not shown see Details - Bridge Lighting.

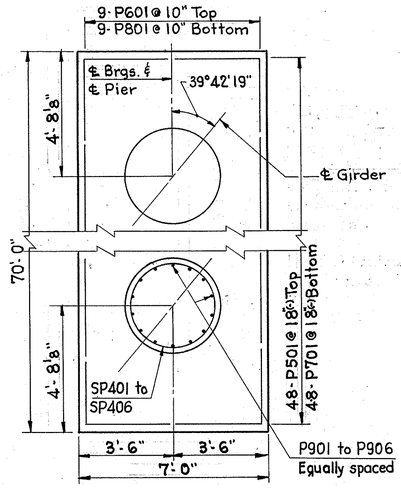
## SECTION C-C
## PLAN-LIGHT STANDARD BASE




## RIGHT WING - ABUTMENT "B"




## SECTION B-B




## PIER - PLAN

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

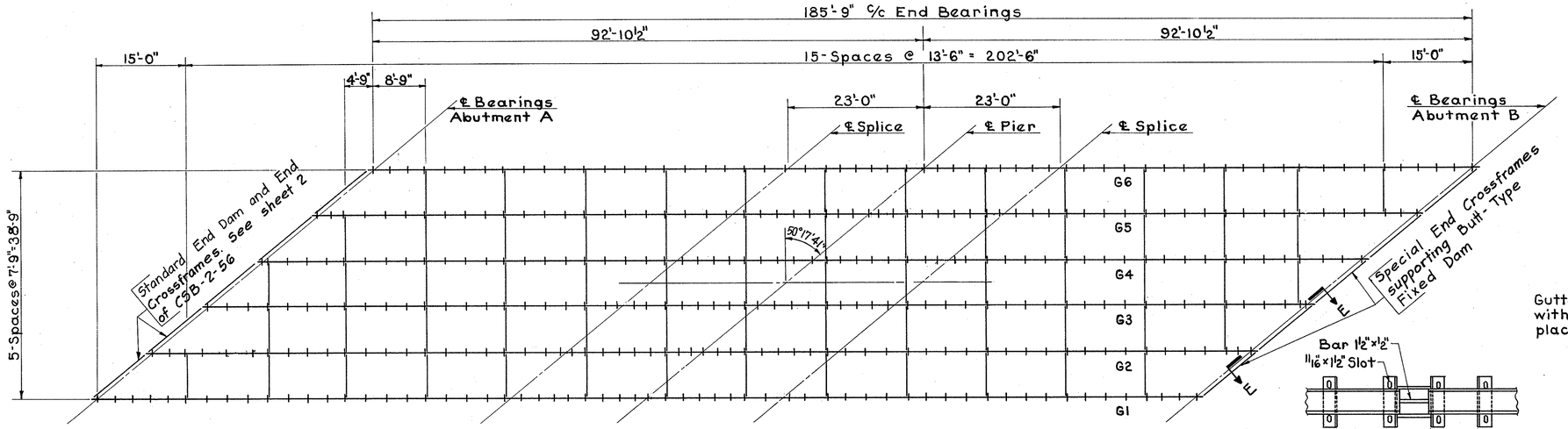
# PIER & PARAPET WALL

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE
MAHONING CO. STA. 606+54.21

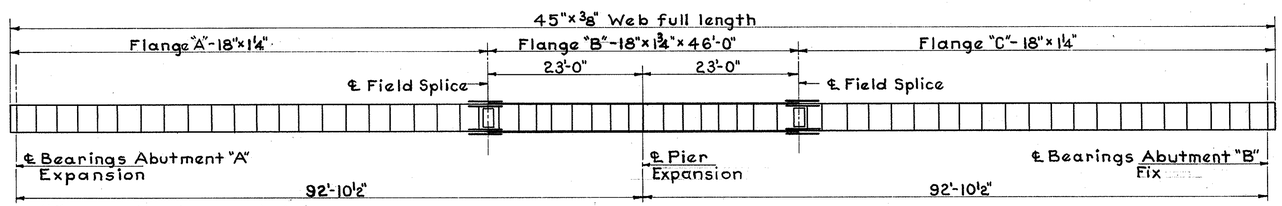
| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| RLS | RLS | P.T.R. | EFR MAE | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | | 278 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAHONING COUNTY
MAH-18-15.50




## STEEL FRAMING PLAN

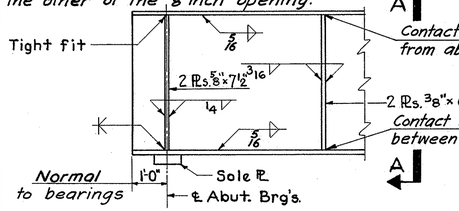



## GIRDER ELEVATION (G1 Shown)

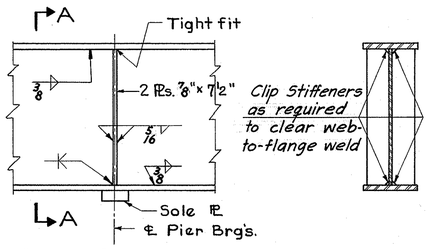
*Intermediate stiffeners shall have contact bearing with the compression flange, but may have a clearance of not more than ⅛ inch from the tension flange. In shop painting, care shall be taken to make certain that paint is forced through from one side to the other of the ⅛ inch opening.*

*Shop Splices: If additional shop splices are necessary, their location and detail shall be submitted to the Director for approval prior to ordering of material.*

*Note: For electrical ground details, see General Notes on General Plan & Elevation Sheet.*




## ABUTMENT BEARING STIFFENER & INTERMEDIATE STIFFENER

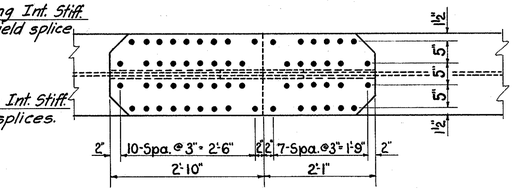


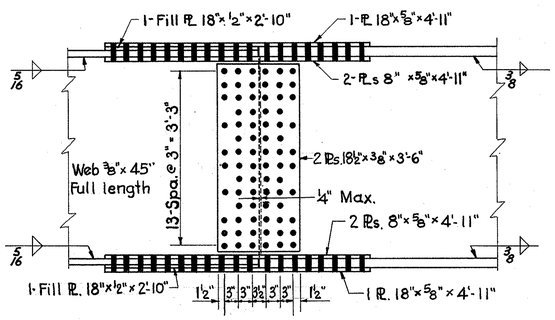

## PIER BEARING STIFFENER



Clip Stiffeners as required to clear web-to-flange weld

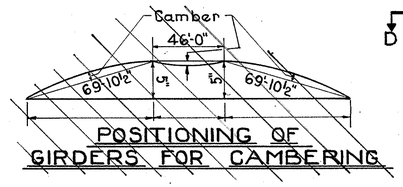
## SECTION A-A






## FIELD SPLICE DETAIL

*High Strength Bolts ⅞"ϕ*

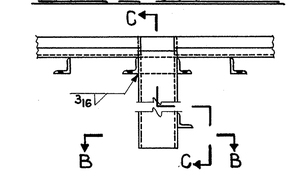



## POSITIONING OF GIRDERS FOR CAMBERING

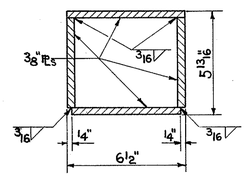
| TABLE OF GIRDER MATERIALS & BEARINGS | |
|---|---|
| Web | 45"x⅜" |
| Flange "A" | 18"x1¼" |
| Flange "B" | 18"x1¾" |
| Flange "C" | 18"x1¼" |
| Abutment Bearing Stiffeners | 2(7½"x⅝") |
| Pier Bearing Stiffeners | 2(7½"x⅜") |
| Intermediate Stiffeners | 2(6"x⅜") |
| Abutment "A" Bearings | E-150 |
| Abutment "B" Bearings | F-150 |
| Pier Bearings | R-250 |



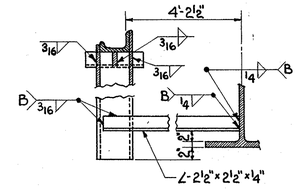

## PLAN OF SCUPPER



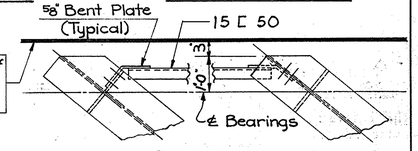

## ELEVATION OF SCUPPER



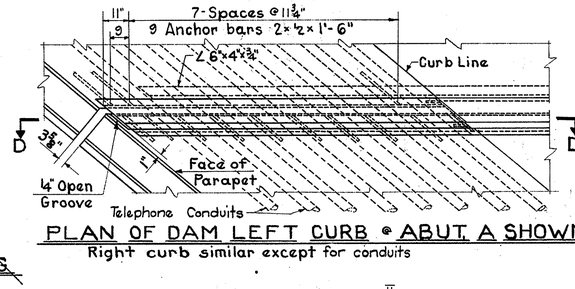

## SECTION B-B




## SECTION C-C

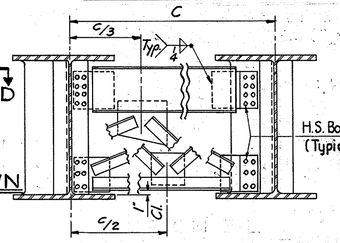



## PART PLAN

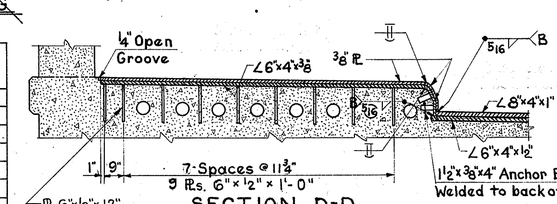



## PLAN OF DAM LEFT CURB @ ABUT. A SHOWN

Right curb similar except for conduits




## SECTION E-E




## SECTION D-D

Note: See sheet 2 of CSB-2-56 for size of angles and plates and for welding details.

Note: For Notes see other Superstructure Details sheet.

See Sheet 271 for Deflection and Camber data.

## DEFLECTION & CAMBER

| LOCATION | SECTION A | | | | | | SECTION B | | | | | | SECTION C | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 | G1 | G2 | G3 | G4 | G5 | G6 |
| Deflection due to Steel | 3/16" | ¼" | ¼" | ¼" | ⅛" | 3/16" | -⅛" | ← | ← | ← | ← | -⅛" | 3/16" | ¼" | ¼" | ¼" | ¼" | 3/16" |
| Deflection due to Remaining Dead Load | 1" | ¾" | ¾" | ¾" | ¾" | 5/16" | -⅜" | ← | ← | ← | ← | -⅜" | 1" | ¾" | ¾" | ¾" | ¾" | 1" |
| Convexity Required for Vertical Curve | ¾" | ¾" | ¾" | ¾" | ¾" | ¾" | ⅜" | ← | ← | ← | ← | ⅜" | 1" | ⅝" | ¼" | ⅛" | 0" | 0" |
| Sum of Deflection and Convexity | 1 5/16" | ⅜" | ¾" | 1¾" | ⅜" | 1 1/16" | -⅛" | ← | ← | ← | ← | -⅛" | 1⅜" | 1⅛" | ¼" | ⅛" | 1" | 1 3/16" |
| Required Camber | 1 11/16" | ¾" | ¾" | 1¾" | ¾" | 1 5/16" | -⅛" | ← | ← | ← | ← | -⅛" | 1 1/16" | 1⅜" | 1¼" | 1⅛" | 1" | 1 3/16" |

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

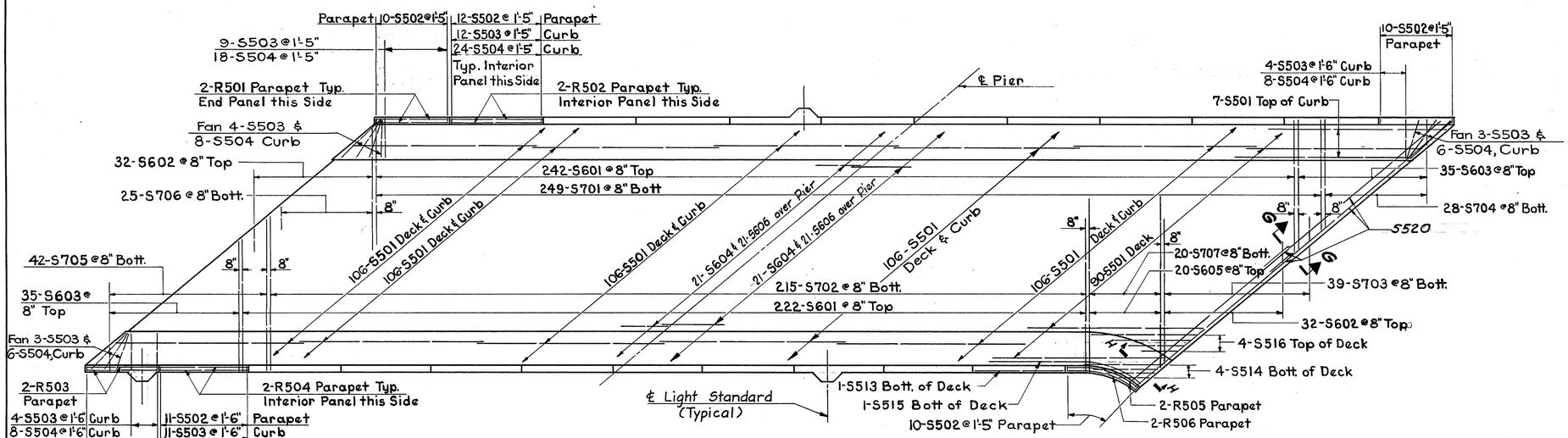
# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE
MAHONING CO. STA 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| RLS | J.H. | J.H. | EFR | F.K. 10-14-63 | | 2-23-66 |

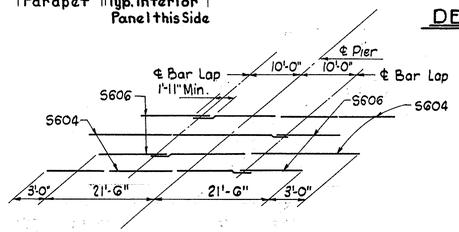
| FED. RD. DIVISION | STATE | PROJECT | | 279 |
|---|---|---|---|---|
| 2 | OHIO | | | |

MAHONING COUNTY
MAH-18-15.50



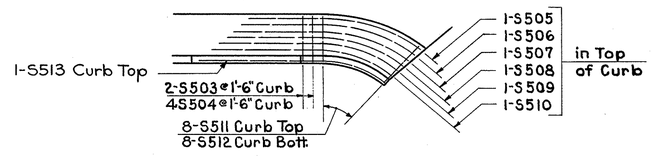

## DECK REINFORCING PLAN

Notes:
For Reinforcing not shown see Detail "A"
*See General Plan for location of curb and parapet radii.*

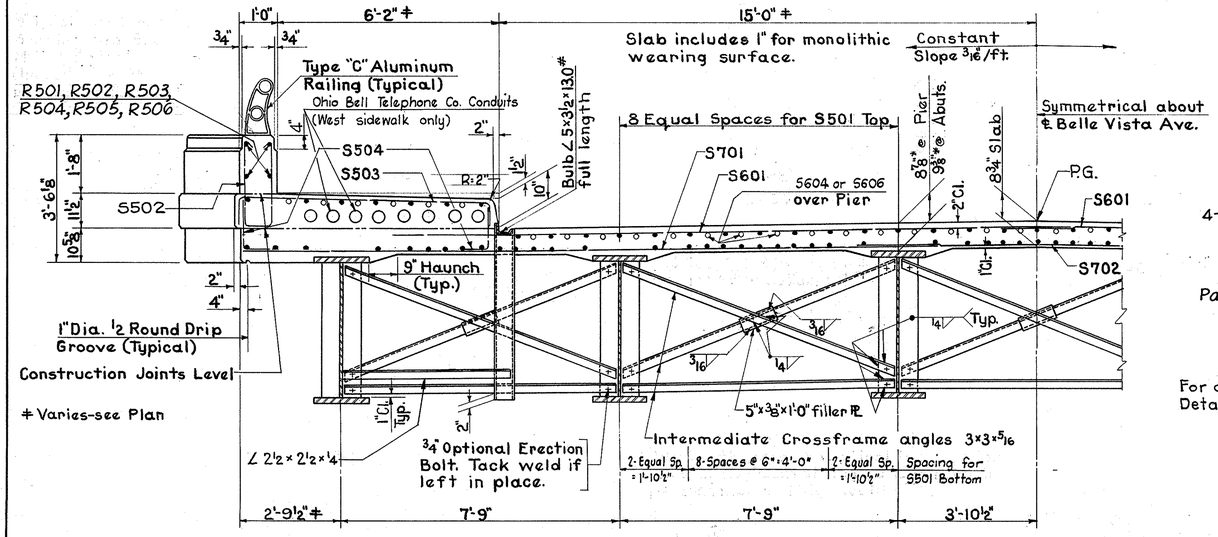



## DIAGRAM SHOWING STAGGER OF S604 & S606 BARS

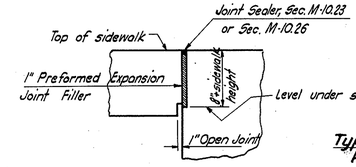
✳ This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation necessary to place it parallel to the finished grade.



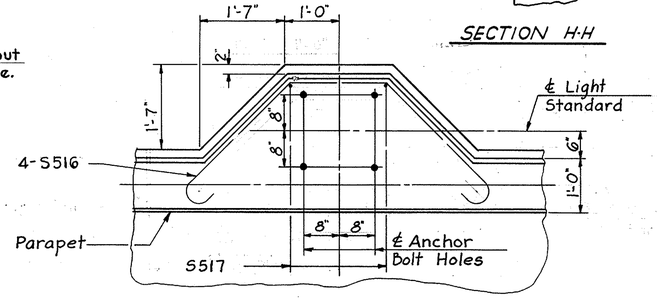

## DETAIL "A"

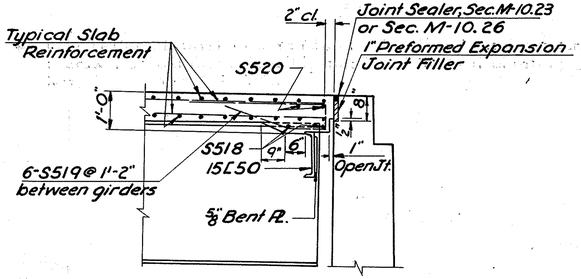



## HALF CROSS SECTION




## SECTION H-H




## SECTION G-G

For details not shown see Details - Bridge Lighting.

## DETAIL B
## PLAN - LIGHT STANDARD BASE
*For location see General Plan & Elevation*

## NOTES:

- Refer to *Std. Dwg. CSB-2-56, revised 2-2-59, sheets 2 & 3 of 6 for* details of End Dams, End Crossframes, 2"ø Pipe Drains, Curb Plates and Bulb Angles and to Standard Drawing AR-1-57 for details of Type "C" Aluminum Railing and Concrete Parapet and to Standard Drawing FS B-1-62 for details of Fixed and Expansion bearings, *also RB-1-55, revised 2-2-59.*
- ERECTION PROCEDURE: The contractor shall submit 3 prints, showing the proposed Structural Steel erection procedure to the Director for approval.
- CONCRETE shall be class "C" Concrete and reinforcing steel above parapet construction joint shall be included with railing for payment.
- See General Plan and Elevation for location of scuppers, 2"ø pipe drains and railing posts.
- CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.
- DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" except that the maximum slope shall not exceed 3 inches per foot. Payment for deck slab concrete shall be based on the 9" width.
- MACHINE FINISH: The concrete bridge deck *shall be* finished by the use of a finishing machine.
- *ELECTRICAL LIGHTING SYSTEM: For additional details, refer to drawings, "Details - Bridge Lighting" and "General Lighting Notes."*

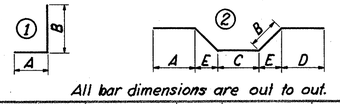
MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE

MAHONING COUNTY — STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| RLS | J.H. | CJB | EFR. | F.K. | 10-14-63 | |




All bar dimensions are out to out.

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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MAHONING COUNTY

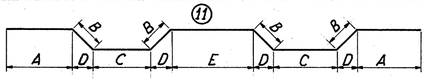
* 2 Ea. vary "A" by 2'-0": MAH-18-15.50

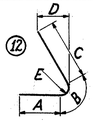
| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **ABUTMENT "A"** | | | | | |
| A901 | 48 | 6'-4" | 7 | 3'-0" | 2'-8" | 1'-0" | 8¾" | | 1034 |
| A902 | 12 | 5'-6" | Str. | | | | | | 224 |
| A903 | 12 | 5'-9" | 1 | 1'-0" | 5'-0" | | | | 235 |
| A904 | 12 | 25'-9" | 6 | 24'-6" | 1'-3" | 11¼" | | | 1051 |
| A905 | 12 | 17'-9" | Str. | | | | | | 724 |
| A906 | 12 | 11'-0" | Str. | | | | | | 449 |
| A907 | 12 | 6'-3" | Str. | | | | | | 255 |
| | | | | | | | | | |
| A801 | 12 | 25'-8" | Str. | | | | | | 822 |
| A802 | 24 | 5'-7" to 9'-0" | Str. | 12 Ea. vary by 3'-5" | | | | | 467 |
| A803 | 24 | 4'-11" | 1 | 1'-0" | 4'-2" | | | | 315 |
| | | | | | | | | | |
| A701 | 72 | 9'-10" | 1 | 5'-0" | 5'-0" | | | | 1447 |
| A702 | 20 | 22'-0" | Str. | | | | | | 899 |
| A703 | 8 | 18'-4" | 2 | 1'-2" | 1'-7¾" | 6'-1½" | 8'-10" | 1'-2" | 300 |
| A704 | 10 | 15'-4" | Str. | | | | | | 313 |
| A705 | 4 | 24'-2" | 2 | 7'-2" | 1'-7¾" | 6'-1½" | 7'-11" | 1'-2" | 198 |
| A706 | 2 | 22'-5" | 1 | 16'-4" | 6'-3" | | | | 92 |
| A707 | 36 | 16'-8" to 23'-6" | Str. | 12 Ea. vary by 3'-5" | | | | | 1478 |
| A708 | 12 | 25'-6" | Str. | | | | | | 625 |
| A709 | 4 | 25'-3" | 2 | 9'-0" | 1'-7¾" | 6'-1½" | 7'-2" | 1'-2" | 206 |
| A710 | 10 | 16'-5" | Str. | | | | | | 336 |
| A711 | 36 | 5'-10" | 1 | 5'-0" | 1'-0" | | | | 429 |
| | | | | | | | | | |
| A601 | 18 | 25'-4" | Str. | | | | | | 685 |
| A602 | 12 | 22'-0" | Str. | | | | | | 397 |
| A603 | 6 | 18'-2" | 2 | 1'-0" | 1'-7¾" | 6'-1½" | 8'-10" | 1'-2" | 164 |
| A604 | 6 | 15'-0" | Str. | | | | | | 135 |
| A605 | 3 | 24'-2" | 2 | 7'-0" | 1'-7¾" | 6'-1½" | 7'-11" | 1'-2" | 109 |
| A606 | 24 | 19'-0" to 23'-0" | 3 | 8'-0" to 10'-0" | 1'-8" | 1'-0" | 4 Ea. vary "A" by 8". | | 757 |
| A607 | 6 | 16'-1" | Str. | | | | | | 145 |
| A608 | 3 | 25'-1" | 2 | 9'-0" | 1'-7¾" | 6'-1½" | 7'-0" | 1'-2" | 113 |
| A609 | 65 | 11'-2" | 4 | 5'-11" | 5'-3" | 3'-9" | | | 1090 |
| A610 | 65 | 20'-5" | 5 | 3'-0" | 11" | 8'-7" | 1'-5" | 7'-1" | 1993 |
| A611 | 2 | 14'-4" | 5 | 3'-0" | 11" | 5'-6" | 1'-5" | 4'-0" | 43 |
| A612 | 6 | 3'-3" to 5'-9" | Str. | 2 Ea. vary by 1'-3" | | | | | 41 |
| A613 | 8 | 3'-6" to 6'-0" | Str. | 2 Ea. vary by 10" | | | | | 57 |
| A614 | 17 | 4'-5" | 1 | 2'-8" | 1'-11" | | | | 113 |
| A615 | 6 | 2'-9" to 5'-1" | Str. | 2 Ea. vary by 1'-2" | | | | | 35 |
| A616 | 8 | 2'-9" to 5'-3" | Str. | 2 Ea. vary by 10" | | | | | 48 |
| | | | | | | | | | |
| A501 | 144 | 14'-0" | Str. | | | | | | 2103 |
| A502 | 32 | 22'-0" | Str. | | | | | | 734 |
| A503 | 4 | 18'-0" | 2 | 10" | 1'-7¾" | 6'-1½" | 8'-10" | 1'-2" | 75 |
| A504 | 4 | 10'-2" to 14'-8" | Str. | 1 Ea. vary by 1'-6" | | | | | 52 |
| A505 | 2 | 23'-11" | 2 | 6'-10" | 1'-7¾" | 6'-1½" | 7'-11" | 1'-2" | 50 |
| A506 | 42 | 10'-2" to 18'-2" | 3 | 3'-6" to 7'-6" | 1'-8" | 1'-0" | 6 Ea. vary "A" by 8" | | 621 |
| A507 | 30 | 25'-0" | Str. | | | | | | 782 |
| A508 | 24 | 5'-2" | 1 | 4'-4" | 1'-0" | | | | 129 |
| A509 | 26 | 23'-0" | Str. | | | | | | 624 |
| A510 | 26 | 22'-9" | Str. | | | | | | 617 |
| A511 | 4 | 14'-8" | Str. | | | | | | 61 |
| A512 | 36 | 6'-10" | 3 | 1'-7" | 3'-11" | 0" | | | 257 |
| A513 | 7 | 18'-4" | Str. | | | | | | 134 |
| A514 | 14 | 18'-0" | Str. | | | | | | 263 |

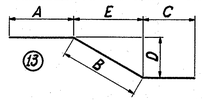
| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **ABUTMENT "A" (CONTINUED)** | | | | | |
| A515 | 17 | 9'-7" | 8 | 4'-3" | 6" | 5" | | | 170 |
| A516 | 3 | 4'-0" to 9'-0" | Str. | 1 Ea. vary by 2'-6" | | | | | 20 |
| A517 | 2 | 17'-6" | Str. | | | | | | 37 |
| A518 | 6 | 7'-0" to 13'-8" | Str. | 2 Ea. vary by 3'-4" | | | | | 65 |
| A519 | 24 | 23'-6" | Str. | | | | | | 588 |
| A520 | 6 | 4'-6" to 6'-0" | Str. | 2 Ea. vary by 9" | | | | | 33 |
| A521 | 4 | 6'-5" | Str. | | | | | | 27 |
| A522 | 2 | 11'-10" | 4 | 9'-0" | 3'-0" | 2'-7" | | | 25 |
| A523 | 2 | 6'-6" | 4 | 5'-0" | 1'-8" | 10" | | | 14 |
| A524 | 10 | 6'-3" | Str. | | | | | | 65 |
| A525 | 6 | 4'-5" | Str. | | | | | | 28 |
| A526 | 10 | 5'-6" | Str. | | | | | | 57 |
| A527 | 2 | 9'-3" | Str. | | | | | | 19 |
| A528 | 6 | 2'-6" to 7'-6" | Str. | 2 Ea. vary by 2'-6" | | | | | 31 |
| A529 | 6 | 2'-8" | Str. | | | | | | 17 |
| A530 | 4 | 8'-3" | Str. | | | | | | 34 |
| A531 | 4 | 6'-2" | 9 | 2'-1" | 1'-2" | 10" | 1'-5" | 11" | 26 |
| A532 | 11 | 7'-0" | 10 | 1'-7" | 5'-0" | 1'-7" | 1'-9½" | 6¼" | 80 |
| A533 | 4 | 14'-8" | Str. | | | | | | 61 |
| A534 | 2 | 11'-8" to 13'-2" | Str. | 1 Ea. vary by 1'-6" | | | | | 26 |
| A535 | 9 | 15'-0" | Str. | | | | | | 141 |
| A536 | 2 | 25'-1" | 2 | 9'-0" | 1'-7¾" | 6'-1½" | 7'-7" | 1'-2" | 52 |
| A537 | 16 | 15'-9" | Str. | | | | | | 263 |
| A538 | 2 | 10'-8" | Str. | | | | | | 22 |
| A539 | 3 | 12'-8" | 8 | 5'-11" | 8" | 5" | | | 40 |
| A540 | 65 | 10'-10" | 16 | 4'-3" | 1'-7" | 2'-11" | 1'-6" | 5" | 734 |
| A541 | 3 | 14'-0" | 16 | 5'-10" | 1'-7" | 2'-11" | 3'-1" | 5" | 44 |
| A542 | 12 | 32'-5" | Str. | | | | | | 406 |
| A543 | 6 | 32'-3" | Str. | | | | | | 194 |
| | | | | | | | | | |
| R507 | 4 | 17'-6" | Str. | | | | | | Included with Railing for payment. |
| R508 | 4 | 2'-8" | Str. | | | | | | |
| R509 | 2 | 4'-10" | 5 | 1'-3" | 6½" | 1'-6½" | 6½" | 1'-6½" | |
| R513 | 2 | 4'-10" | 5 | 1'-3" | 6½" | 1'-6½" | 6½" | 1'-6½" | |
| R514 | 8 | 32'-5" | Str. | | | | | | |
| R515 | 4 | 32'-3" | Str. | | | | | | |
| | | | | | | | | Total | 27,645 |

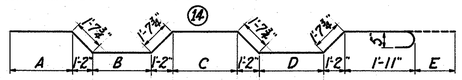
| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **ABUTMENT "B"** | | | | | |
| B901 | 28 | 18'-0" | 6 | 16'-9" | 1'-3" | 11¼" | | | 1714 |
| B902 | 14 | 6'-11" | Str. | | | | | | 329 |
| B903 | 42 | 6'-5" | 7 | 3'-0" | 2'-8" | 1'-0" | 1'-0½" | | 916 |
| | | | | | | | | | |
| | | | | | | | | | |
| B801 | 14 | 6'-6" | 1 | 1'-0" | 5'-9" | | | | 243 |
| | | | | | | | | | |
| B701 | 12 | 26'-9" | Str. | | | | | | 656 |
| B702 | 38 | 9'-1" | 1 | 4'-0" | 5'-3" | | | | 705 |
| B703 | 4 | 21'-4" | Str. | | | | | | 174 |
| B704 | 2 | 20'-2" | Str. | | | | | | 82 |
| B705 | 2 | 17'-0" | Str. | | | | | | 69 |
| | | | | | | | | | |
| B601 | 12 | 21'-4" | Str. | | | | | | 385 |
| B602 | 6 | 19'-10" | Str. | | | | | | 179 |
| B603 | 6 | 20'-5" | 2 | 3'-8" | 1'-7¾" | 6'-1½" | 7'-8" | 1'-2" | 184 |
| B604 | 3 | 23'-3" | 14 | 1'-11" | 6'-1½" | 2'-11" | 3'-9" | 8" | 105 |
| B605 | 6 | 16'-11" | Str. | | | | | | 152 |
| B606 | 3 | 18'-10" | 2 | 7'-10" | 1'-7¾" | 6'-1½" | 1'-11" | 1'-2" | 85 |
| B607 | 42 | 6'-2" to 11'-11" | Str. | 14 Ea. vary by 2'-11" | | | | | 570 |
| B608 | 73 | 20'-5" | 5 | 3'-0" | 11" | 8'-7" | 1'-5" | 7'-1" | 2239 |
| B609 | 2 | 19'-8" | 6 | 19'-0" | 8" | 6" | | | 59 |
| B610 | 2 | 5'-5" | 7 | 2'-0" | 2'-7" | 1'-0" | 3½" | | 16 |
| B611 | 6 | 2'-9" to 5'-1" | Str. | 2 Ea. vary by 1'-2" | | | | | 35 |
| B612 | 8 | 2'-9" to 5'-3" | Str. | 2 Ea. vary by 10" | | | | | 48 |
| B613 | 15 | 4'-5" | 1 | 1'-11" | 2'-8" | | | | 100 |
| B614 | 73 | 11'-2" | 4 | 5'-11" | 5'-3" | 3'-9" | | | 1224 |
| B615 | 14 | 5'-3" | Str. | | | | | | 110 |
| B616 | 42 | 5'-9" | 1 | 1'-0" | 4'-11" | | | | 363 |
| | | | | | | | | | |
| B501 | 72 | 11'-6" | Str. | | | | | | 864 |
| B502 | 42 | 26'-4" | Str. | | | | | | 1154 |
| B503 | 12 | 20'-0" | Str. | | | | | | 250 |
| B504 | 24 | 20'-10" | Str. | | | | | | 521 |
| B505 | 12 | 17'-3" | Str. | | | | | | 216 |
| B506 | 14 | 18'-3" | Str. | | | | | | 266 |
| B507 | 22 | 10'-0" | Str. | | | | | | 229 |
| B508 | 49 | 11'-8" to 20'-2" | 3 | 4'-0" to 8'-3" | 1'-8" | 1'-0" | 7 Ea. vary "A" by 8½" | | 813 |
| B509 | 28 | 15'-8" | Str. | | | | | | 458 |
| B510 | 32 | 5'-5" | 1 | 1'-0" | 4'-7" | | | | 181 |
| B511 | 26 | 14'-8" to 16'-8" | Str. | 2 Ea. vary by 2" | | | | | 425 |
| B512 | 26 | 14'-5" to 16'-5" | Str. | 2 Ea. vary by 2" | | | | | 418 |
| B513 | 68 | 6'-10" | 3 | 1'-7" | 3'-11" | 0" | | | 485 |
| B514 | 14 | 19'-11" | Str. | | | | | | 291 |
| B515 | 12 | 10'-0" | Str. | | | | | | 125 |
| B516 | 8 | 12'-0" to 17'-6" | Str. | 2 Ea. vary by 1'-10" | | | | | 123 |
| B517 | 10 | 15'-0" to 17'-8" | Str. | 2 Ea. vary by 8" | | | | | 170 |
| B518 | 4 | 8'-6" | Str. | | | | | | 35 |
| B519 | 5 | 6'-2" | 9 | 2'-1" | 1'-2" | 10" | 1'-5" | 11" | 32 |
| B520 | 16 | 9'-7" | 8 | 4'-3" | 6" | 5" | | | 160 |
| B521 | 4 | 17'-3" | Str. | | | | | | 72 |
| B522 | 7 | 6'-9" to 12'-9" | 8 | 2'-6" to 5'-6" | 1'-2" | 5" | 1 Ea. vary "A" by 6" | | 71 |
| B523 | 6 | 2'-8" | Str. | | | | | | 17 |
| B524 | 6 | 2'-6" to 7'-6" | Str. | 2 Ea. vary by 2'-6" | | | | | 31 |
| B525 | 12 | 6'-0" | Str. | | | | | | 75 |
| B526 | 6 | 16'-10" | 15 | 11'-0" | 5'-10" | | 14'-0" | | 105 |
| B527 | 2 | 4'-0" | Str. | | | | | | 8 |

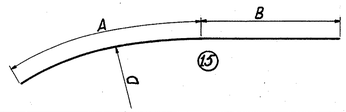
| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **ABUTMENT "B" (CONTINUED)** | | | | | |
| B528 | 4 | 13'-0" to 15'-0" | 15 | 13'-0" to 15'-0" | 0" | | 14'-0" | * | 58 |
| B529 | 4 | 16'-10" | 15 | 11'-0" | 0" | | 14'-0" | | 70 |
| B530 | 6 | 4'-8" | Str. | | | | | | 29 |
| B531 | 3 | 4'-7" | Str. | | | | | | 14 |
| B532 | 6 | 6'-6" | Str. | | | | | | 41 |
| B533 | 8 | 5'-3" | Str. | | | | | | 44 |
| B534 | 8 | 7'-0" to 8'-0" | Str. | 2 Ea. vary by 4" | | | | | 63 |
| B535 | 10 | 8'-10" | 10 | 1'-7" | 5'-9" | 1'-7" | 4'-2" | 4'-6" | 92 |
| B536 | 6 | 13'-0" | 15 | 13'-0" | 0" | | 14'-0" | | 81 |
| B537 | 20 | 10'-4" | 13 | 2'-2" | 3'-2" | 5'-0" | 1'-5" | 2'-10" | 216 |
| B538 | 4 | 16'-7" | Str. | | | | | | 69 |
| B539 | 8 | 21'-4" | Str. | | | | | | 178 |
| B540 | 4 | 19'-6" | Str. | | | | | | 81 |
| B541 | 2 | 18'-7" | 2 | 7'-10" | 1'-7¾" | 6'-1½" | 1'-7" | | 39 |
| B542 | 4 | 20'-6" | 2 | 3'-8" | 1'-7¾" | 6'-1½" | 7'-8" | | 86 |
| B543 | 2 | 22'-11" | 14 | 1'-7" | 6'-1½" | 2'-11" | 3'-9" | 7" | 48 |
| B544 | 6 | 5'-0" to 7'-0" | Str. | 2 Ea. vary by 1'-0" | | | | | 39 |
| B545 | 50 | 10'-10" | 16 | 4'-3" | 1'-7" | 2'-11" | 1'-6" | 5" | 565 |
| B546 | 6 | 14'-0" | 16 | 5'-10" | 1'-7" | 2'-11" | 3'-1" | 5" | 88 |
| B547 | 12 | 28'-2" | Str. | | | | | | 353 |
| B548 | 6 | 19'-10" | Str. | | | | | | 124 |
| B549 | 5 | 8'-5" | 17 | 1'-8" | 2'-10" | 7" | 5" | | 44 |
| B550 | 2 | 8'-7" | 3 | 2'-3" | 4'-4" | 0" | | | 18 |
| | | | | | | | | | |
| R510 | 8 | 28'-2" | Str. | | | | | | Included with railing for payment. |
| R511 | 4 | 4'-10" | 5 | 1'-3" | 6½" | 1'-6½" | 6½" | 1'-6½" | |
| R512 | 4 | 19'-10" | Str. | | | | | | |
| R516 | 4 | 2'-8" | Str. | | | | | | |
| R517 | 4 | 16'-10" | 15 | 11'-0" | 5'-10" | | 14'-0" | | |
| | | | | | | | | Total | 20,777 |

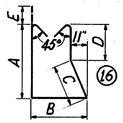


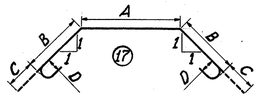



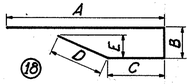




MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE

MAHONING COUNTY — STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| — | — | R.W.K. | — | F.K. | 10-14-63 | |

MAHONING COUNTY
MAH-18-15.50

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

281

All bar dimensions are out to out

RIGHT RETAINING WALL - ABUTMENT "A"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| F961 | 3 | 6'-4" | 7 | 2'-10" | 2'-6" | 1'-3" | 11¾" | | 65 |
| F962 | 2 | 6'-1" | 7 | 2'-10" | 2'-3" | 1'-3" | 11¾" | | 41 |
| F963 | 2 | 5'-10" | 7 | 2'-10" | 2'-0" | 1'-3" | 11¾" | | 40 |
| F964 | 3 | 6'-4" | 7 | 2'-10" | 2'-6" | 1'-3" | 1'-1⅜" | | 65 |
| F965 | 3 | 6'-1" | 7 | 2'-10" | 2'-3" | 1'-3" | 1'-1⅜" | | 62 |
| F966 | 2 | 5'-10" | 7 | 2'-10" | 2'-0" | 1'-3" | 1'-1⅜" | | 40 |
| | | | | | | | | | |
| F861 | 6 | 11'-3" | 3 | 5'-3" | 1'-2" | 0" | | | 180 |
| F862 | 3 | 5'-11" | 7 | 2'-6" | 2'-6" | 1'-2" | 1'-3⅝" | | 47 |
| F863 | 2 | 5'-8" | 7 | 2'-6" | 2'-3" | 1'-2" | 1'-3⅝" | | 30 |
| F864 | 2 | 5'-5" | 7 | 2'-6" | 2'-0" | 1'-2" | 1'-3⅝" | | 29 |
| | | | | | | | | | |
| F761 | 8 | 31'-8" | Str. | | | | | | 518 |
| F762 | 20 | 9'-10" | 1 | 5'-0" | 5'-0" | | | | 402 |
| F763 | 20 | 15'-8" | Str. | | | | | | 640 |
| F764 | 9 | 10'-10" | 3 | 5'-0" | 1'-2" | 0" | | | 199 |
| F765 | 18 | 10'-10" | 12 | 5'-0" | 4'-9" | 1'-4" | 3" | 10" | 399 |
| F766 | 10 | 13'-7" | 12 | 5'-0" | 7'-6" | 1'-4" | 6" | 10" | 278 |
| F767 | 28 | 6'-3" | Str. | | | | | | 358 |
| F768 | 27 | 5'-7" | 1 | 1'-0" | 4'-9" | | | | 308 |
| F769 | 32 | 5'-10" | 6 | 5'-0" | 10" | 7" | | | 382 |
| F770 | 28 | 4'-10" | 6 | 4'-0" | 10" | 7" | | | 277 |
| | | | | | | | | | |
| F661 | 6 | 31'-8" | Str. | | | | | | 285 |
| F662 | 9 | 10'-2" | 3 | 4'-8" | 1'-2" | 0" | | | 137 |
| | | | | | | | | | |
| F561 | 3 | 9'-7" | 3 | 4'-4" | 1'-2" | 0" | | | 30 |
| F562 | 11 | 31'-8" | Str. | | | | | | 363 |
| F563 | 16 | 15'-8" | Str. | | | | | | 261 |
| F564 | 7 | 27'-8" | Str. | | | | | | 202 |
| F565 | 52 | 10'-0" | Str. | | | | | | 542 |
| F566 | 6 | 17'-6" | Str. | | | | | | 110 |
| F567 | 6 | 7'-5" | 12 | 2'-9" | 3'-11" | 11" | 3" | 7" | 46 |
| F568 | 5 | 7'-8" | 12 | 2'-9" | 4'-2" | 11" | 3" | 7" | 40 |
| F569 | 9 | 3'-6" | Str. | | | | | | 33 |
| F570 | 1 | 6'-8" | 12 | 2'-9" | 3'-2" | 11" | 3" | 7" | 7 |
| | | | | | | | | | |
| W961 | 2 | 32'-6" | 6 | 31'-3" | 1'-3" | 11¼" | | | 221 |
| W962 | 1 | 18'-3" | Str. | | | | | | 62 |
| W963 | 2 | 14'-0" | Str. | | | | | | 95 |
| W964 | 2 | 8'-0" | Str. | | | | | | 54 |
| W965 | 2 | 28'-3" | 6 | 27'-0" | 1'-3" | 11¼" | | | 192 |
| W966 | 2 | 20'-0" | Str. | | | | | | 136 |
| W967 | 2 | 13'-0" | Str. | | | | | | 88 |
| W968 | 2 | 6'-9" | Str. | | | | | | 46 |
| | | | | | | | | | |
| W861 | 4 | 4'-3" to 7'-0" | Str. | | 2 Each Vary by 2'-9" | | | | 71 |
| W862 | 2 | 6'-0" | Str. | | | | | | 32 |
| W863 | 2 | 23'-11" | 6 | 22'-10" | 1'-1" | 9" | | | 128 |
| W864 | 1 | 17'-6" | Str. | | | | | | 47 |
| W865 | 2 | 13'-10" | Str. | | | | | | 74 |
| W866 | 2 | 9'-9" | Str. | | | | | | 52 |
| W867 | 2 | 4'-11" | Str. | | | | | | 26 |
| | | | | | | | | | |
| W761 | 6 | 9'-9" to 15'-3" | Str. | | 2 Each Vary by 2'-9" | | | | 153 |
| W762 | 6 | 8'-4" to 13'-0" | Str. | | 2 Each Vary by 2'-4" | | | | 131 |
| W763 | 6 | 6'-5" to 10'-3" | Str. | | 2 Each Vary by 1'-11" | | | | 102 |
| W764 | 10 | 8'-8" to 19'-2" | Str. | | 1 Each Vary by 1'-2" | | | | 284 |
| W765 | 8 | 9'-6" | Str. | | | | | | 155 |
| W766 | 5 | 13'-9" | Str. | | | | | | 141 |
| W767 | 4 | 9'-2" to 12'-8" | Str. | | 1 Each Vary by 1'-2" | | | | 89 |
| W768 | 1 | 9'-10" | Str. | | | | | | 20 |
| | | | | | | | | | |
| W661 | 10 | 7'-4 to 20'-6" | 3 | 2'-8" to 9'-2¾" | 1'-2" | 9" | 1 Each Vary A by 8¾ | | 209 |
| W662 | 3 | 22'-10" to 24'-7" | 3 | 9'-11" to 11'-3" | 1'-2" | 9" | 1 Each Vary A by 8" | | 107 |
| W663 | 6 | 18'-0" to 23'-6" | Str. | | | 2 Each Vary by 2'-9" | | | 187 |
| W664 | 7 | 10'-0" to 20'-3" | 3 | 3'-8" to 8'-9½" | 1'-2" | 9" | 1 Each Vary A by 10⅛ | | 159 |
| W665 | 6 | 15'-4" to 20'-0" | Str. | | | 2 Each Vary by 2'-4" | | | 159 |
| W666 | 5 | 10'-8" to 19'-0" | 3 | 4'-0" to 8'-2" | 1'-2" | 9" | 1 Each Vary A by 1'-0½ | | 111 |
| W667 | 3 | 21'-2" to 25'-0" | 3 | 9'-3" to 11'-2" | 1'-2" | 9" | 1 Each Vary A by 11½ | | 104 |
| W668 | 6 | 12'-7 to 16'-5" | Str. | | | 2 Each Vary by 1'-11" | | | 131 |

RIGHT RETAINING WALL - ABUTMENT "A" (CONTINUED)

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| W561 | 10 | 7'-0" to 28'-0" | Str. | | 2 Each Vary by 5'-3" | | | | 183 |
| W562 | 2 | 30'-5" | Str. | | | | | | 63 |
| W563 | 20 | 31'-8" | Str. | | | | | | 661 |
| W564 | 9 | 33'-0" | 11 | 6'-9" | 1'-7¾" | 4'-6" | 1'-2" | 4'-6" | 310 |
| W565 | 22 | 19'-0" to 30'-8" | Str. | | 2 Each Vary by 1'-2" | | | | 570 |
| W566 | 2 | 33'-6" | Str. | | | | | | 70 |
| W567 | 2 | 26'-3" | Str. | | | | | | 55 |
| W568 | 2 | 22'-3" | Str. | | | | | | 46 |
| W569 | 5 | 22'-0" to 25'-2" | 3 | 9'-8" to 11'-3" | 1'-2" | 9" | 1 Each Vary A by 4½ | | 123 |
| W570 | 2 | 18'-4" | Str. | | | | | | 38 |
| W571 | 8 | 6'-3" to 22'-0" | Str. | | 2 Each Vary by 5'-3" | | | | 118 |
| W572 | 5 | 4'-1" to 8'-9" | Str. | | 1 Each Vary by 1'-2" | | | | 33 |
| W573 | 10 | 8'-5" to 18'-11" | Str. | | 1 Each Vary by 1'-2" | | | | 143 |
| W574 | 2 | 29'-6" | Str. | | | | | | 62 |
| W575 | 6 | 5'-6" to 16'-0" | Str. | | 1 Each Vary by 5'-3" | | | | 67 |
| W576 | 2 | 17'-6" | Str. | | | | | | 37 |
| W577 | 10 | 27'-8" | Str. | | | | | | 289 |
| W578 | 6 | 2'-11" to 8'-9" | Str. | | 1 Each Vary by 1'-2" | | | | 37 |
| W579 | 1 | 2'-3" | Str. | | | | | | 2 |
| W580 | 2 | 18'-9" | Str. | | | | | | 39 |
| | | | | | | | | Total | 12,928 |

LEFT RETAINING WALL - ABUTMENT "A"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| F941 | 40 | 6'-0" | 6 | 4'-9" | 1'-3" | 11⅛ | | | 816 |
| | | | | | | | | | |
| F741 | 14 | 6'-6" | Str. | | | | | | 186 |
| F742 | 20 | 11'-4" | 12 | 6'-2" | 4'-0" | 1'-5" | 4" | 10" | 463 |
| F743 | 19 | 11'-10" | 1 | 1'-0" | 11'-0" | | | | 460 |
| | | | | | | | | | |
| F641 | 13 | 6'-6" | Str. | | | | | | 127 |
| F642 | 14 | 4'-3" | Str. | | | | | | 89 |
| | | | | | | | | | |
| F541 | 36 | 10'-0" | Str. | | | | | | 375 |
| F542 | 14 | 19'-6" | Str. | | | | | | 285 |
| F543 | 7 | 4'-2" | 1 | 1'-0" | 3'-4" | | | | 30 |
| F544 | 12 | 9'-4" to 9'-10" | 12 | 2'-11" to 3'-5" | 5'-8" | 11" | 4" | 7" | 120 |
| | | | | 4 Groups of 3 Vary A by 2" | | | | | |
| F545 | 7 | 7'-1" to 10'-10" | 1 | 1'-0" | 6'-3" to 10'-0" Vary "B" by 7½" | | | | 65 |
| F546 | 1 | 8'-5" | 12 | 3'-2" | 4'-6" | 11" | 4½" | 7" | 9 |
| | | | | | | | | | |
| W741 | 12 | 14'-6" | Str. | | | | | | 356 |
| W742 | 7 | 13'-4" to 22'-4" | Str. | | | | | | 258 |
| W743 | 1 | 12'-8" | Str. | | | | | | 26 |
| | | | | | | | | | |
| W541 | 14 | 19'-8" | Str. | | | | | | 287 |
| W542 | 8 | 4'-4" to 16'-4" | Str. | | 2 Each Vary by 4'-0" | | | | 86 |
| W543 | 7 | 13'-4" to 22'-4" | Str. | | 1 Each Vary by 1'-6" | | | | 130 |
| W544 | 1 | 12'-7" | Str. | | | | | | 13 |
| W545 | 2 | 21'-9" | Str. | | | | | | 45 |
| W546 | 4 | 19'-8" | Str. | | | | | | 82 |
| W547 | 8 | 4'-4" to 16'-4" | Str. | | 2 Each Vary by 4'-0" | | | | 86 |
| W548 | 7 | 3'-10" to 12'-10" | Str. | | 1 Each Vary by 1'-6" | | | | 61 |
| W549 | 7 | 3'-7" to 12'-7" | Str. | | 1 Each Vary by 1'-6" | | | | 59 |
| W550 | 2 | 21'-10" | Str. | | | | | | 46 |
| W551 | 1 | 2'-9" | Str. | | | | | | 3 |
| | | | | | | | | Total | 4563 |

LEFT RETAINING WALL - ABUTMENT "B"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| F701 | 6 | 19'-6" | Str. | | | | | | 239 |
| | | | | | | | | | |
| F601 | 10 | 10'-6" | Str. | | | | | | 158 |
| F602 | 4 | 19'-6" | Str. | | | | | | 117 |
| F603 | 3 | 4'-10" | 7 | 1'-11" | 2'-1" | 1'-0" | 7½" | | 22 |
| F604 | 3 | 4'-7" | 7 | 1'-11" | 1'-10" | 1'-0" | 7½" | | 21 |
| F605 | 2 | 4'-4" | 7 | 1'-11" | 1'-7" | 1'-0" | 7½" | | 13 |
| F606 | 3 | 4'-10" | 7 | 1'-11" | 2'-1" | 1'-0" | 9¾" | | 22 |
| F607 | 3 | 4'-7" | 7 | 1'-11" | 1'-10" | 1'-0" | 9¾" | | 21 |
| F608 | 16 | 4'-9" | Str. | | | | | | 114 |
| F609 | 6 | 9'-2" | 3 | 4'-2" | 1'-2" | 0" | | | 83 |
| | | | | | | | | | |
| F501 | 2 | 8'-5" | 3 | 3'-9" | 1'-2" | 0" | | | 18 |
| F502 | 9 | 19'-6" | Str. | | | | | | 183 |
| F503 | 10 | 10'-6" | Str. | | | | | | 110 |
| F504 | 10 | 8'-0" | 12 | 3'-6" | 3'-9" | 11" | 3" | 7" | 83 |
| F505 | 3 | 9'-1" to 10'-7" | 12 | 3'-10" | 6'-6" to 6'-0" | 11" | 3" | 7" | 31 |
| | | | | | 1 Each Vary B by 9 | | | | |
| F506 | 15 | 10'-0" | Str. | | | | | | 156 |
| F507 | 7 | 23'-6" | Str. | | | | | | 172 |
| F508 | 13 | 11'-3" | 12 | 3'-10" | 6'-6" | 11" | 3" | 7" | 153 |
| F509 | 22 | 4'-1" | 6 | 3'-6" | 7" | 5" | | | 94 |
| F510 | 11 | 3'-11" | 1 | 6" | 3'-7" | | | | 45 |
| | | | | | | | | | |
| W601 | 2 | 21'-5" | 6 | 20'-9" | 8" | 6" | | | 64 |
| W602 | 2 | 14'-0" | Str. | | | | | | 42 |
| W603 | 2 | 9'-3" | Str. | | | | | | 28 |
| W604 | 2 | 5'-6" | Str. | | | | | | 17 |
| W605 | 2 | 16'-2" | 6 | 15'-6" | 8" | 6" | | | 49 |
| W606 | 2 | 11'-9" | Str. | | | | | | 35 |
| W607 | 2 | 6'-3" | Str. | | | | | | 19 |
| W608 | 6 | 4'-0" to 12'-0" | Str. | | 2 Each Vary by 4'-0" | | | | 72 |
| W609 | 6 | 2'-9" to 8'-9" | Str. | | 2 Each Vary by 3'-0" | | | | 52 |
| | | | | | | | | | |
| W501 | 8 | 6'-0" to 19'-6" | Str. | | 2 Each Vary by 4'-6" | | | | 106 |
| W502 | 12 | 19'-6" | Str. | | | | | | 244 |
| W503 | 5 | 21'-0" | 11 | 1'-2" | 1'-7⅜" | 3'-10" | 1'-2" | 4'-10" | 110 |
| W504 | 14 | 12'-6" to 20'-6" | Str. | | 2 Each Vary by 1'-4" | | | | 241 |
| W505 | 2 | 15'-6" | Str. | | | | | | 32 |
| W506 | 9 | 5'-1" to 15'-9" | 3 | 1'-9" to 7'-1" | 1'-2" | 6" | 1 Each Vary A by 8" | | 98 |
| W507 | 4 | 21'-0" | Str. | | | | | | 88 |
| W508 | 2 | 11'-0" | Str. | | | | | | 23 |
| W509 | 6 | 5'-3" to 15'-5" | 3 | 2'-4" to 6'-11" | 1'-2" | 6" | 1 Each Vary A by 11 | | 136 |
| W510 | 8 | 2'-11" to 12'-3" | Str. | | 1 Each Vary by 1'-4" | | | | 63 |
| W511 | 5 | 4'-6" to 8'-10" | Str. | | 1 Each Vary by 1'-1" | | | | 35 |
| W512 | 6 | 5'-9" to 12'-5" | Str. | | 1 Each Vary by 1'-4" | | | | 57 |
| W513 | 2 | 25'-9" | Str. | | | | | | 54 |
| W514 | 12 | 4'-6" to 23'-8" | Str. | | 2 Each Vary by 3'-10" | | | | 176 |
| | | | | | | | | Total | 3696 |

RIGHT RETAINING WALL - ABUTMENT "B"

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| FB21 | 16 | 11'-0" | 1 | 1'-0" | 10'-3" | | | | 470 |
| | | | | | | | | | |
| F721 | 17 | 8'-11" | 12 | 4'-4" | 3'-6" | 1'-3" | 3½" | 10" | 310 |
| F722 | 14 | 6'-10" | Str. | | | | | | 196 |
| F723 | 48 | 4'-7" | 6 | 3'-9" | 10" | 7" | | | 450 |
| | | | | | | | | | |
| F621 | 16 | 4'-7" | Str. | | | | | | 110 |
| F622 | 15 | 6'-10" | Str. | | | | | | 154 |
| | | | | | | | | | |
| F521 | 15 | 23'-8" | Str. | | | | | | 370 |
| F522 | 36 | 3'-7" | 6 | 3'-0" | 7" | 5" | | | 135 |
| F523 | 34 | 10'-0" | Str. | | | | | | 355 |
| F524 | 17 | 5'-1" | 1 | 1'-0" | 4'-3" | | | | 90 |
| F525 | 16 | 7'-6" | 12 | 2'-11" | 3'-10" | 11" | 3" | 7" | 125 |
| | | | | | | | | | |
| W721 | 7 | 10'-11" to 17'-5" | Str. | | 1 Each Vary by 1'-1" | | | | 203 |
| W722 | 2 | 17'-6" | Str. | | | | | | 72 |
| W723 | 7 | 11'-9" | Str. | | | | | | 168 |
| W724 | 1 | 11'-3" | Str. | | | | | | 23 |
| | | | | | | | | | |
| W521 | 2 | 25'-3" | Str. | | | | | | 53 |
| W522 | 9 | 2'-4" to 11'-0" | Str. | | 1 Each Vary by 1'-1" | | | | 60 |
| W523 | 9 | 2'-1" to 10'-9" | Str. | | 1 Each Vary by 1'-1" | | | | 58 |
| W524 | 2 | 23'-8" | Str. | | | | | | 49 |
| W525 | 8 | 6'-11" to 22'-11" | Str. | | 2 Each Vary by 5'-4" | | | | 119 |
| W526 | 2 | 17'-3" | Str. | | | | | | 36 |
| W527 | 7 | 10'-7" to 17'-1" | Str. | | 1 Each Vary by 1'-1" | | | | 194 |
| W528 | 12 | 23'-8" | Str. | | | | | | 296 |
| W529 | 6 | 8'-2" to 18'-10" | Str. | | 2 Each Vary by 5'-4" | | | | 84 |
| W530 | 2 | 24'-11" | 4 | 19'-7" | 5'-4" | 5'-0" | | | 51 |
| W531 | 3 | 2'-9" to 4'-9" | Str. | | 1 Each Vary by 1'-0" | | | | 12 |
| W532 | 5 | 6'-0" | Str. | | | | | | 33 |
| | | | | | | | | Total | 4276 |

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE

MAHONING COUNTY STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| — | — | S.F. | — | F.K. 10-14-63 | |

| FED. RD DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

282

MAHONING COUNTY
MAH-18-15.50

All bar dimensions are out to out.

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | SUPERSTRUCTURE | | | | | | | |
| S701 | 249 | 19'-4" | Str. | | | | | | 9,840 |
| S702 | 215 | 27'-1" | Str. | | | | | | 11,902 |
| S703 | 39 | 5'-6" to 26'-6" | Str. | 1-Each vary by 6 5/8" ± | | | | | 1,275 |
| S704 | 28 | 4'-6" to 19'-5" | Str. | 1-Each vary by 6 5/8" ± | | | | | 684 |
| S705 | 42 | 4'-2" to 26'-10" | Str. | 1-Each vary by 6 5/8" ± | | | | | 1,331 |
| S706 | 25 | 5'-5" to 18'-8" | Str. | 1-Each vary by 6 5/8" ± | | | | | 615 |
| S707 | 20 | 30'-8" | Str. | | | | | | 1,254 |
| | | | | | | | | | |
| S601 | 464 | 18'-0" | Str. | | | | | | 12,545 |
| S602 | 64 | 4'-9" to 21'-10" | Str. | 2-Each vary by 6 5/8" ± | | | | | 1,278 |
| S603 | 70 | 4'-1" to 22'-10" | Str. | 2-Each vary by 6 5/8" ± | | | | | 1,415 |
| S604 | 42 | 35'-6" | Str. | | | | | | 2,239 |
| S605 | 20 | 26'-2" | Str. | | | | | | 786 |
| S606 | 42 | 12'-6" | Str. | | | | | | 789 |
| | | | | | | | | | |
| S501 | 627 | 32'-7" | Str. | | | | | | 21,308 |
| S502 | 269 | 5'-10" | 8 | 2'-2" | 8" | 7" | | | 1,637 |
| S503 | 259 | 7'-9" | 3 | 7" | 6'-10" | 0" | | | 2,094 |
| S504 | 518 | 2'-10" | 1 | 1'-7" | 1'-4" | | | | 1,531 |
| S505 | 1 | 27'-6" | 15 | 18'-0" | 9'-6" | | 24'-6" | | 30 |
| S506 | 1 | 27'-2" | 15 | 16'-5" | 10'-9" | | 22'-3" | | 28 |
| S507 | 1 | 26'-8" | 15 | 14'-10" | 11'-10" | | 20'-2" | | 28 |
| S508 | 1 | 26'-8" | 15 | 13'-8" | 13'-0" | | 18'-7" | | 28 |
| S509 | 1 | 26'-3" | 15 | 12'-3" | 14'-0" | | 16'-9" | | 27 |
| S510 | 1 | 25'-11" | 15 | 10'-8" | 15'-3" | | 14'-10" | | 27 |
| S511 | 8 | 7'-8" to 8'-10" | 3 | 7" | 5'-9" to 7'-11" | 0" | 1-Ea. vary "B" by 2" | | 69 |
| S512 | 8 | 9'-2" to 10'-4" | 3 | 1'-5" | 8'-7" to 9'-9" | 0" | 1-Ea. vary "B" by 2" | | 81 |
| S513 | 2 | 28'-3" | 15 | 9'-9" | 18'-6" | | 13'-2" | | 59 |
| S514 | 4 | 4'-0" to 13'-0" | Str. | 1-Each vary by 3'-0" | | | | | 35 |
| S515 | 1 | 27'-7" | 15 | 10'-3" | 17'-4" | | 14'-0" | | 29 |
| S516 | 12 | 8'-5" | 17 | 1'-8" | 2'-10" | 7" | 5" | | 105 |
| S517 | 6 | 7'-5" | 3 | 2'-3" | 3'-2" | 0" | | | 46 |
| S518 | 10 | 11'-10" | Str. | | | | | | 123 |
| S519 | 30 | 6'-10" | 18 | 3'-9" | 8" | 1'-0" | 1'-9" | 7" | 214 |
| S520 | 4 | 37'-6" | Str. | | | | | | 156 |
| | | | | | | | | | |
| R501 | 8 | 12'-10" | Str. | | | | | | |
| R502 | 40 | 15'-11" | Str. | | | | | | |
| R503 | 4 | 12'-7" | Str. | | | | | | Included with railing for payment |
| R504 | 40 | 15'-8" | Str. | | | | | | |
| R505 | 2 | 12'-8" | 15 | 10'-2" | 2'-6" | | 13'-10" | | |
| R506 | 2 | 12'-3" | 15 | 9'-9" | 2'-6" | | 13'-2" | | |
| | | | | | | | | TOTAL | 73,608 |

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | PIER | | | | | | | |
| P901 | 14 | 22'-5" | Str. | | | | | | 1,067 |
| P902 | 14 | 22'-3" | Str. | | | | | | 1,059 |
| P903 | 14 | 22'-1" | Str. | | | | | | 1,051 |
| P904 | 14 | 21'-9" | Str. | | | | | | 1,035 |
| P905 | 14 | 21'-4" | Str. | | | | | | 1,015 |
| P906 | 14 | 20'-11" | Str. | | | | | | 996 |
| P907 | 84 | 6'-4" | 1 | 1'-0" | 5'-7" | | | | 1,809 |
| | | | | | | | | | |
| P801 | 18 | 36'-0" | Str. | | | | | | 1,730 |
| P701 | 48 | 6'-8" | Str. | | | | | | 654 |
| P601 | 18 | 35'-9" | Str. | | | | | | 967 |
| P501 | 48 | 6'-8" | Str. | | | | | | 334 |
| | | | | | | | | | |
| | | SPIRAL BARS | | | | | | | |
| | | | Pitch | No. of Turns | Core Dia. | | | | |
| SP401 | 1 | 22'-7 7/8" | 4 1/2" | 63 | 3'-2" | | | | 475 |
| SP402 | 1 | 22'-5 1/8" | 4 1/2" | 63 | 3'-2" | | | | 475 |
| SP403 | 1 | 22'-3 1/8" | 4 1/2" | 62 | 3'-2" | | | | 467 |
| SP404 | 1 | 21'-11 1/2" | 4 1/2" | 62 | 3'-2" | | | | 467 |
| SP405 | 1 | 21'-6 3/8" | 4 1/2" | 60 | 3'-2" | | | | 452 |
| SP406 | 1 | 21'-1 1/8" | 4 1/2" | 59 | 3'-2" | | | | 444 |
| | | | | | | | | TOTAL | 14,497 |

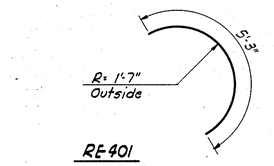
## ESTIMATED QUANTITIES

| Item | Total | Unit | Description | Superstr. | Abuts. | Retaining Walls | Piers | General |
|---|---|---|---|---|---|---|---|---|
| E-2 | Lump Sum | | Cofferdams, cribs and sheeting | | | | | Lump Sum |
| E-2 | 1,277 | Cu. Yds. | Unclassified excavation | | 575 | 577 | 125 | |
| S-1 | 331 | Cu. Yds. | Class "C" Concrete, superstructure | 331 | | | | |
| S-1 | 47 | Cu. Yds. | Class "C" Concrete, pier columns | | | | 47 | |
| S-1 | 391 | Cu. Yds. | Class "E" Concrete, abutments above footings | | 391 | | | |
| S-1 | 214 | Cu. Yds. | Class "E" Concrete, retaining walls above footings | | | 214 | | |
| S-1 | 33 | Cu. Yds. | Class "E" Concrete, parapet walls | | 33 | | | |
| S-1 | 512 | Cu. Yds. | Class "E" Concrete, footings | | 228 | 230 | 54 | |
| S-3 | 26 | Sq. Yds. | Type "B" waterproofing | | | 26 | | |
| S-3 | 140 | Lin. Ft. | Waterproofing, premoulded sealing strip | | 55 | 85 | | |
| S-4 | 161,990 | Lbs. | Reinforcing Steel | 73,608 | 48,422 | 25,463 | 10,497 | |
| S-7 | 329,540 | Lbs. | Structural Steel | 329,540 | | | | |
| S-8 | 329,540 | Lbs. | Field Painting of structural steel | 329,540 | | | | |
| S-9 | 153 | Sq. Ft. | 1" Preformed expansion joint filler (Gray rubber M-10.02) | | | 153 | | |
| S-9 | 56 | Sq. Ft. | Preformed expansion joint filler (M-10.01), 1" | 56 | | | | |
| S-14 | 592.42 | Lin. Ft. | Railing (Type "C" aluminum rail & supports, concrete parapet & end posts) | 375.42 | 217.00 | | | |
| S-25 | | | Electrical lighting system, complete * | | | | | |
| S-29 | 387 | Cu. Yds. | Porous Backfill | | 239 | 148 | | |
| S-29 | 12 | Each | Scuppers, including supports | 12 | | | | |
| S-29 | 60 | Lin. Ft. | 8"ø Perforated bituminous coated C.M.P. including specials | | 60 | | | |
| S-101 | 331 | Each | Water-reducing, set-retarding admixture | 331 | | | | |

## SPIRAL NOTES

- The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to 2 inches below the top of the column.
- The "Number of Turns" shown in the steel list for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.
- Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.
- 1 1/2 closed coils shall be provided at the ends of each spiral unit.
- Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

* See General Summary - Bridge Lighting Detail Sheet.




RE 401

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A601 is a number 6 size bar.

| REPLACEMENT BARS | | | |
|---|---|---|---|
| Mark | Total | Length | Type |
| RE 901 | 1 | 6'-10" | Str. |
| RE 801 | 1 | 6'-6" | Str. |
| RE 701 | 3 | 6'-3" | Str. |
| RE 601 | 2 | 5'-11" | Str. |
| RE 501 | 3 | 6'-7" | Str. |
| RE 401 | 1 | 5'-3" | Bent |

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE & ESTIMATED QUANTITIES

BRIDGE NO. MAH-18-1715

UNDER BELLE VISTA AVENUE

MAHONING CO. STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed Date | Revised |
|---|---|---|---|---|---|
| | | | | F.K. 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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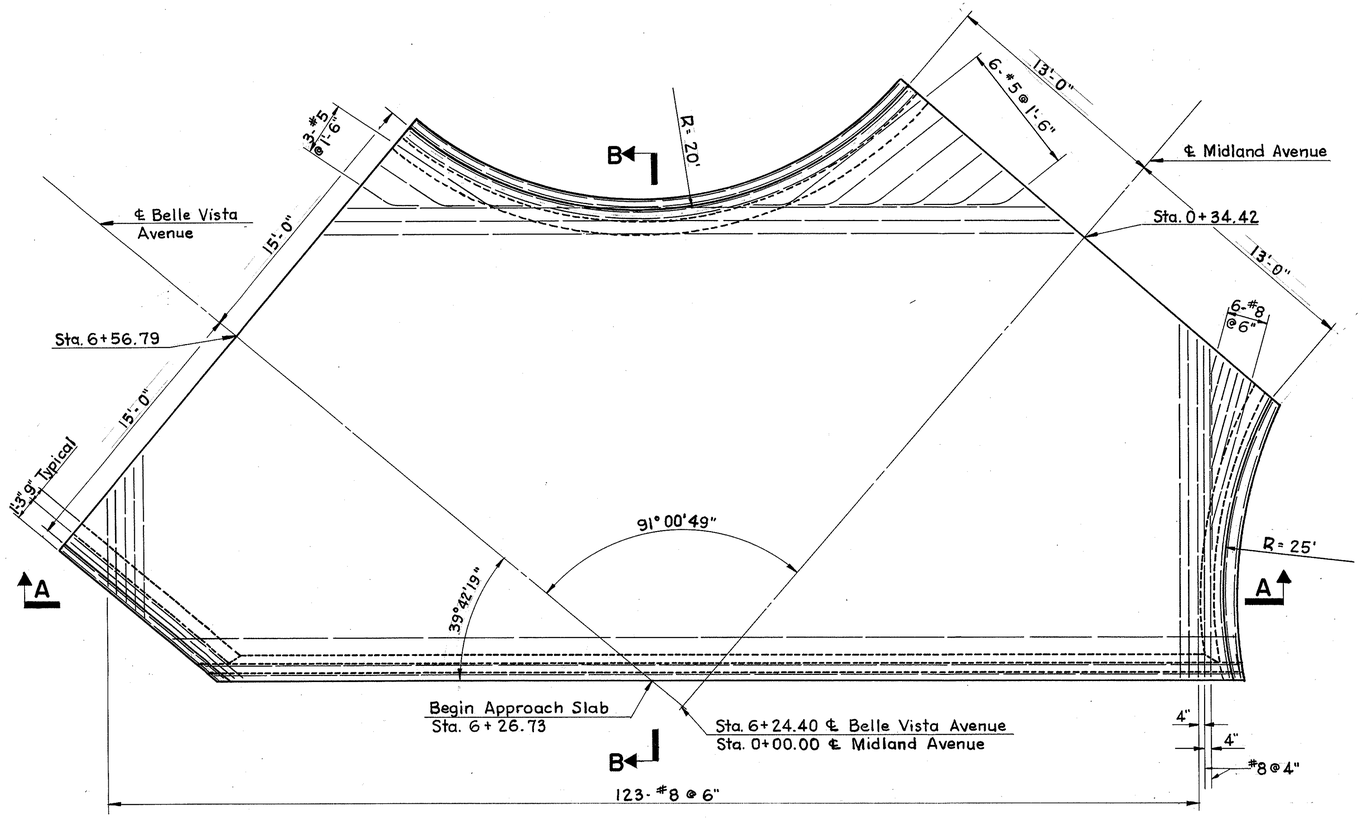
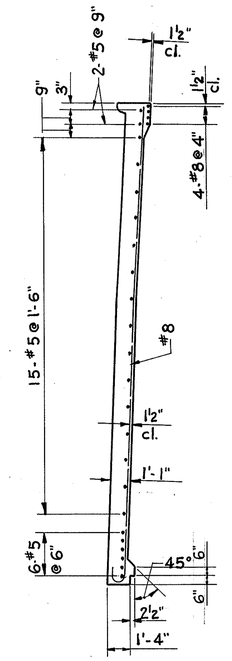
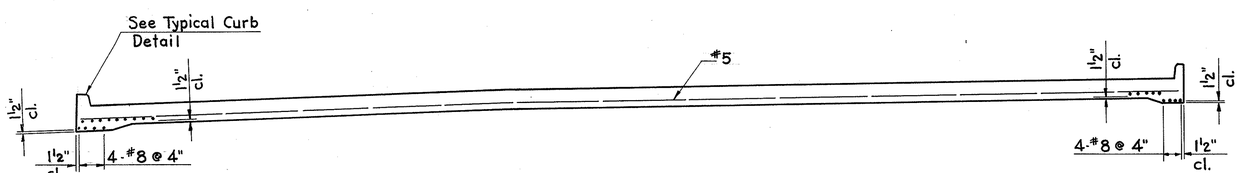
MAHONING COUNTY
MAH-18-15.50



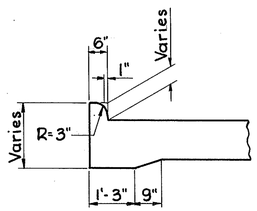

PLAN




SECTION B-B




SECTION A-A




TYPICAL CURB DETAIL

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# APPROACH SLAB

BRIDGE NO. MAH-18-1715
UNDER BELLE VISTA AVENUE

MAHONING CO. STA. 606+54.21

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EFR | R.C. | R.C. | RLS | F.K. | 10-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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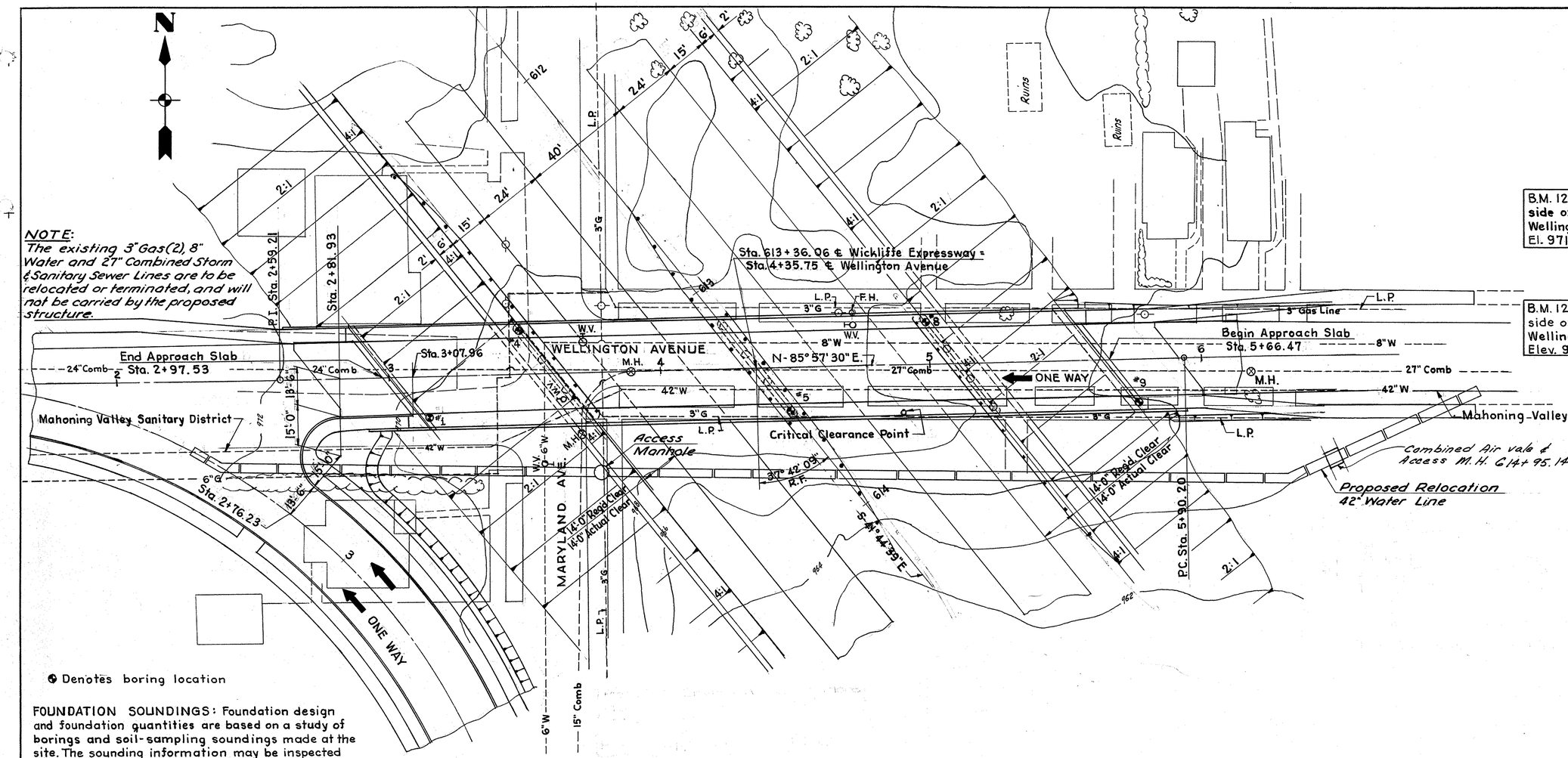
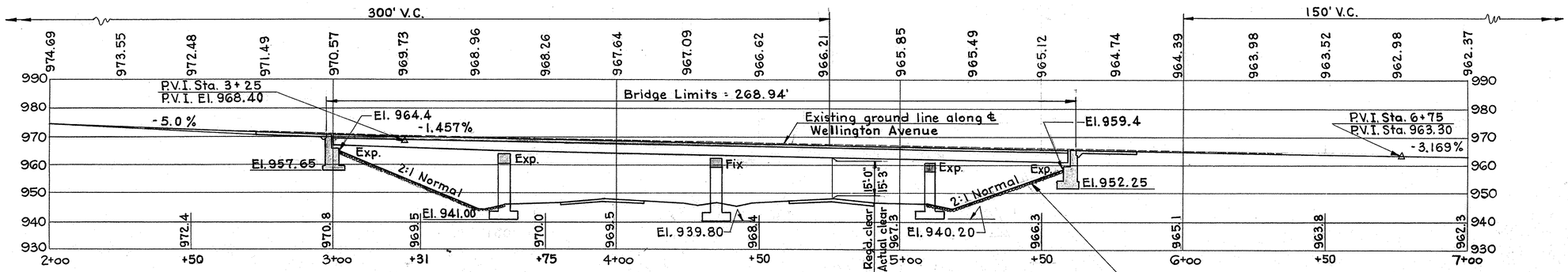
# MAH-18-15.50
# MAHONING COUNTY




FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of borings and soil-sampling soundings made at the site. The sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division Office, but the State assumes no responsibility for the accuracy thereof.




A.D.T. 10,700 (1975) - 16% "B & C"

## PROPOSED STRUCTURE

**TYPE:** Continuous steel beam with reinforced concrete deck and substructure
**SPANS:** 60'-2", 75'-2½", 75'-2½", 52'-8"
**ROADWAY:** 27'-0" ⁵/₈ 5'-2" sidewalks
**LOAD FREQUENCY:** C.F. .2000 (57)
**SKEW:** 37°42'09" R.F.
**WEARING SURFACE:** 1" Monolithic Conc.
**APPROACH SLAB:** AS-1-54 (25' long)

**ALIGNMENT:** Tangent

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

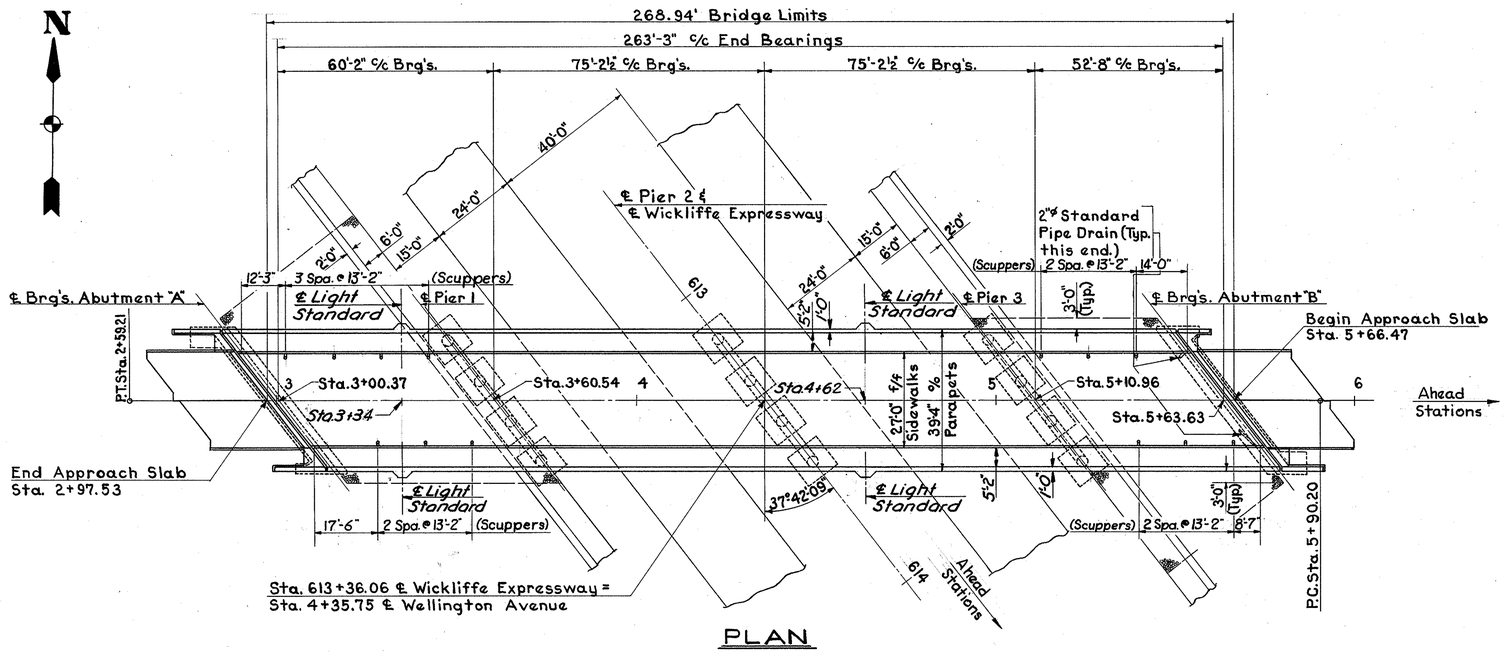
SITE PLAN
BRIDGE NO. MAH-18-1730
WELLINGTON AVENUE OVER WICKLIFFE EXPRESSWAY

MAHONING COUNTY — STA. 613+36.06

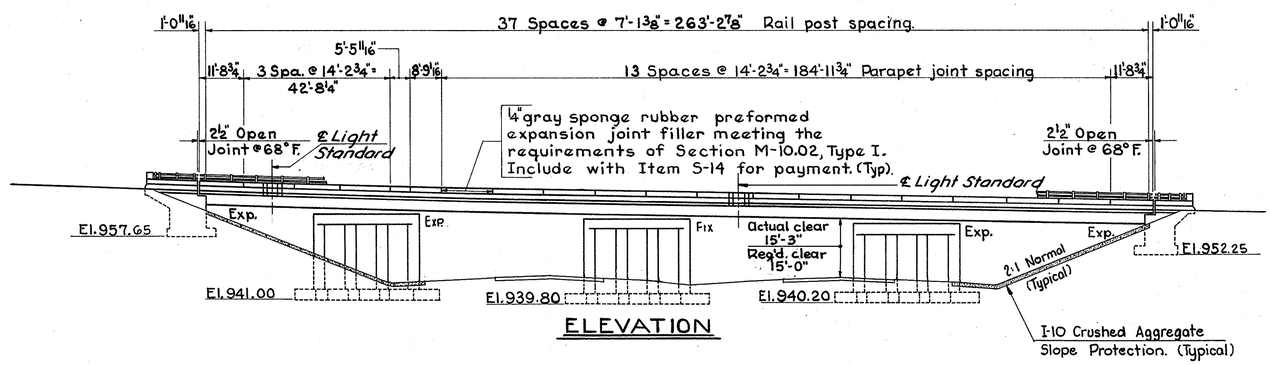
| PRESENT TOPOGRAPHY | | PROPOSED WORK | | | |
|---|---|---|---|---|---|
| SURVEYED | DRAWN | DESIGNED | DRAWN | CHECKED | REVIEWED |
| Aurilio | MM | EFR | JH | K.L.S. K.A.E. | 8-16-63 |

| FED. RD. DIVISION | STATE | PROJECT | | 285 |
|---|---|---|---|---|
| 2 | OHIO | | | |

# MAH-18-15.50
# MAHONING COUNTY




PLAN

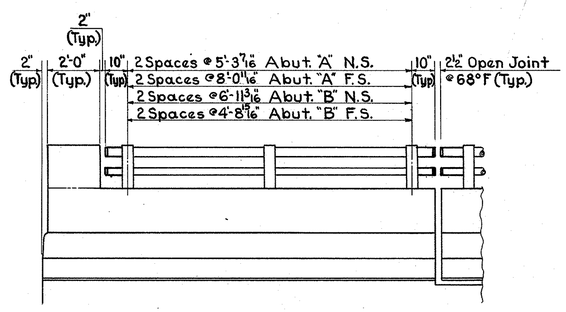



ELEVATION

## ESTIMATED QUANTITIES

| Item | Total | Unit | Description | Superstr. | Abuts. | Piers | General | | |
|---|---|---|---|---|---|---|---|---|---|
| E-2 | 667 | cu. yds. | Unclassified excavation | | 387 | 280 | | | |
| S-1 | 391 | cu. yds. | Class "C" concrete, superstructure | 391 | | | | | |
| S-1 | 101 | cu. yds. | Class "C" concrete, pier caps & columns | | | 101 | | | |
| S-1 | 144 | cu. yds. | Class "E" concrete, abutments above footings | | 144 | | | | |
| S-1 | 171 | cu. yds. | Class "E" concrete, footings | | 64 | 107 | | | |
| S-4 | 150,535 | lbs. | Reinforcing steel | 100,873 | 10,926 | 38,736 | | | |
| S-7 | 292,000 | lbs. | Structural steel | 292,000 | | | | | |
| S-8 | 292,000 | lbs. | Field painting of structural steel | 292,000 | | | | | |
| S-14 | 596 | lin. ft. | Railing Type "C" (aluminum rail and supports, concrete parapet and end posts.) | 531 | 65 | | | | |
| S-29 | 37 | cu. yds. | Porous backfill | | 37 | | | | |
| S-29 | 13 | each | Scuppers, including supports | 13 | | | | | |
| I-10 | 800 | sq. yds. | Crushed aggregate slope protection | | | | 800 | | |
| S-101 | 391 | each | Water-reducing, set-retarding admixture | 391 | | | | | |
| S-25 | | | Electrical lighting system, complete * | | | | | | |

* See General Summary - Lighting Sheet




ABUTMENT RAILING DETAIL

## GENERAL NOTES

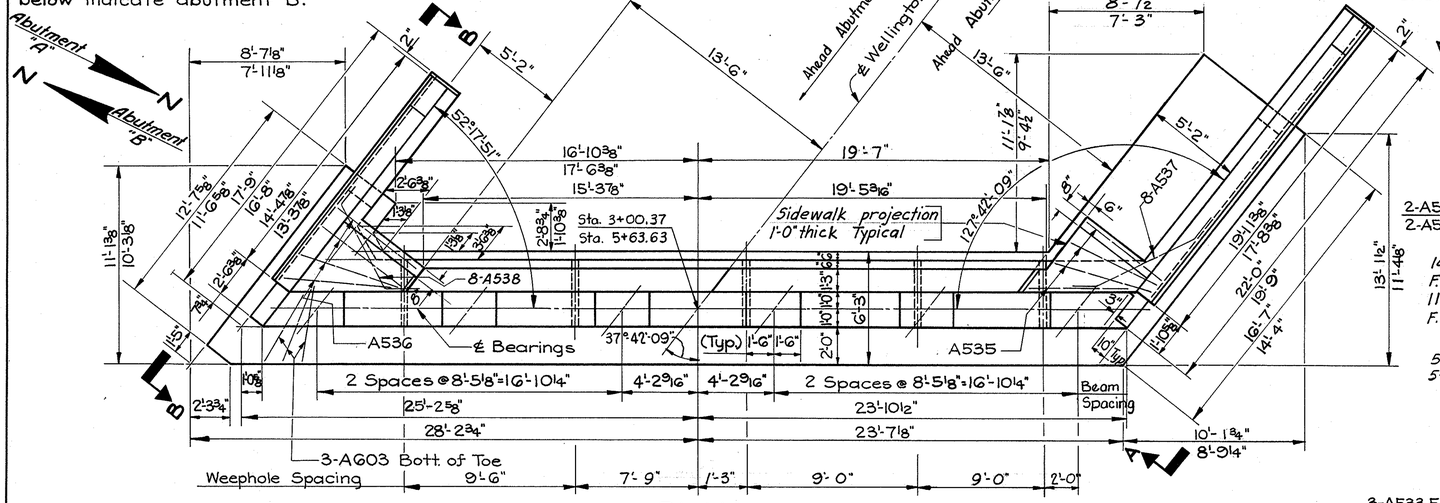
- DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.
- REFERENCE shall be made to Standard Drawings CSB-2-56, Sheets 2 and 3 of 6, revised 2-2-59; AR-1-57 revised 4-2-62; FSB-1-62 revised 1-15-63; AS-1-54 revised 7-5-62; SD-2-64 dated 11-25-64.
- FOUNDATION BEARING PRESSURE: Abutment footings are designed for a maximum bearing pressure of 2.0 tons per square foot, pier footings for 2.9 tons per square foot.
- WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.
- UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the Owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.
- MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.
- REFERENCE shall be made to Supplemental Specification 5307 dated 10-1-64 and 3-101 dated 7-12-62.
- DESIGN LOADING: CF 2000(57)
- CONCRETE CLASS "C": Basic unit stress 1333 p.s.i.
- CONCRETE CLASS "E": Basic unit stress 1133 p.s.i.
- STRUCTURAL STEEL: ASTM A36 - Basic unit stress 20,000 p.s.i. (ASTM A7 and A373 steel not permitted)
- REINFORCING STEEL: ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

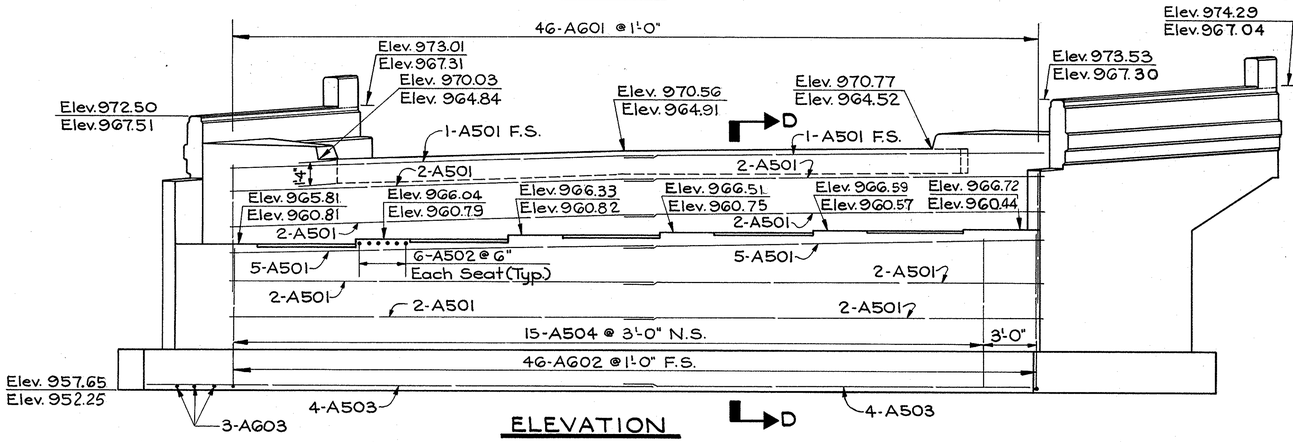
## GENERAL PLAN & ELEVATION
BRIDGE NO. MAH-18-1730
WELLINGTON AVENUE OVER
WICKLIFFE EXPRESSWAY
MAHONING COUNTY STA. 613 + 36.06

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| EFR | EFR | C.B. R.K. | RLS | GHK | 8-14-65 | |

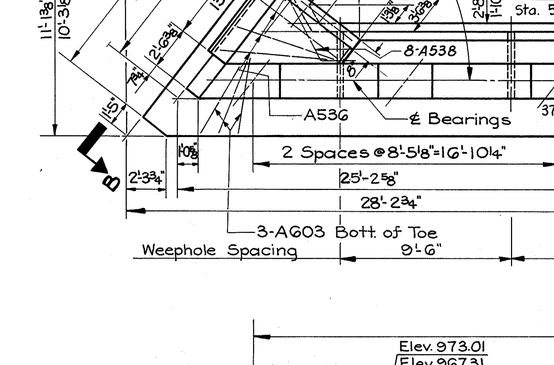
Note: Dimensions and Elevations shown above indicate abutment A. Dimensions and Elevations shown below indicate abutment B.



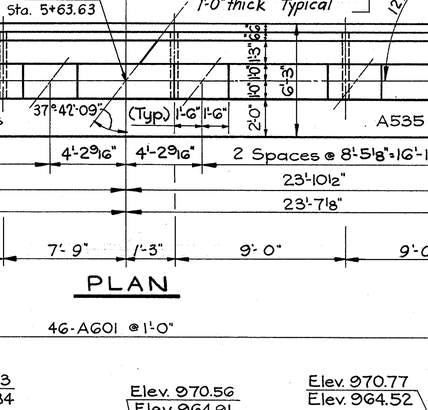

PLAN




ELEVATION

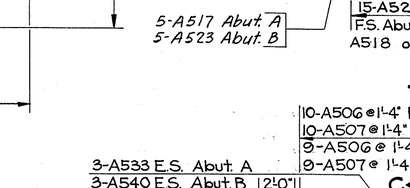



SECTION D-D




SECTION C-C

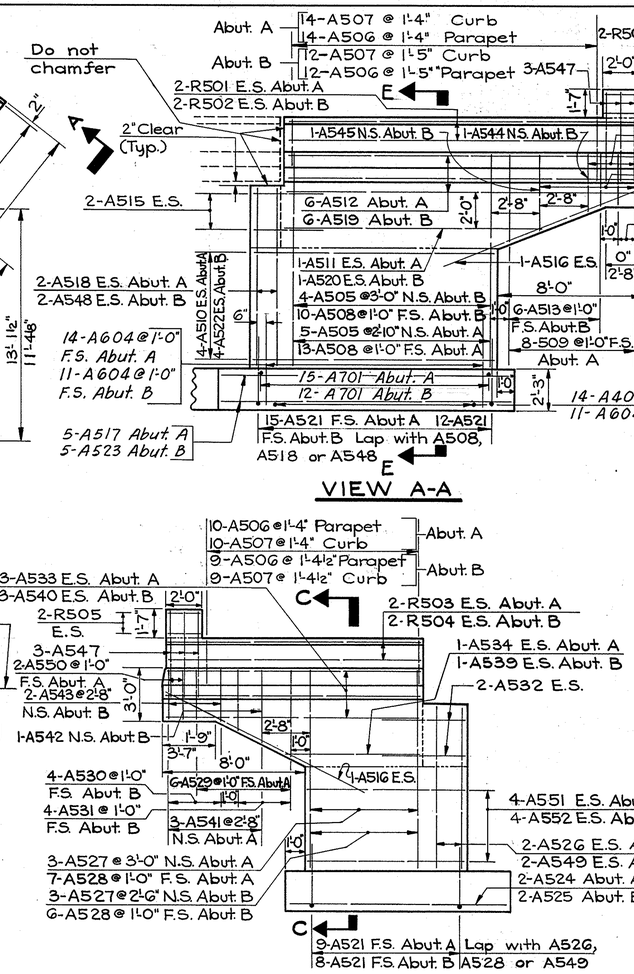
LEGEND
N. S. = Near Side
F. S. = Far Side
E. S. = Each Side




ANCHOR ROD LAYOUT
ABUTMENTS "A" & "B"



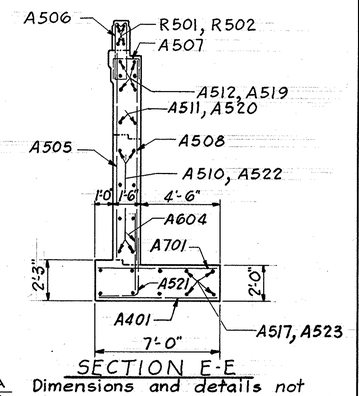

DETAIL "A"




VIEW A-A




VIEW B-B




SECTION E-E

Dimensions and details not shown same as for Section C-C

NOTES:
- All abutment concrete shall be Class "E", except parapet concrete which shall be Class "C."
- Concrete and reinforcing steel above parapet construction joint shall be included with Railing for payment.
- Porous backfill, 2 feet thick, shall extend upward to the approach slab and outward to the inside face of wing walls. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu.yd. paid for porous backfill.

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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MAH-18-15.50
MAHONING COUNTY

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# ABUTMENTS

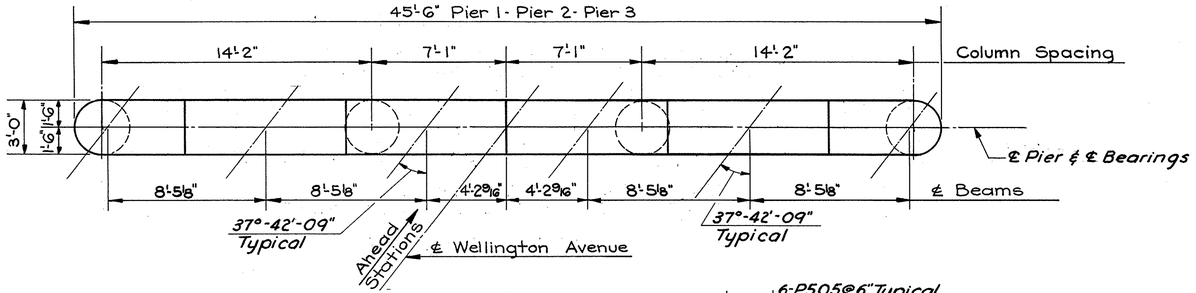
BRIDGE NO. MAH-18-1730
WELLINGTON AVENUE OVER
WICKLIFFE EXPRESSWAY

MAHONING COUNTY STA. 613+36.06

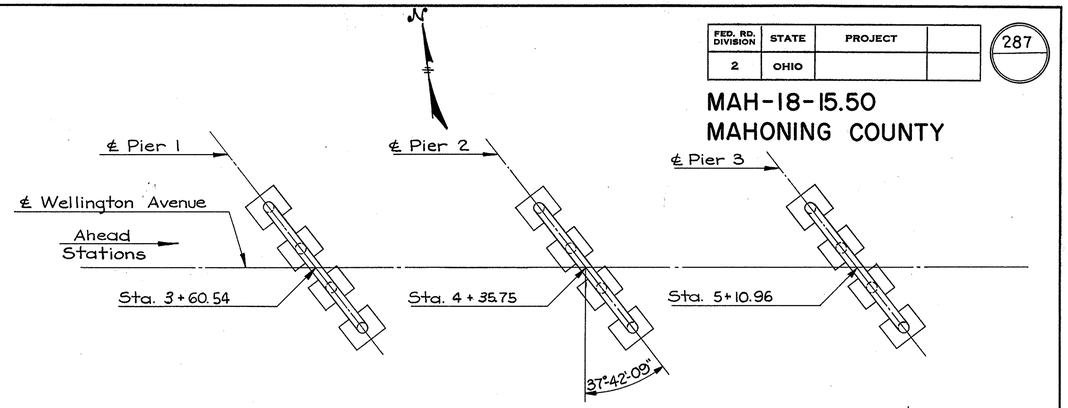
| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| E.F.R. | E.F.R. | J.H. | R.L.S | F.J.R. | 8-16-63 | |

| FED. RD. DIVISION | STATE | PROJECT | | 287 |
|---|---|---|---|---|
| 2 | OHIO | | | |

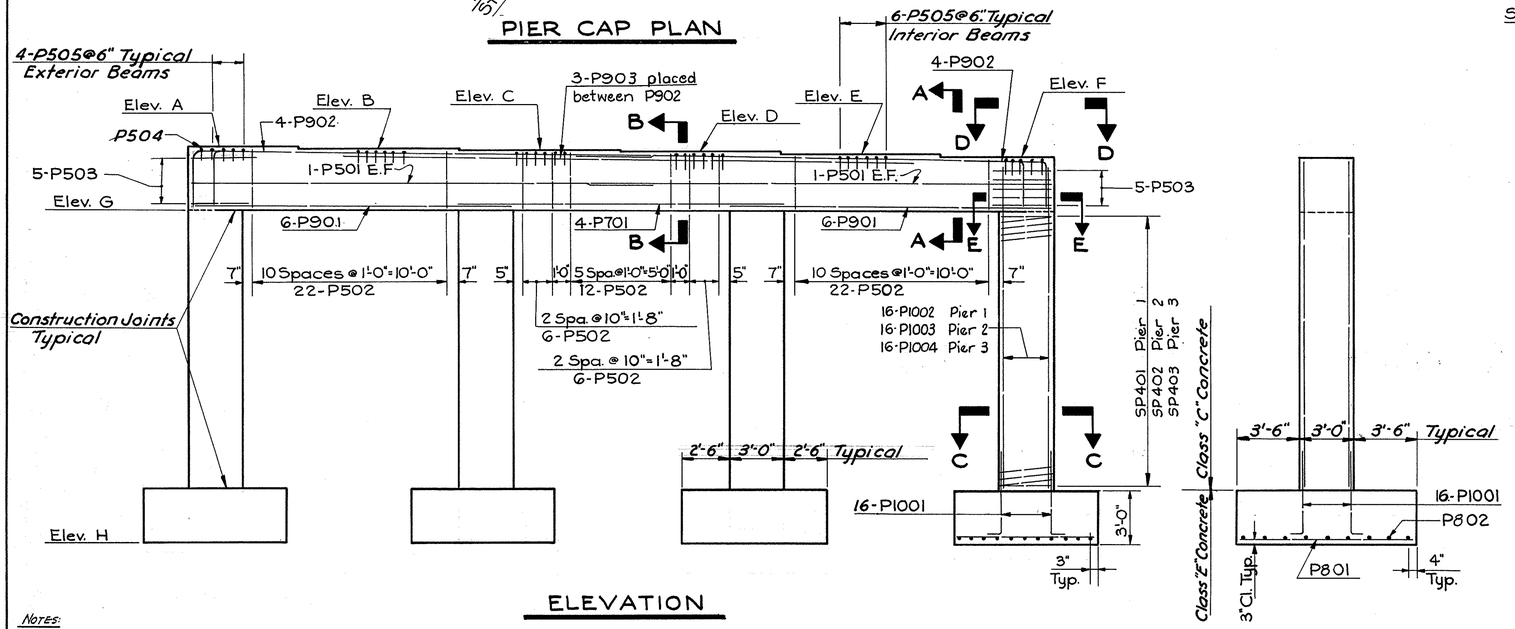
MAH-18-15.50
MAHONING COUNTY




PIER CAP PLAN



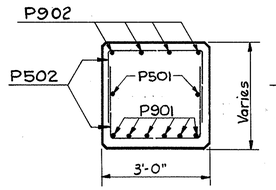

LAYOUT OF PIERS



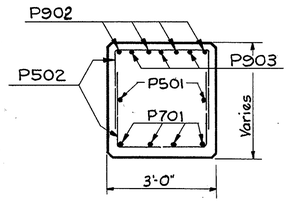

ELEVATION



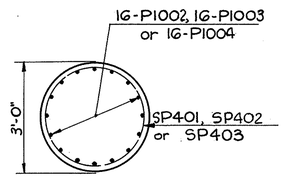

END ELEVATION



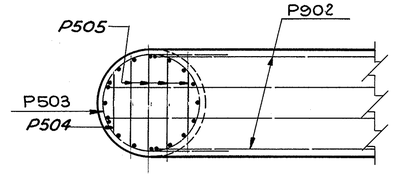

SECTION A-A



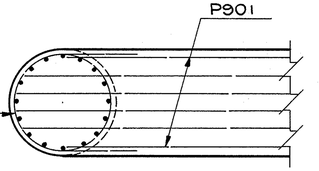

SECTION B-B




SECTION C-C



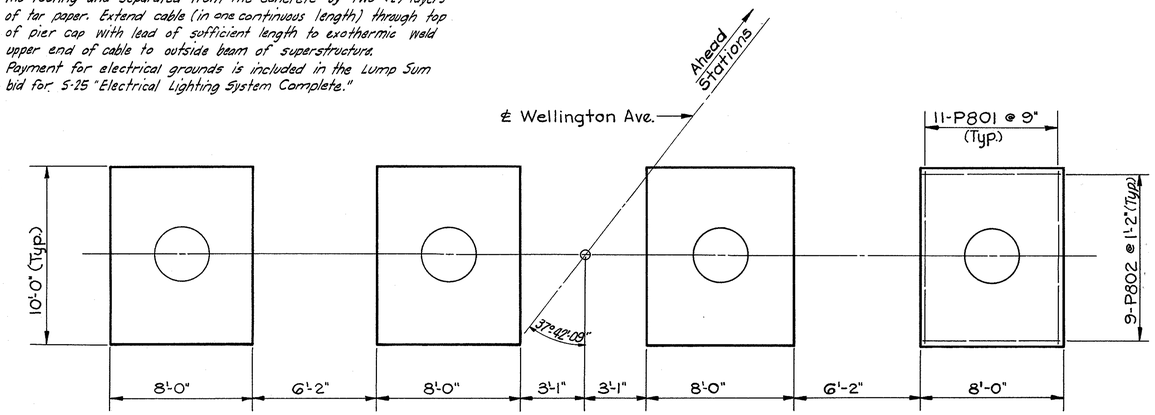

VIEW D-D




SECTION E-E

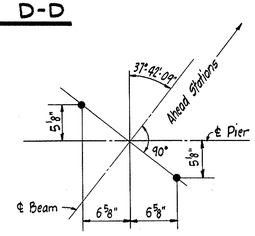
NOTES:

- Superstructure Ground: A № 6 AWG 7 strand soft annealed bare copper cable shall be encased in the outside column of Pier №2. Lower end of cable to extend to the bottom of the pier footing, and an additional 25 ft. length of cable shall be looped under the footing and separated from the concrete by two (2) layers of tar paper. Extend cable (in one continuous length) through top of pier cap with lead of sufficient length to exothermic weld upper end of cable to outside beam of superstructure.
- Payment for electrical grounds is included in the Lump Sum bid for 5-15 "Electrical Lighting System Complete."

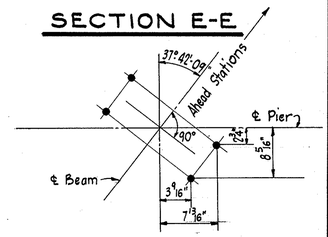



FOOTING PLAN

| PIER ELEVATIONS | | | |
|---|---|---|---|
| Elevations | Pier 1 | Pier 2 | Pier 3 |
| A | 964.68 | 962.50 | 961.53 |
| B | 964.59 | 962.45 | 961.51 |
| C | 964.54 | 962.45 | 961.54 |
| D | 964.40 | 962.35 | 961.47 |
| E | 964.15 | 962.15 | 961.29 |
| F | 963.96 | 962.00 | 961.16 |
| G | 960.96 | 959.00 | 958.16 |
| H | 941.00 | 939.80 | 940.20 |




ANCHOR ROD LAYOUT
PIERS 1 & 3




ANCHOR ROD LAYOUT
PIER 2

NOTE:
Special care shall be taken in placing reinforcing steel in the pier caps so that it will not interfere with the drilling of anchor rod holes.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# PIERS

BRIDGE NO. MAH-18-1730
WELLINGTON AVENUE OVER
WICKLIFFE EXPRESSWAY

MAHONING COUNTY STA. 613 + 36.06

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| D.V.N. | D.V.N. | J.H. | R.L.S. | G.J.K. | 8-14-63 | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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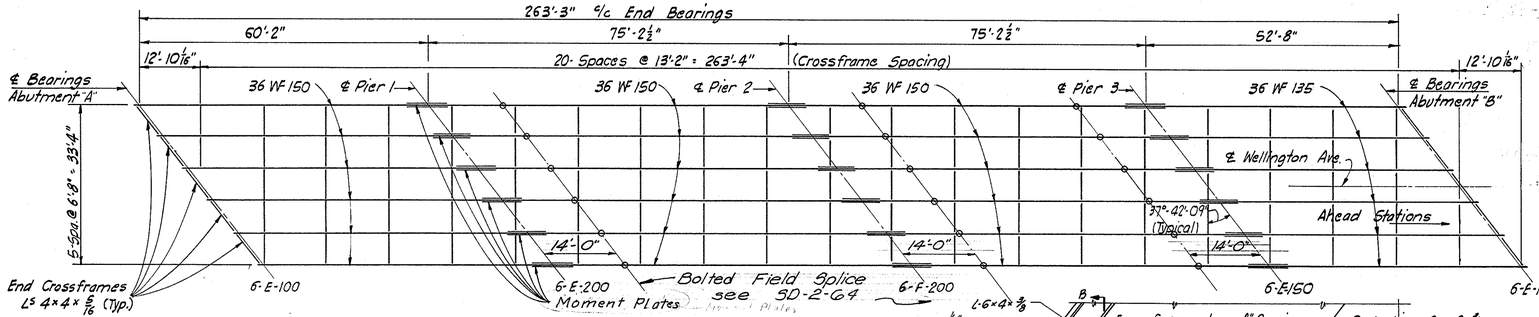
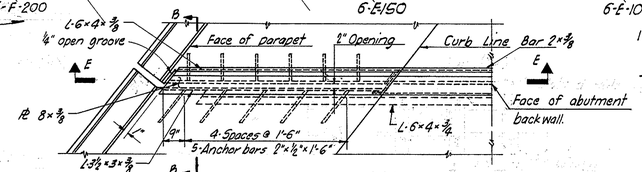
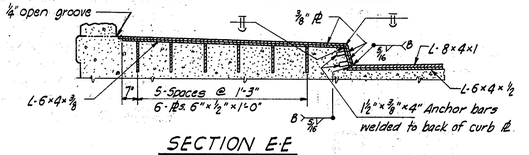
# MAH-18-15.50
# MAHONING COUNTY



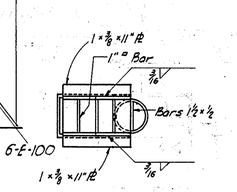

## STEEL FRAMING PLAN



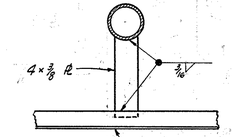

## PLAN OF SIDEWALK DAM



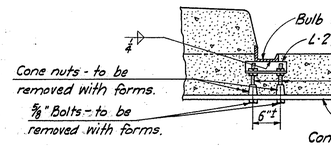

## SECTION E-E




## SCUPPER PLAN

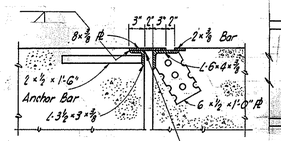



## SECTION A-A

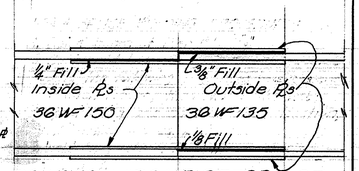



## GUTTER SUPPORT

Gutters shall be accurately adjusted for alignment and grade, with allowance for dead load deflection before concrete is placed. Gutters shall not be used to support finishing machines.



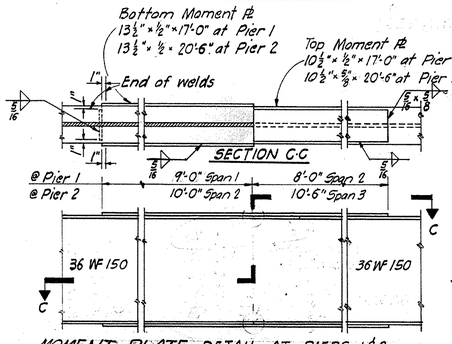

## SECTION B-B



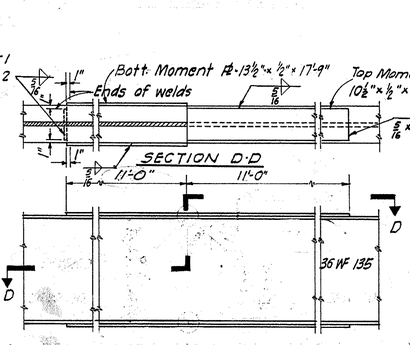

## 36WF150 to 36WF135 SPLICE

For additional Details see Std. Dwg. SD-2-G4.

For Bolted Field Splice Details see Std. Dwg. SD-2-G4




## MOMENT PLATE DETAIL AT PIERS 1 & 2




## MOMENT PLATE DETAIL AT PIER 3

NOTES:

- Refer to Standard Drawing CSB-2-56, Sheets 2 & 3 of 6 for details of End Dams, End Crossframes, Curb Plates, 2"⌀ Pipe Drains, Scuppers, to Std. Dwg. AR-1-57 for details of Type "C" Aluminum Railing and Concrete Parapet, to Standard Drawing FSB-1-62 for details of Fixed & Sliding Bearings, and to SD-2-G4 for Bolted Field Splice Details.

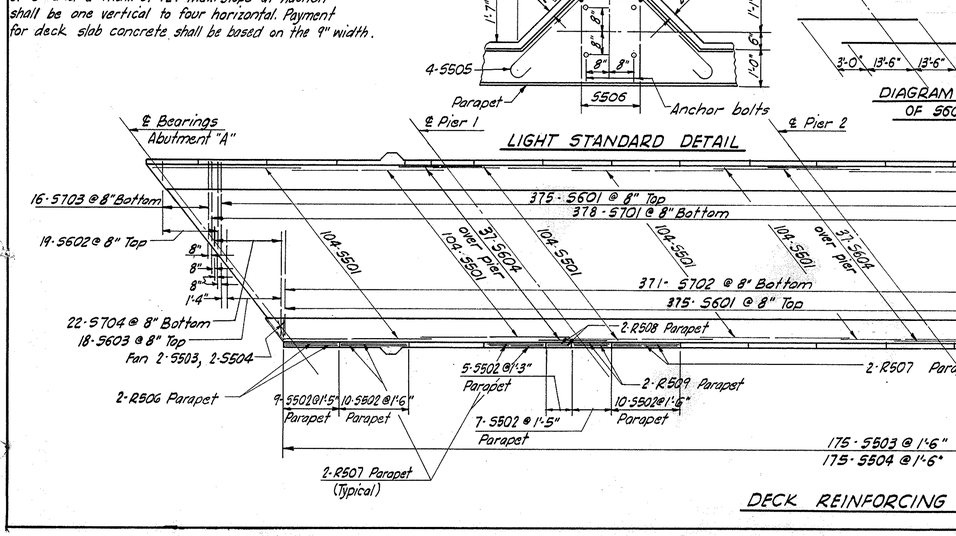
- DECK CONSTRUCTION PROCEDURE: In placing deck concrete, construction joints will be permitted parallel to the transverse reinforcing steel and near the middle of any span. Because of the flow of curing water from the surface of previously placed deck concrete, the sequence of pours shall be upgrade, starting at the low end.
- ELECTRICAL LIGHTING SYSTEM: For additional details refer to drawings, "Details - Bridge Lighting and "General Lighting Notes."

## DEFLECTIONS & CAMBER

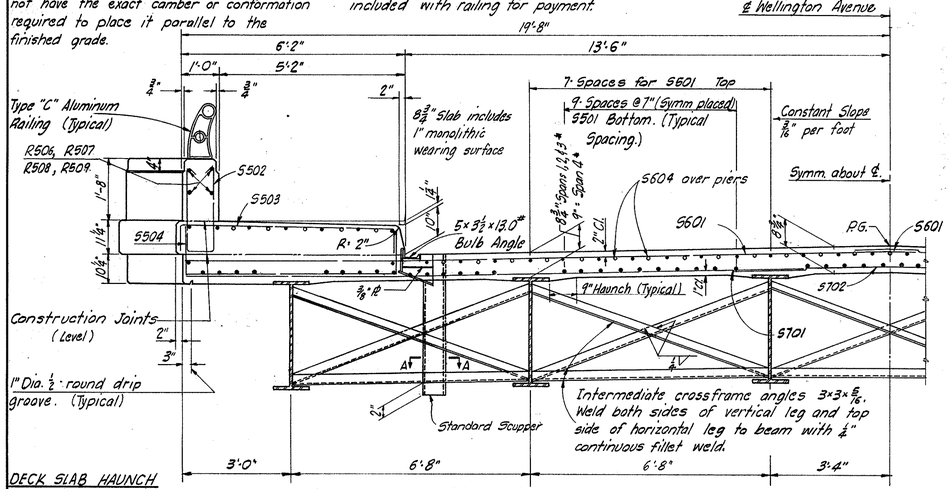
| LOCATION | INTERIOR BEAMS | | | | EXTERIOR BEAMS | | | |
|---|---|---|---|---|---|---|---|---|
| | SPAN 1 | SPAN 2 | SPAN 3 | SPAN 4 | SPAN 1 | SPAN 2 | SPAN 3 | SPAN 4 |
| Deflection Due to weight of steel | 1/16" | 1/16" | 1/8" | 0" | 1/16" | 1/16" | 1/8" | 0" |
| Deflection due to remaining D.L. | 5/16" | 3/8" | 1/2" | 1/8" | 7/16 | 9/16 | 11/16 | 3/16" |
| Convexity required for Vertical Curve | -5/8" | -1" | -1" | 0" | -5/8" | -1" | -1" | 0" |
| Sum of Deflection & Convexity | -1/4" | -9/16" | -3/8" | 1/8" | -1/8" | -3/8" | -5/16" | 3/16" |
| Camber required | 0" | 0" | 0" | 0" | 0" | 0" | 0" | 0" |

NOTE: Place any natural camber down.

| PIERS | 1 & 2 | 3 |
|---|---|---|
| Dimension "X" | 15/16" | 13/16" |
| Dimension "Y" | 9/16" | 7/16" |



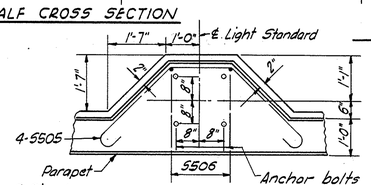

## DECK REINFORCING PLAN



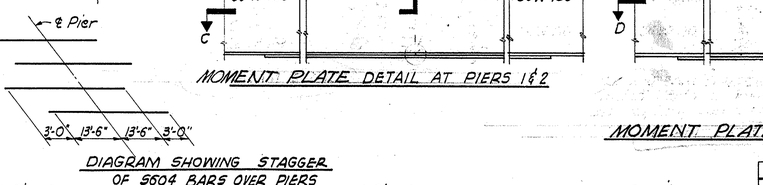

## HALF CROSS SECTION

DECK SLAB HAUNCH

The haunch in the deck slab adjacent to the steel beams, which is shown as 9" wide may vary from this dimension with a min. of 6" and a max. of 12". Max. slope at haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.




## LIGHT STANDARD DETAIL




## DIAGRAM SHOWING STAGGER OF S604 BARS OVER PIERS

Class "C" Concrete in parapet and reinforcing steel above parapet construction joint included with railing for payment.

* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.


MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

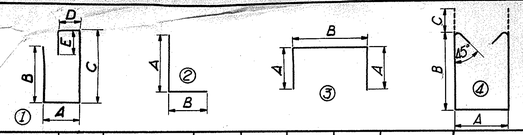

# SUPERSTRUCTURE DETAILS

BRIDGE NO. MAH-18-1730

WELLINGTON AVENUE OVER WICKLIFFE EXPRESSWAY

MAHONING COUNTY STA. 613+36.06

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| E.F.K. | M.M.M. | M.M. | R.L.S. | T.P.K. | 6-14-63 | |




All dimensions are out to out, except radii which are to inside.

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

289

MAH-18-15.50
MAHONING COUNTY

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | ABUTMENTS | | | | | | |
| A701 | 27 | 6'-6" | Str. | | | | | | 359 |
| A601 | 92 | 16'-2" | 1 | 1'-5" | 5'-3" | 6'-3" | 11" | 3'-0" | 2234 |
| A602 | 92 | 12'-9" | 2 | 7'-7" | 5'-4" | | | | 1762 |
| A603 | 6 | 4'-3" | Str. | | | | | | 38 |
| A604 | 25 | 5'-0" | Str. | | | | | | 188 |
| A501 | 56 | 24'-7" | Str. | | | | | | 1436 |
| A502 | 72 | 7'-2" | 3 | 2'-0" | 3'-5" | | | | 538 |
| A503 | 16 | 26'-7" | Str. | | | | | | 444 |
| A504 | 30 | 7'-9" | Str. | | | | | | 242 |
| A505 | 9 | 11'-10" | Str. | | | | | | 111 |
| A506 | 45 | 7'-4" | 4 | 8" | 3'-0" | 7" | | | 344 |
| A507 | 45 | 4'-4" | 3 | 1'-5" | 1'-4" | | | | 203 |
| A508 | 23 | 11'-9" | Str. | | | | | | 282 |
| A509 | 8 | 2'-11" to 5'-10" | Str. | 1 Ea. Vary By 5" | | | | | 36 |
| A510 | 8 | 13'-8" | Str. | | | | | | 114 |
| A511 | 2 | 14'-9" | Str. | | | | | | 31 |
| A512 | 6 | 19'-7" | Str. | | | | | | 123 |
| A513 | 6 | 2'-10" to 4'-6" | Str. | 1 Ea. Vary By 4" | | | | | 23 |
| A514 | 2 | 2'-8" | Str. | | | | | | 6 |
| A515 | 8 | 3'-7" | Str. | | | | | | 30 |
| A516 | 8 | 10'-10" | Str. | | | | | | 90 |
| A517 | 10 | 16'-3" | Str. | | | | | | 170 |
| A518 | 4 | 10'-5" | Str. | | | | | | 43 |
| A519 | 6 | 17'-3" | Str. | | | | | | 108 |
| A520 | 2 | 12'-6" | Str. | | | | | | 26 |
| A521 | 44 | 4'-7" | 2 | 3'-9" | 1'-0" | | | | 210 |
| A522 | 8 | 11'-5" | Str. | | | | | | 95 |
| A523 | 10 | 14'-1" | Str. | | | | | | 146 |
| A524 | 2 | 12'-4" | Str. | | | | | | 26 |
| A525 | 2 | 11'-3" | Str. | | | | | | 23 |
| A526 | 4 | 9'-5" | Str. | | | | | | 39 |
| A527 | 6 | 11'-0" | Str. | | | | | | 69 |
| A528 | 13 | 11'-3" | Str. | | | | | | 153 |
| A529 | 6 | 3'-0" to 5'-6" | Str. | 1 Ea. Vary By 6" | | | | | 27 |
| A530 | 4 | 2'-8" | Str. | | | | | | 11 |
| A531 | 4 | 3'-2" to 4'-8" | Str. | 1 Ea. Vary By 6" | | | | | 16 |
| A532 | 8 | 4'-0" | Str. | | | | | | 33 |
| A533 | 6 | 14'-1" | Str. | | | | | | 88 |
| A534 | 2 | 7'-5" | Str. | | | | | | 15 |
| A535 | 8 | 8'-3" | 3 | 1'-8" | 5'-4" | | | | 69 |
| A536 | 8 | 8'-6" | 3 | 1'-8" | 5'-5" | | | | 71 |
| A537 | 16 | 7'-10" | 5 | 5'-10" | 1'-0" | 6" | | | 131 |
| A538 | 16 | 7'-3" | 5 | 5'-3" | 1'-0" | 11" | | | 121 |
| A539 | 2 | 6'-4" | Str. | | | | | | 13 |
| A540 | 6 | 13'-0" | Str. | | | | | | 81 |
| A541 | 3 | 2'-8" to 4'-8" | Str. | 1 Ea. Vary By 1'-0" | | | | | 11 |
| A542 | 1 | 3'-11" | Str. | | | | | | 4 |
| A543 | 3 | 2'-8" | Str. | | | | | | 8 |
| A544 | 1 | 2'-9" | Str. | | | | | | 3 |
| A545 | 1 | 3'-9" | Str. | | | | | | 4 |
| A546 | 3 | 2'-10" to 5'-0" | Str. | 1 Ea. Vary By 1'-1" | | | | | 12 |
| A547 | 12 | 10'-8" | 4 | 8" | 4'-8" | 7" | | | 134 |
| A548 | 4 | 9'-4" | Str. | | | | | | 39 |
| A549 | 4 | 9'-10" | Str. | | | | | | 41 |
| A550 | 2 | 2'-8" | Str. | | | | | | 6 |
| A551 | 8 | 8'-9" | Str. | | | | | | 73 |
| A552 | 8 | 7'-8 | Str. | | | | | | 64 |
| A401 | 25 | 6'-6" | Str. | | | | | | 109 |
| R501 | 4 | 19'-7" | Str. | Included with Railing for Payment | | | | | |
| R502 | 4 | 17'-4" | Str. | | | | | | |
| R503 | 4 | 14'-1" | Str. | | | | | | |
| R504 | 4 | 13'-0" | Str. | | | | | | |
| R505 | 16 | 1'-8" | Str. | | | | | | |
| | | | | | | | | | 10,926 |
| | | | PIERS | | | | | | |
| P1001 | 192 | 6'-6" | 2 | 6'-0" | 10" | | | | 5,370 |
| P1002 | 64 | 20'-3" | Str. | | | | | | 5,577 |
| P1003 | 64 | 19'-6" | Str. | | | | | | 5,370 |
| P1004 | 64 | 18'-3" | Str. | | | | | | 5,025 |
| P901 | 36 | 17'-0" | Str. | | | | | | 2,081 |
| P902 | 24 | 26'-6" | 2 | 24'-2" | 2'-7" | | | | 2,162 |
| P903 | 9 | 30'-11" | Str. | | | | | | 946 |
| P801 | 132 | 9'-6" | Str. | | | | | | 3,348 |
| P802 | 108 | 7'-6" | Str. | | | | | | 2,163 |
| P701 | 12 | 17'-2" | Str. | | | | | | 421 |
| P501 | 12 | 23'-4" | Str. | | | | | | 292 |
| P502 | 204 | 7'-9" | 3 | 2'-8" | 2'-8" | | | | 1,649 |
| P503 | 30 | 6'-11" | 6 | 3'-0" | 4'-2" | 1'-4" | | | 216 |
| P504 | 6 | 4'-8" | 3 | 1'-6" | 1'-11" | | | | 29 |
| P505 | 96 | 5'-5" | 3 | 1'-6" | 2'-8" | | | | 542 |
| | | | SPIRAL BARS | | | | | | |
| SP401 | 4 | 16'-11½" | ½"ϕ | 4½" | 48 | 2'-8" | | | 1,242 |
| SP402 | 4 | 16'-2½" | ½"ϕ | 4½" | 46 | 2'-8" | | | 1,190 |
| SP403 | 4 | 14'-11½" | ½"ϕ | 4½" | 43 | 2'-8" | | | 1,112 |
| | | | | | | | | | 38,736 |

| Mark | Total | Length | Type | A | B | C | D | E | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | | SUPERSTRUCTURE | | | | | | |
| S701 | 378 | 17'-4" | Str. | | | | | | 13,392 |
| S702 | 371 | 24'-0" | Str. | | | | | | 18,200 |
| S703 | 16 | 4'-0" to 16'-6" | Str. | 1 Ea. Vary By 10" | | | | | 335 |
| S704 | 22 | 4'-8" to 22'-2" | Str. | 1 Ea. Vary By 10" | | | | | 603 |
| S705 | 14 | 4'-8" to 15'-6" | Str. | 1 Ea. Vary By 10" | | | | | 289 |
| S706 | 24 | 4'-0" to 23'-2" | Str. | 1 Ea. Vary By 10" | | | | | 666 |
| | | | | | | | | | 109 |
| S601 | 750 | 20'-6" | Str. | | | | | | 23,093 |
| S602 | 38 | 4'-8 to 19'-8" | Str. | 2 Ea. Vary By 10" | | | | | 694 |
| S603 | 36 | 4'-6 to 18'-8" | Str. | 2 Ea. Vary By 10" | | | | | 626 |
| S604 | 111 | 30'-0" | Str. | | | | | | 5,002 |
| | | | | | | | | | |
| S501 | 936 | 30'-9" | Str. | | | | | | 30,019 |
| S502 | 380 | 5'-8" | 4 | 8" | 2'-2" | 7" | | | 2,246 |
| S503 | 360 | 6'-11" | 3 | 8" | 5'-10" | | | | 2,597 |
| S504 | 360 | 7'-9" | 3 | 1'-2" | 5'-8" | | | | 2,910 |
| S505 | 16 | 8'-5" | 7 | 1'-8" | 2'-5" | 7" | 5" | | 140 |
| S506 | 8 | 7'-4" | 3 | 2'-3" | 3'-1" | | | | 61 |
| | | | | | | | | | |
| R506 | 16 | 11'-4" | Str. | Included with Railing for Payment | | | | | |
| R507 | 128 | 13'-10" | Str. | | | | | | |
| R508 | 8 | 5'-2" | Str. | | | | | | |
| R509 | 8 | 8'-5" | Str. | | | | | | |
| | | | | | | | | | 100,873 |

## SPIRAL NOTES

The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.
The "Number of Turns" shown in the steel list for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.
Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.
1½" closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

REPLACEMENT BARS

[illegible]

| REPLACEMENT BARS | | | |
|---|---|---|---|
| Mark | Total | Length | Type |
| RE1001 | 2 | 7'-3" | Str. |
| RE902 | 1 | 6'-10" | Str. |
| RE803 | 1 | 6'-6" | Str. |
| RE704 | 2 | 6'-3 | Str. |
| RE605 | 2 | 5'-11" | Str. |
| RE506 | 3 | 5'-7" | Str. |
| RE407 | 1 | 5'-3" | 8 |

## BAR SIZE

Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A601 is a number 6 size bar.

MICHAEL BAKER JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

# REINFORCING BAR SCHEDULE

BRIDGE NO. MAH-18-1730
WELLINGTON AVENUE OVER
WICKLIFFE EXPRESSWAY

MAHONING COUNTY STA. 613+36.06

| Designed | Drawn | Traced | Checked | Reviewed | Date | Revised |
|---|---|---|---|---|---|---|
| RLS | E.K. | J.G. | MM | GJK | 8-16-63 | |