

## **DIGITAL ACCESSIBILITY NOTICE**

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| COUNTY                              | CONTRACT                                   | P.A.A. REG. NO. | DATE    | FED. AID PROJECT NO. | SHEET NO. | TOTAL SHEETS |
|-------------------------------------|--------------------------------------------|-----------------|---------|----------------------|-----------|--------------|
| N.C.                                | 28-04-001                                  | 2               | DEL.    |                      | 10        | 23           |
| TRAFFIC CAPACITY IMPROVEMENT        |                                            |                 |         |                      |           |              |
| KIRKWOOD HIGHWAY                    |                                            |                 |         |                      |           |              |
| NEWARK TOWARDS ST. JAMES CHURCH RD. |                                            |                 |         |                      |           |              |
| NO.                                 | REVISIONS                                  | BY              | DATE    |                      |           |              |
| 1                                   | Section B-B added Note                     | T.F.F.          | 1/21/70 |                      |           |              |
| 2                                   | Change Dimensions, Add Dripboard & Note    | R.B.D.          | 2/4/70  |                      |           |              |
| 3                                   | Revised deck slab to fit exist. water line | T.F.F.          | 7/29/70 |                      |           |              |

**GENERAL NOTES**

**DESIGN:** A.A.S.H.O. Standard Specifications for Highway Bridges 1965, and A.A.S.H.O. 1966-1967 Interim Specifications.

**LOADING:** A.A.S.H.O. H.S. 20-44.

**SPECIFICATIONS:** Material and Workmanship: Standard Specifications of the Delaware State Highway Department, Dated: June 1, 1965, unless otherwise noted and specified in the Special Provisions.

**P.C.C. MASONRY:** All concrete shall have a 28 day strength of 3000 p.s.i. (minimum). Exposed edges of concrete shall be chamfered  $\frac{3}{8}$ " unless otherwise noted.

**BAR REINFORCEMENT:** Bar Reinforcement shall meet the requirements of A.S.T.M. A-615-68 Grade 40.

**REINFORCEMENT COVER:** Unless otherwise noted on plans, the minimum cover for Bar Reinforcement shall be 2".

**STRUCTURAL STEEL:** Structural Steel shall conform to A.S.T.M. A-36 Steel.

Beams to be Cambered for full dead load Deflection (1/16").

Watershed Area is 4.0 Square Miles. Waterway Area Required is 212 Sq. Ft. for C-60, Talbot's Formula. Waterway Area Provided is approximately 330 Sq. Ft. Information taken from Contract 1497.

1" Premolded Joint Mat'l. between Abutment and Slab. 1/2" Expansion Mat'l. under Sidewalk Slab only.

The existing Slab Bar Reinforcement is to be exposed, spliced and welded to new Reinforcement. Welding length is to be a minimum of 2" on both sides of bars. Surfaces to be welded are to be cleaned and free from rust, concrete, or other foreign matter.

| ITEM | DESCRIPTION                                   | UNIT | EST. QTY. | PROJ. |
|------|-----------------------------------------------|------|-----------|-------|
| 4    | Excavation for Structures                     | C.Y. | 60        |       |
| 6    | Removal of Structures and Obstructions        | L.S. | L.S.      |       |
| 10A  | Portland Cement Conc. Masonry (Footings)      | C.Y. | 8         |       |
| 10B  | Portland Cement Conc. Masonry (Wing Wall)     | C.Y. | 51        |       |
| 10C  | Portland Cement Conc. Masonry (Backwall)      | C.Y. | 40        |       |
| 20   | Bar Reinforcement                             | LBS. | 10,300    |       |
| 22   | Structural Steel (31,000 Lbs)                 | L.S. | L.S.      |       |
| 22A  | Bridge Railing (Aluminum)                     | L.F. | 53'8"     |       |
| 28   | Cast Iron Pipe @ 12"                          | L.F. | 3         |       |
| 29   | Corrugated Metal Pipe @ 36"                   | L.F. | 19        |       |
| S.P. | Coarse Aggregate for Foundation Stabilization | C.Y. | 4         |       |
| 3A   | Rock Excavation for Structures                | C.Y. | 40        |       |

\* Denotes Field Quantity Item.

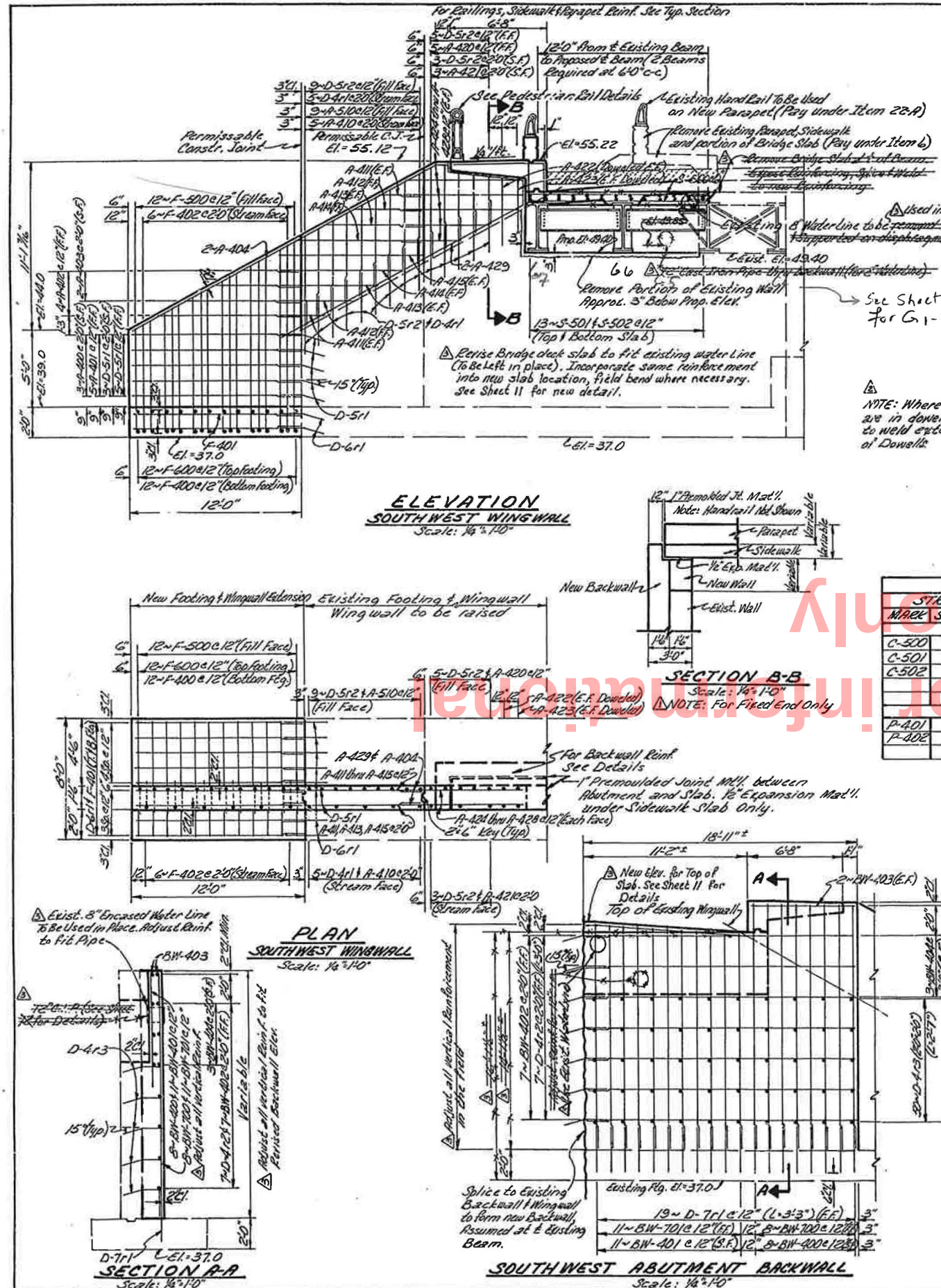
DELAWARE  
STATE HIGHWAY DEPARTMENT

**BRIDGE No. 229-A**  
**EXTENSION DETAILS**  
**OVER MUDDY RUN CREEK**

D. J.K.C.  
T. T.F.F.  
C. E.R.M. 1/2"

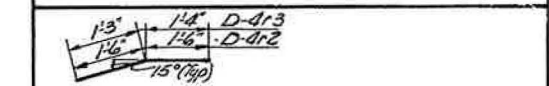
SCALE  
AS SHOWN

APPROVED BY:  
*John E. C. Smith*  
BRIDGE ENGINEER



| COUNTY                                            | CONTRACT                             | P. R. A.<br>SEC. NO. | STATE | FED AID PROJECT NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|---------------------------------------------------|--------------------------------------|----------------------|-------|---------------------|--------------|-----------------|
| N.C.                                              | 68-04-001                            | 2                    | DEL.  |                     | 11           | 23              |
| <b><u>TRAFFIC CAPACITY IMPROVEMENT</u></b>        |                                      |                      |       |                     |              |                 |
| <b><u>KIRKWOOD HIGHWAY</u></b>                    |                                      |                      |       |                     |              |                 |
| <b><u>NEWARK TOWARDS ST. JAMES CHURCH RD.</u></b> |                                      |                      |       |                     |              |                 |
| NO.                                               | REVISIONS                            |                      |       | BY                  | DATE         |                 |
| 1                                                 | Added Notes on Plan View             |                      |       | T.F.F.              | 1/21/70      |                 |
| 2                                                 | Change Clearance on Elevation Reinf. |                      |       | G.R.D.              | 3/4/70       |                 |
| 3                                                 | Revised Deck Slab & Backwall Details |                      |       | T.F.F.              | 1/29/70      |                 |
|                                                   |                                      |                      |       |                     |              |                 |
|                                                   |                                      |                      |       |                     |              |                 |
|                                                   |                                      |                      |       |                     |              |                 |

| REINFORCING BAR LIST |      |            |        |           |      |        |        |
|----------------------|------|------------|--------|-----------|------|--------|--------|
| STRAIGHT BARS        |      |            |        | BENT BARS |      |        |        |
| MARK                 | SIZE | LENGTH     | NUMBER | MARK      | SIZE | LENGTH | NUMBER |
| WING WALL            |      |            |        |           |      |        |        |
| D-4r1                | 4    | 3'-0"      | 12     |           |      |        |        |
| A-400                | 4    | 28'-6 7/8" | 12     |           |      |        |        |
| A-401                | 4    | 15'-0"     | 2      |           |      |        |        |
| A-402                | 4    | 7'-0"      | 1      |           |      |        |        |
| A-403                | 4    | 10'-2"     | 3      |           |      |        |        |
| A-404                | 4    | 7'-0"      | 1      |           |      |        |        |
| A-410                | 4    | 15'-0"     | 3      |           |      |        |        |
| A-411                | 4    | 11'-3"     | 1      |           |      |        |        |
| A-412                | 4    | 7'-0"      | 1      |           |      |        |        |
| A-413                | 4    | 10'-2"     | 6      |           |      |        |        |
| A-414                | 4    | 7'-0"      | 1      |           |      |        |        |
| A-415                | 4    | 2'-9"      | 1      |           |      |        |        |
| A-422                | 4    | 4'-0"      | 1      |           |      |        |        |
| A-423                | 4    | 2'-9"      | 1      |           |      |        |        |
| A-424                | 4    | 2'-0"      | 1      |           |      |        |        |
| A-425                | 4    | 6'-0"      | 2      |           |      |        |        |
| BACKWALL             |      |            |        |           |      |        |        |
| BW-400               | 4    | 1'-3"      | 9      | D-4r2     | 4    | 3'-0"  | 7      |
| BW-401               | 4    | 5'-6"      | 11     | D-4r3     | 4    | 2'-7"  | 50     |
| BW-402               | 4    | 19'-9"     | 7      |           |      |        |        |
| BW-403               | 4    | 19'-9"     | 3      |           |      |        |        |
| BW-404               | 4    | 8'-0"      | 2      |           |      |        |        |
| D-7r2                | 7    | 3'-3"      | 20     |           |      |        |        |
| BW-700               | 7    | 15'-9"     | 9      |           |      |        |        |
| BW-701               | 7    | 13'-9"     | 11     |           |      |        |        |



NOTE: All Dimensions are out to out.  
Not to Scale

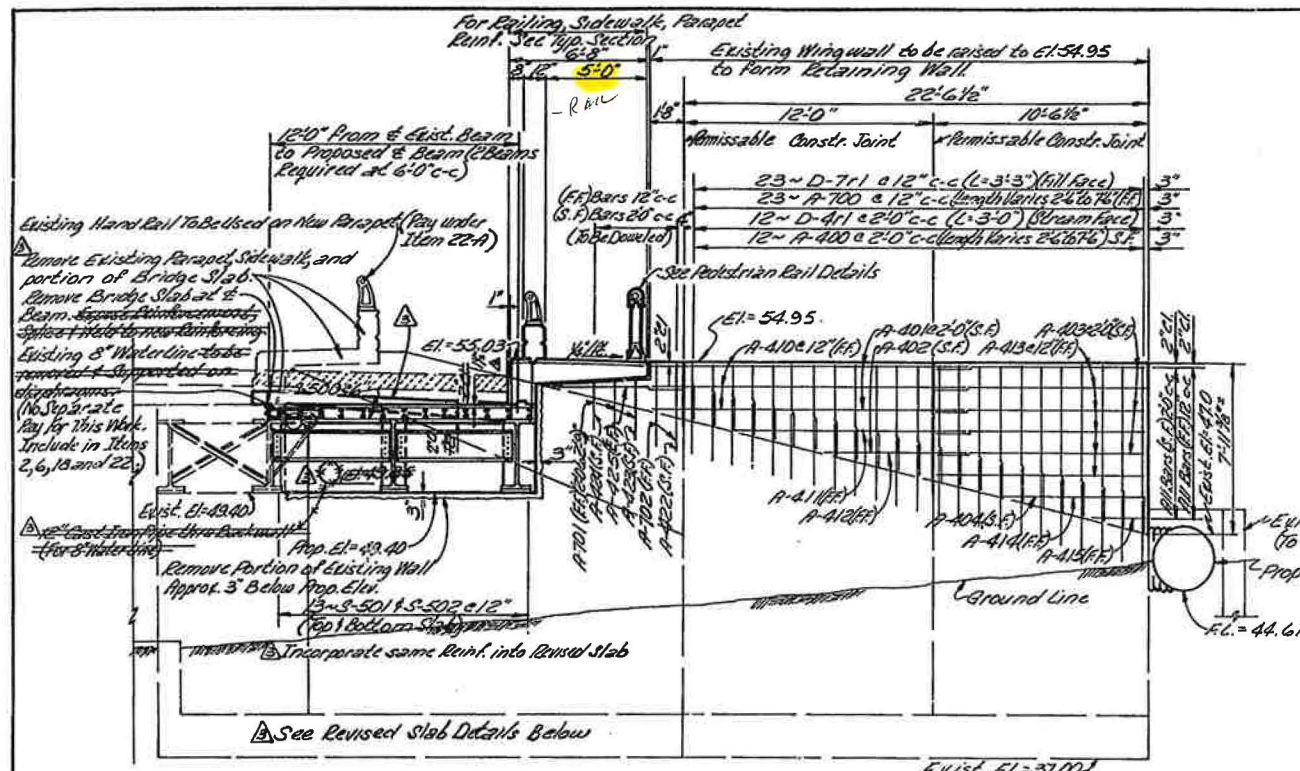
DELAWARE  
STATE HIGHWAY DEPARTMENT

BRIDGE N° 229-A  
EXTENSION DETAILS  
OVER MUDDY RUN CREEK

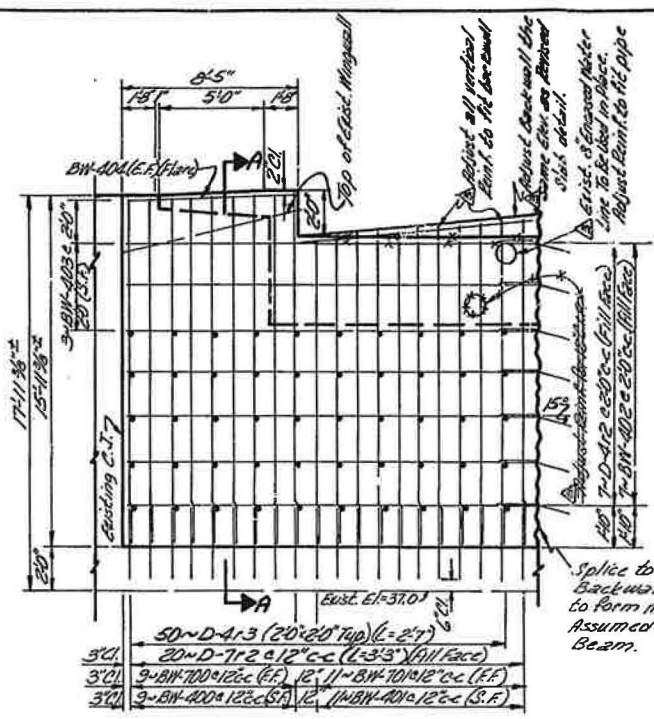
D. J.K.C.  
T. T.F.F.  
C.E.A.M. 4/6/70

SCALE  
AS SHOWN

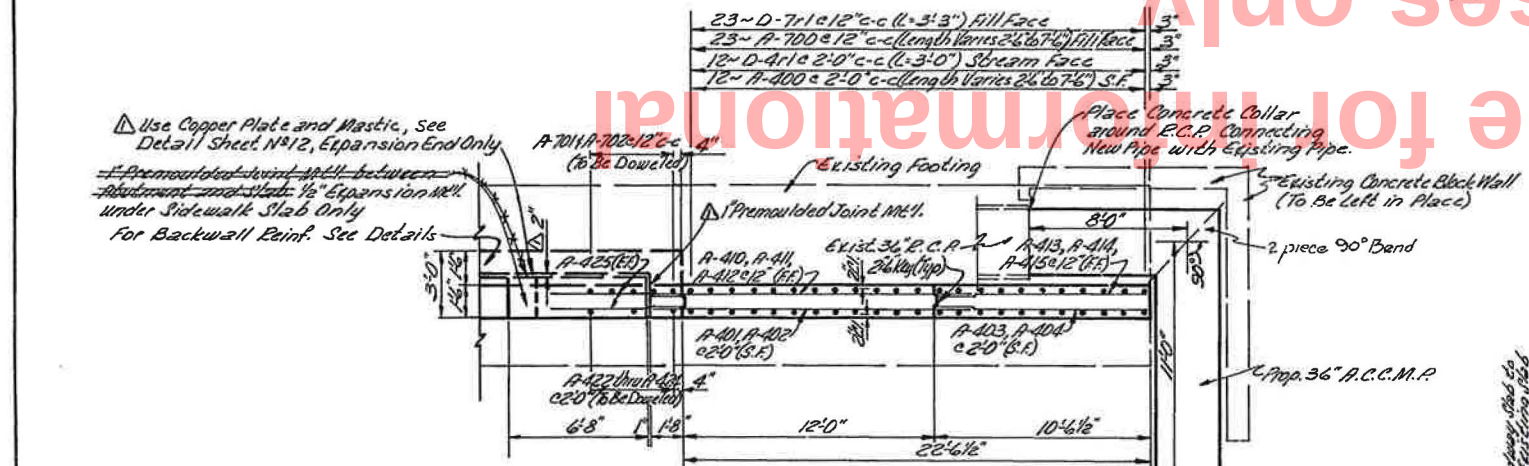
APPROVED BY:  
John H. C. [Signature]  
BRIDGE ENGINEER



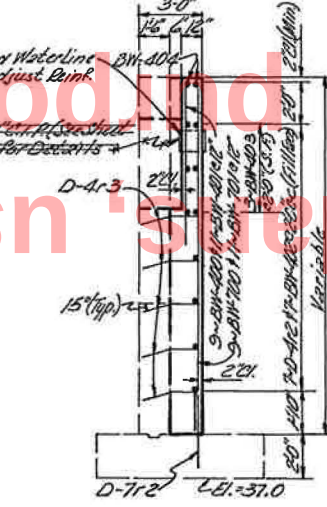
ELEVATION  
SOUTHEAST WING WALL  
Scale: 1/4"=1'-0"



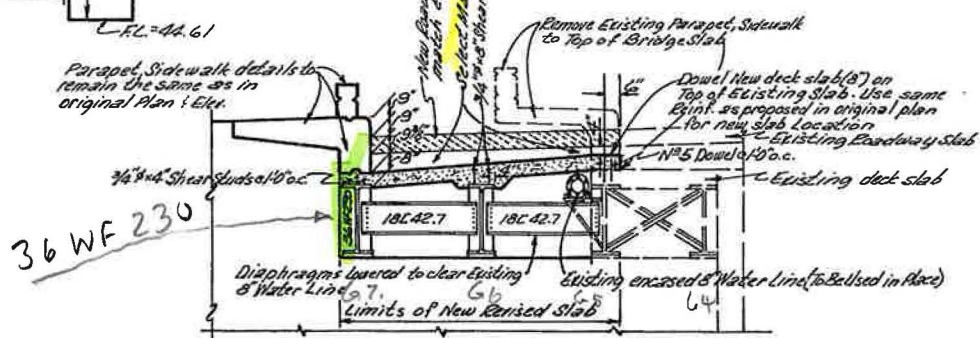
SOUTHEAST ABUTMENT BACKWALL  
Scale: 1/4"=1'-0"



PLAN  
SOUTHEAST WING WALL  
Scale: 1/4"=1'-0"

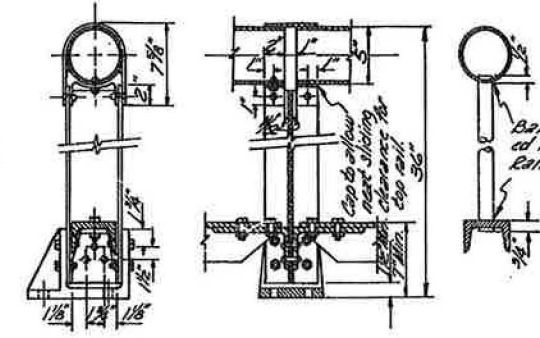
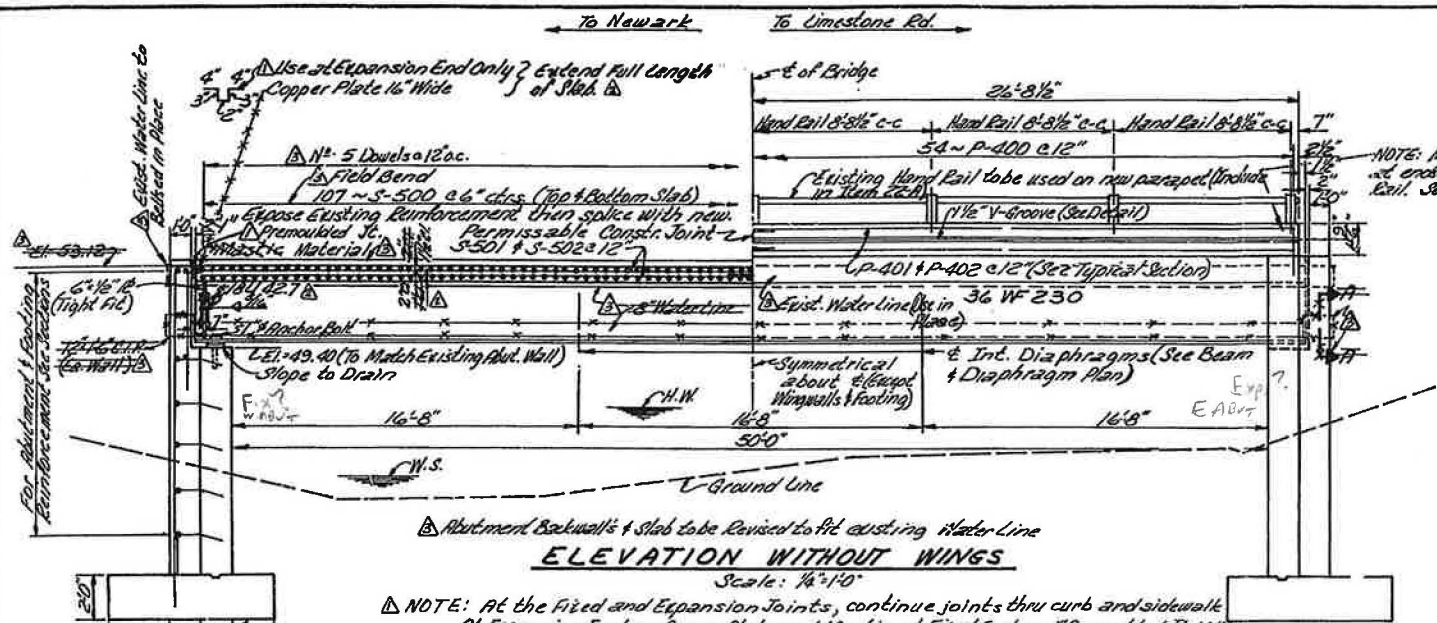


SECTION A-A  
Scale: 1/4"=1'-0"

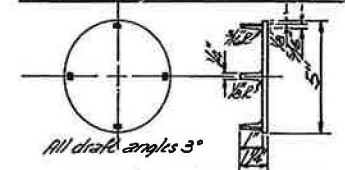


REVISED BRIDGE SLAB DETAIL  
Scale: 1/4"=1'-0"  
NOTE: Typical each end of Abutment Walls.

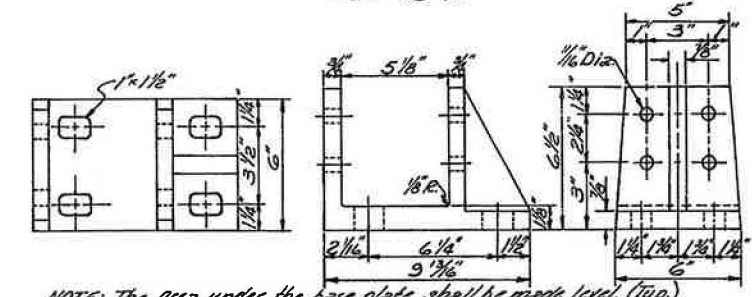
| COUNTY                                                                                                                                       | CONTRACT                                           | P. & B.<br>REQ. NO. | STATE | FED. AID PROJECT NO. | SHEET<br>NO. | TOTAL<br>SHEETS |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|----------------------|--------------|-----------------|
| N.C.                                                                                                                                         | 68-04-001                                          | 2                   | DEL.  |                      | 12           | 23              |
| <p><b><u>TRAFFIC CAPACITY IMPROVEMENT</u></b><br/> <b><u>KIRKWOOD HIGHWAY</u></b><br/> <b><u>NEWARK TOWARDS ST. JAMES CHURCH RD.</u></b></p> |                                                    |                     |       |                      |              |                 |
| NO.                                                                                                                                          | REVISIONS                                          |                     |       |                      | BY           | DATE            |
| 1                                                                                                                                            | Added Notes & Modified Final end of Pkwy. Sd.      |                     |       |                      | TEF          | 1/27/70         |
| 2                                                                                                                                            | Added Note, changed Reinforcing & Diaphragm P.R.D. |                     |       |                      | TEF          | 1/4/70          |
| 3                                                                                                                                            | Revised Slab, Diaphragms to Fit Exst. Water Line   |                     |       |                      | TEF          | 7/28/70         |
|                                                                                                                                              |                                                    |                     |       |                      |              |                 |
|                                                                                                                                              |                                                    |                     |       |                      |              |                 |
|                                                                                                                                              |                                                    |                     |       |                      |              |                 |
|                                                                                                                                              |                                                    |                     |       |                      |              |                 |



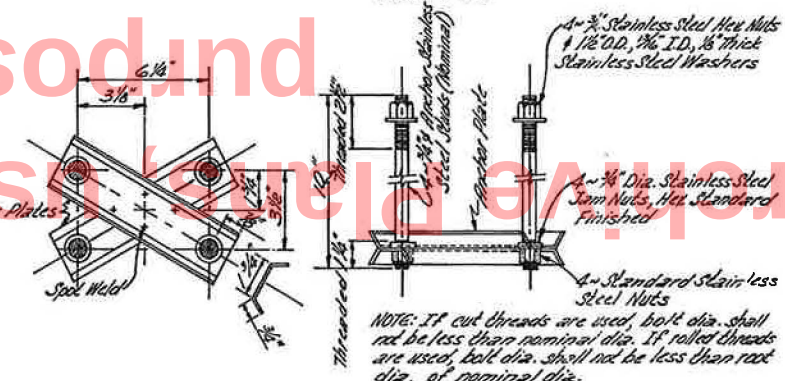
ALCOA TYPE "A"  
RAIL POST DETAILS  
Scale: 1 1/2" = 1'-0"



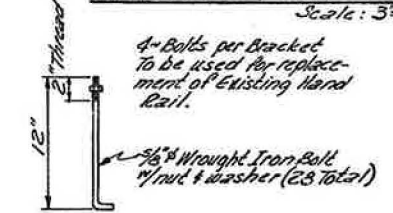
ALCOR SCE 5-125  
RAIL CAP DETAIL  
Scale: 3"=1'-0"



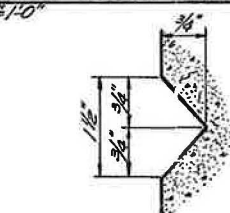
NOTE: The area under the base plate shall be made level. (Typ.)  
ALCOA PB 1-19 BASE PLATE DETAILS  
 Scale: 3"=1'-0"



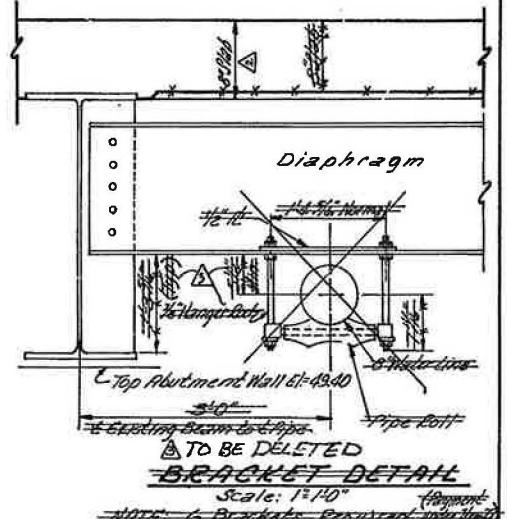
ANCHOR PLATE AND BOLT DETAIL  
Scale: 3"=1'-0" 3/4"



HAND RAIL ANCHOR  
BOLT DETAIL  
NO SCALE



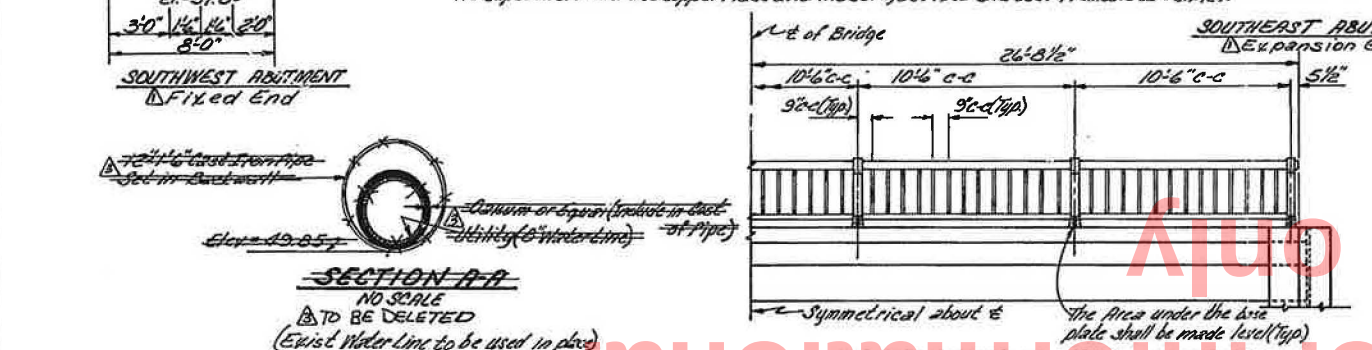
1 1/2" V-GROOVE DETAIL  
AT CONSTRUCTION JOINTS  
NO SCALE



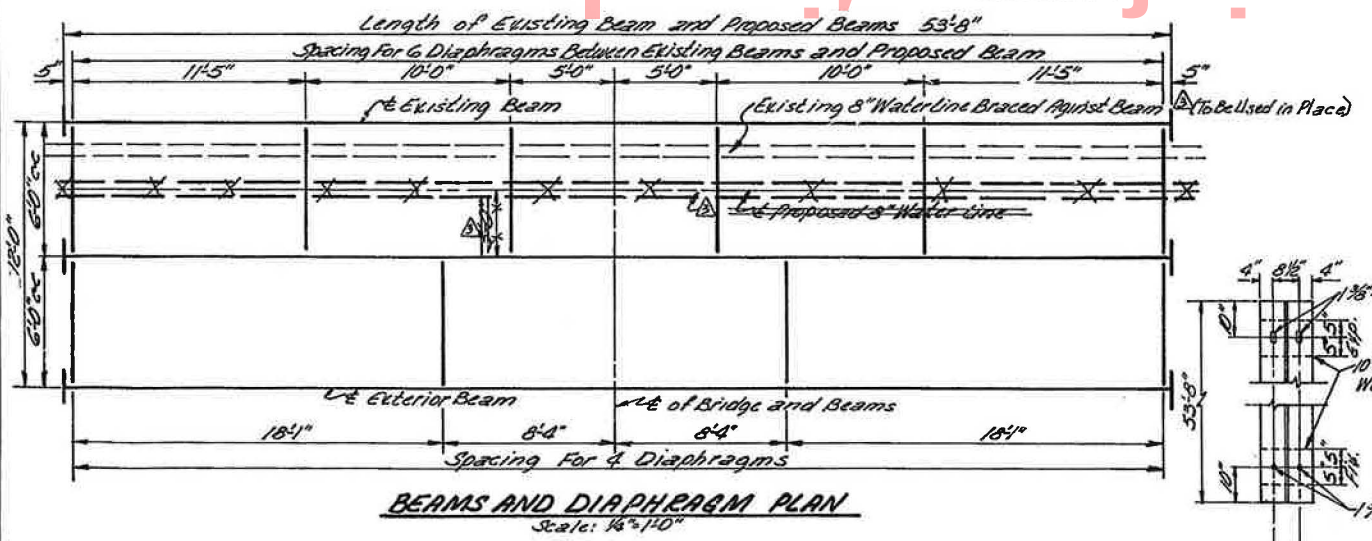
DELAWARE  
STATE HIGHWAY DEPARTMENT

BRIDGE N<sup>o</sup>. 229-A  
EXTENSION DETAILS  
OVER MUDDY RUN CREEK

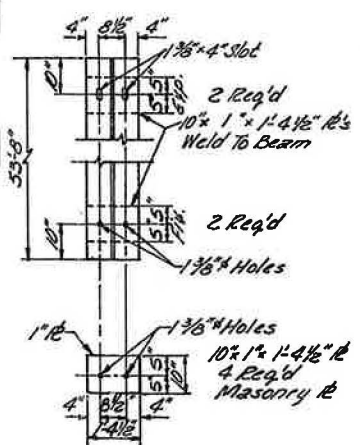
|                 |          |                        |
|-----------------|----------|------------------------|
| D. J.K.C.       | SCALE    | APPROVED BY:           |
| T. T.F.F.       | AS SHOWN | <i>John E. Kunkler</i> |
| C.E.R.M. 4/4/81 |          | BRIDGE ENGINEER        |



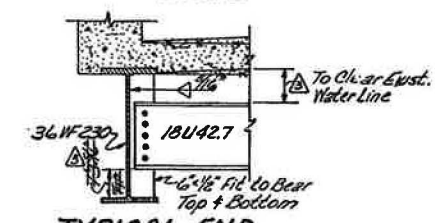
PEDESTRIAN RAIL DETAILS  
Scale: 1/4"=1'-0"



BEAMS AND DIAPHRAGM PLAN  
Scale: 1/8"=1'-0"



I-BEAM &  
MASONRY PLATE DETAIL  
Scale: 1/2"=1'-0"



TYPICAL END  
DIAPHRAGM CONN.  
Scale: 1/2"=1'-0"

36 WF230 Bot Fl only  $t = 1.26"$  &  $W = 0.765"$

| COUNTY | CONTRACT | P.L. | STATE | FED. AID PROJECT NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|--------|----------|------|-------|----------------------|-------------|-----------|--------------|
| N.C.   | 1497     | 2    | DEL.  | FAP 166(8)           |             | 23        | 45           |

# NEWARK TO LIMESTONE ROAD GENERAL NOTES

**SPECIFICATIONS:**  
1953 Standard Specifications For Highway Bridges  
Of The American Association Of State Highway Officials.  
1957 Standard Specifications For Delaware State  
Highway Department.

**LOADING:**  
H20-S16-44. A.A.S.H.O.

All Concrete To Be Proportioned, Placed And Finished  
In Accordance With Delaware State Highway Department  
Specifications, 1957.

Chamfer All Exposed Edges Of Concrete  $\frac{3}{4}"$  Unless  
Otherwise Noted.

Reinforcing Bars To Be Intermediate Grade (20,000 psi)  
And Shall Be Detailed According To A.C.I. Code.

Unless Otherwise Noted, Reinforcing Bars Shall Be  
Spliced Forty (40) Bar Diameters.

Steelwork, Fabrication & Erection Shall Conform To  
A.A.S.H.O. Standard Specifications, For Highway Bridges  
Dated 1953.

Beams To Be Cambered For Full Deadload Deflection ( $\frac{1}{8}"$ ).

Four (4) Foot Sidewalk To Be Provided On Both Sides  
Of The Structure.

Aluminum Posts & Railing (Alcoa 1003 Or Equivalent) To  
Be Provided On The Proposed Parapets.

Care Must Be Exercised In Removing Spandrel Wall  
So As Not To Injure Existing Arch. Do Not Roughen  
Contact Surfaces As Minimum Amount Of Bond Is  
Desired Between Present Structure & Addition.

Watershed Area Is 4.0 Square Miles. Waterway Area  
Required Is 212.5 Sq. Ft. For C-60, Talbot's Formula.  
Waterway Area Provided Is Approximately 330 Sq. Ft.

Borings Showed Rock At Depth Of The Footings Of  
The Proposed Addition.

Field Rivets,  $\frac{7}{8}"$   $\phi$ .

Open Holes,  $\frac{3}{16}"$   $\phi$  Unless Noted.

Superficial Waterproofing to be applied to all concrete surfaces  
(above top of footing to within 6" of fill line) which will be in permanent contact  
with earth fill.

| SUMMARY OF QUANTITIES |                                    |      |                         |
|-----------------------|------------------------------------|------|-------------------------|
| ITEM                  |                                    |      | Estimated<br>Quantities |
| NO.                   | DESCRIPTION                        | UNIT |                         |
| 4                     | Excavation For Structures          | C.Y. | 380                     |
| 18-A                  | Em. Conc. Masonry In Footings      | C.Y. | 78                      |
| 18-B                  | Em. Conc. Masonry In Abutts & H.W. | C.Y. | 93                      |
| 18-C                  | Em. Conc. Masonry In Substr.       | C.Y. | 50                      |
| 20                    | Bar Reinforcement                  | Lbs. | 17,310                  |
| 22                    | Structural Steel                   | Lbs. | 39,600                  |
|                       | Aluminum Railing                   | L.F. | 106                     |
|                       | Removal Of Existing Structure      | L.S. |                         |
| 19                    | Superficial Waterproofing          | S.Y. | 182                     |

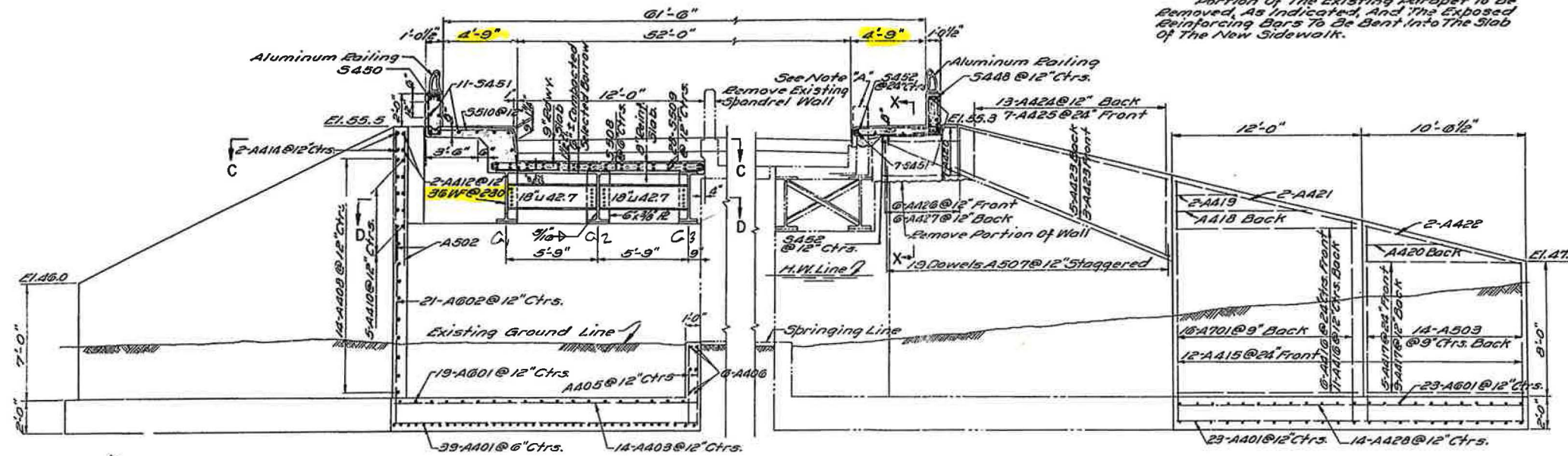
DELAWARE  
STATE HIGHWAY DEPARTMENT

ADDITION 46'-0" SPAN  
STA. 65+74.2 MIDDLE RUN

DRAWN *RW* SCALE AS SHOWN  
TRACED *DW* APPROVED BY *J. S. Robinson*  
CHECKED *CSA* BRIDGE ENGINEER

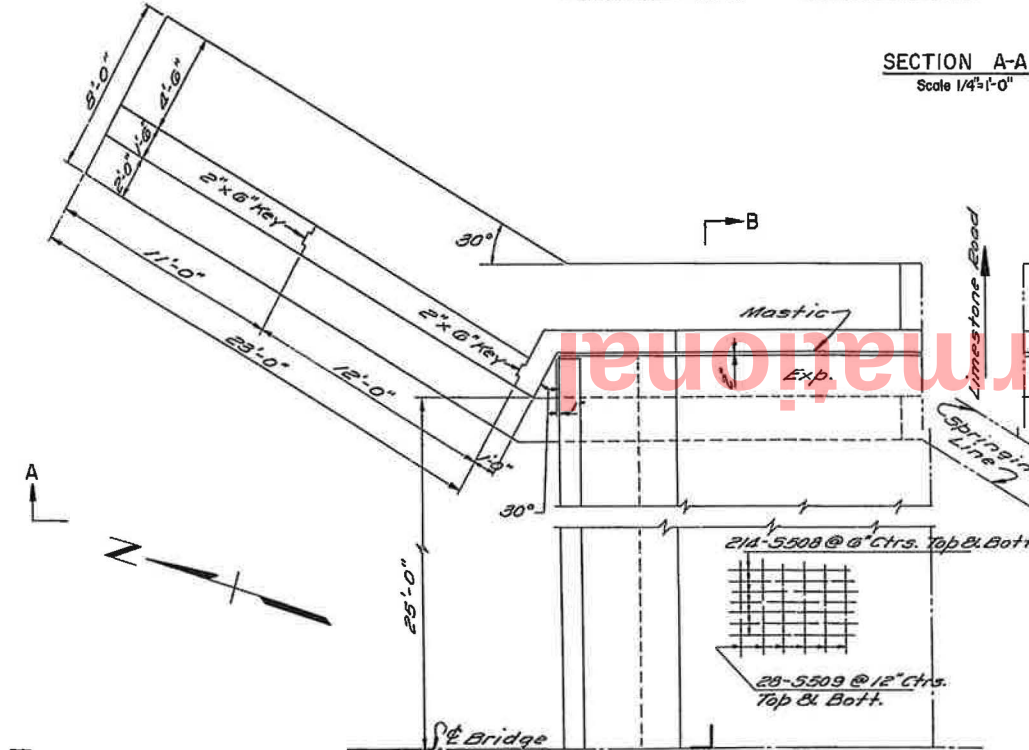
REVISIONS  
Rev. R/L Parapet Wall  
& General Revisions 3-4-57

**NOTE "A"**  
Portion Of The Existing Parapet To Be  
Removed, As Indicated, And The Exposed  
Reinforcing Bars To Be Bent Into The Slab  
Of The New Sidewalk.

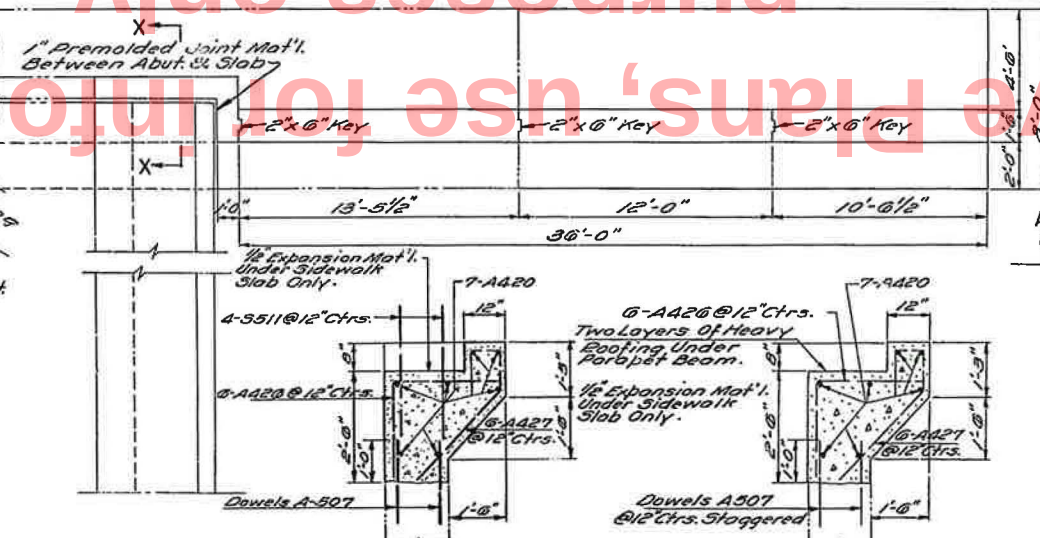


SECTION A-A  
Scale 1/4\"/>

Note: For Reinforcing Bar Schedule  
See Sheet No. 24.

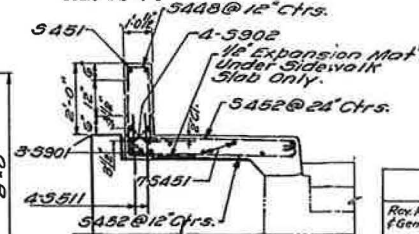


HALF PLAN  
Scale 1/4\"/>



SECTION Y-Y  
Scale 1/2\"/>

SECTION X-X  
Scale 1/2\"/>



SECTION W-W  
Scale 3/8\"/>

PART SECTION  
Scale 1/4\"/>

REVISIONS

REVISIONS

# NEWARK TO LIMESTONE ROAD

| BAR SCHEDULE |      |     |                   |      |                   |       |          |
|--------------|------|-----|-------------------|------|-------------------|-------|----------|
| BAR NO.      | SIZE | NO. | LENGTH            | TYPE | A                 | B     | C WEIGHT |
| A401         | 4    | 159 | 6'-0"             | "    | 5'-6"             | 6"    |          |
| A402         | 4    | 14  | 43'-0"            | 5Hr. |                   |       |          |
| A403         | 4    | 14  | 18'-9"            | "    |                   |       |          |
| A404         | 4    | 14  | 24'-0"            | "    |                   |       |          |
| A405         | 4    | 20  | 3'-6"             | 1    | 3'-0"             | 6"    |          |
| A406         | 4    | 12  | 7'-0"             | 5Hr. |                   |       |          |
| A407         | 4    | 14  | 20'-9"            | 2    | 18'-9"            | 2'-6" |          |
| A408         | 4    | 14  | 20'-9"            | 3    | 18'-9"            | 2'-6" |          |
| A409         | 4    | 5   | 19'-9"            | 2    | 17'-9"            | 2'-0" |          |
| A410         | 4    | 5   | 19'-9"            | 3    | 17'-9"            | 2'-0" |          |
| A411         | 4    | 2   | 9'-0"             | 2    | 8'-6"             | 2'-6" |          |
| A412         | 4    | 2   | 9'-0"             | 3    | 8'-6"             | 2'-6" |          |
| A413         | 4    | 2   | 8'-0"             | 2    | 8'-0"             | 2'-0" |          |
| A414         | 4    | 2   | 8'-0"             | 3    | 8'-0"             | 2'-0" |          |
| A415         | 4    | 12  | 7'-0" to 13'-0"   | 5Hr. |                   |       |          |
| A416         | 4    | 57  | 11'-8"            | "    |                   |       |          |
| A417         | 4    | 14  | 10'-2"            | "    |                   |       |          |
| A418         | 4    | 1   | 8'-6"             | "    |                   |       |          |
| A419         | 4    | 5   | 3'-0"             | "    |                   |       |          |
| A420         | 4    | 17  | 5'-0"             | "    |                   |       |          |
| A421         | 4    | 2   | 11'-0"            | "    |                   |       |          |
| A422         | 4    | 2   | 10'-0"            | "    |                   |       |          |
| A423         | 4    | 8   | 14'-6"            | "    |                   |       |          |
| A424         | 4    | 13  | 2'-6" to 5'-0"    | "    |                   |       |          |
| A425         | 4    | 7   | 2'-6" to 5'-0"    | "    |                   |       |          |
| A426         | 4    | 12  | 5'-0"             | 2    | 2'-8"             | 2'-4" |          |
| A427         | 4    | 12  | 5'-8"             | 4    |                   |       |          |
| A428         | 4    | 14  | 22'-0"            | 5Hr. |                   |       |          |
| A429         | 4    | 12  | 6'-10" to 16'-2"  | "    |                   |       |          |
| A430         | 4    | 1   | 6'-0"             | "    |                   |       |          |
| A431         | 4    | 2   | 8'-9"             | "    |                   |       |          |
| A432         | 4    | 2   | 12'-3"            | "    |                   |       |          |
| A433         | 4    | 11  | 10'-8"            | "    |                   |       |          |
| A434         | 4    | 4   | 9'-0"             | "    |                   |       |          |
| A435         | 4    | 2   | 8'-9"             | "    |                   |       |          |
| A436         | 4    | 13  | 9'-10" to 18'-10" | "    |                   |       |          |
| A437         | 4    | 15  | 12'-8"            | "    |                   |       |          |
| A438         | 4    | 2   | 10'-0"            | "    |                   |       |          |
| A439         | 4    | 1   | 5'-9"             | "    |                   |       |          |
| A440         | 4    | 2   | 13'-0"            | "    |                   |       |          |
| A441         | 4    | 2   | 12'-0"            | "    |                   |       |          |
| A442         | 4    | 22  | 8'-3"             | "    |                   |       |          |
| A443         | 4    | 5   | 5'-0" to 3'-0"    | "    |                   |       |          |
| A444         | 4    | 1   | 7'-3"             | "    |                   |       |          |
| A445         | 4    | 2   | 5'-3"             | "    |                   |       |          |
| A446         | 4    | 1   | 3'-0"             | "    |                   |       |          |
| A447         | 4    | 2   | 18'-0"            | "    |                   |       |          |
| A448         | 4    | 34  | 8'-10"            | 5    |                   |       |          |
| A449         | 4    | 2   | 13'-6"            | 5Hr. |                   |       |          |
| A450         | 4    | 54  | 6'-10"            | 6    |                   |       |          |
| A451         | 4    | 18  | 53'-0"            | 5Hr. |                   |       |          |
| A452         | 4    | 81  | 6'-4"             | 7    | 5'-4"             | 6"    |          |
| A501         | 5    | 48  | 6'-6"             | 5Hr. |                   |       | 3,352    |
| A502         | 5    | 34  | 8'-0"             | "    |                   |       |          |
| A503         | 5    | 14  | 10'-2" to 12'-7"  | 1    | 9'-7" to 12'-0"   | 7"    | 5        |
| A504         | 5    | 15  | 9'-3" to 13'-9"   | 1    | 8'-8" to 13'-2"   | 7"    | 5        |
| A505         | 5    | 18  | 12'-9" to 15'-5"  | 1    | 11'-5" to 14'-10" | 7"    | 5        |
| A506         | 5    | 9   | 7'-4" to 11'-7"   | 1    | 6'-9" to 11'-0"   | 7"    | 5        |
| A507         | 5    | 37  | 2'-0"             | 5Hr. |                   |       |          |
| A508         | 5    | 214 | 14'-7"            | 7    | 13'-5"            | 7"    | 5        |
| A509         | 5    | 28  | 53'-0"            | 5Hr. |                   |       |          |
| A510         | 5    | 54  | 9'-6"             | 8    | 5'-4"             | 7"    | 5        |
| A511         | 5    | 4   | 3'-0"             | 9Hr. |                   |       |          |
| A601         | 6    | 119 | 8'-10"            | 7    | 7'-6"             | 8"    | 6        |
| A602         | 6    | 42  | 11'-5"            | 1    | 10'-9"            | 8"    | 6        |
| A701         | 7    | 16  | 12'-10" to 15'-7" | 1    | 12'-0" to 14'-9"  | 10"   | 7        |
| A702         | 7    | 16  | 14'-0" to 18'-11" | 1    | 13'-2" to 18'-1"  | 10"   | 7        |
| A703         | 7    | 16  | 15'-8" to 18'-6"  | 1    | 14'-10" to 17'-8" | 10"   | 7        |
| A901         | 9    | 3   | 55'-6"            | 7    | 53'-0"            | 1'-3" | 11 1/2   |
| A902         | 9    | 4   | 53'-0"            | 5Hr. |                   |       |          |
| TOTAL        |      |     |                   |      |                   |       | 17,310   |

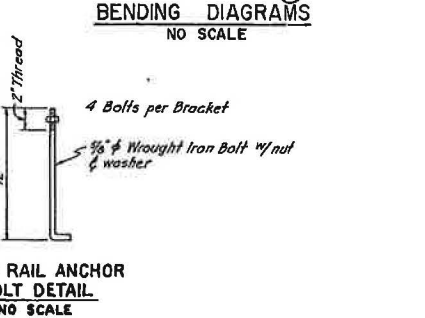
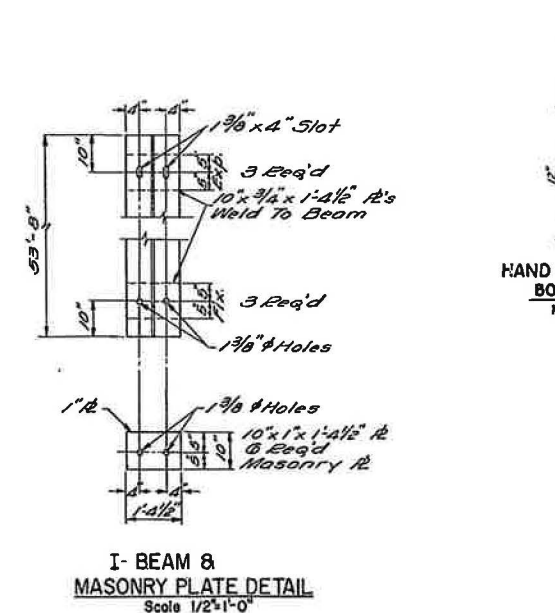
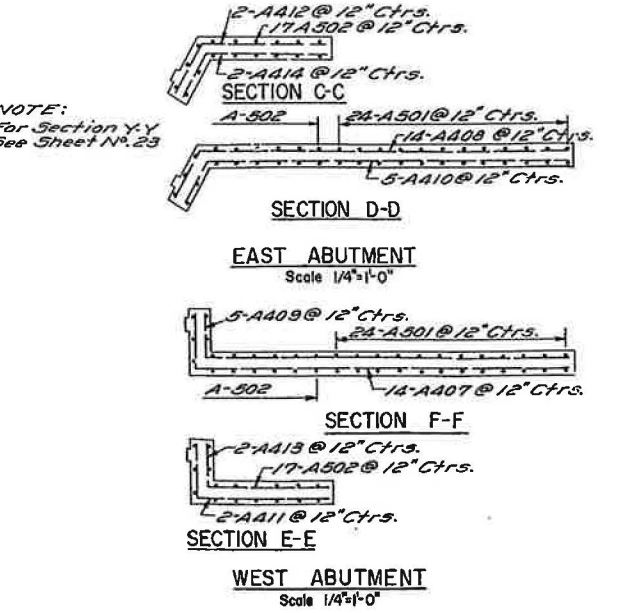
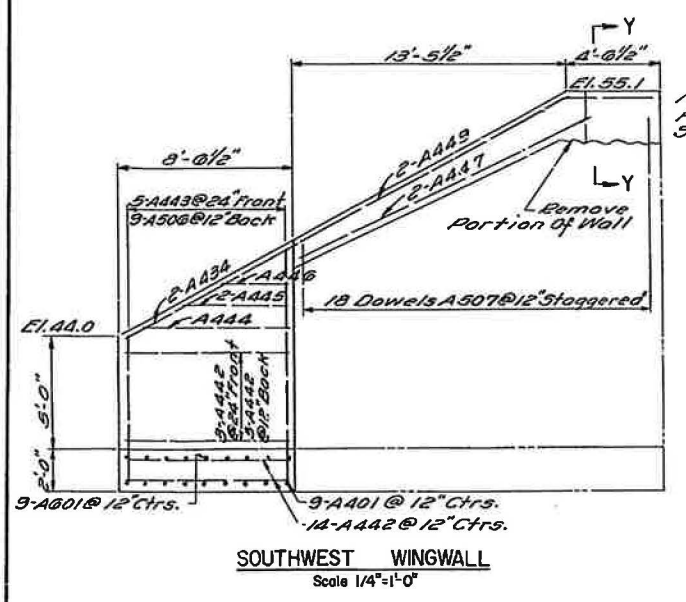
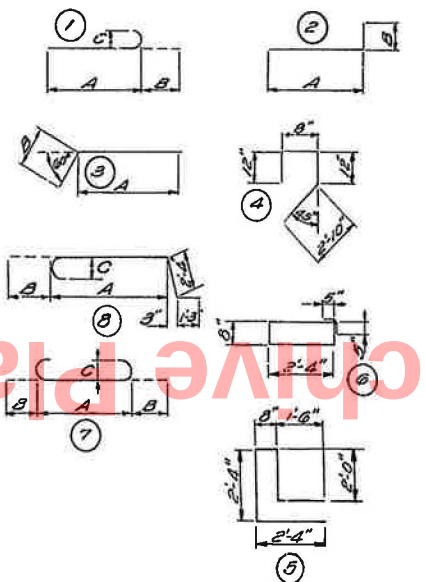
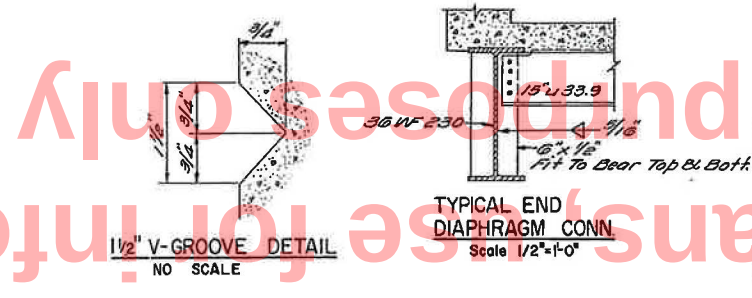
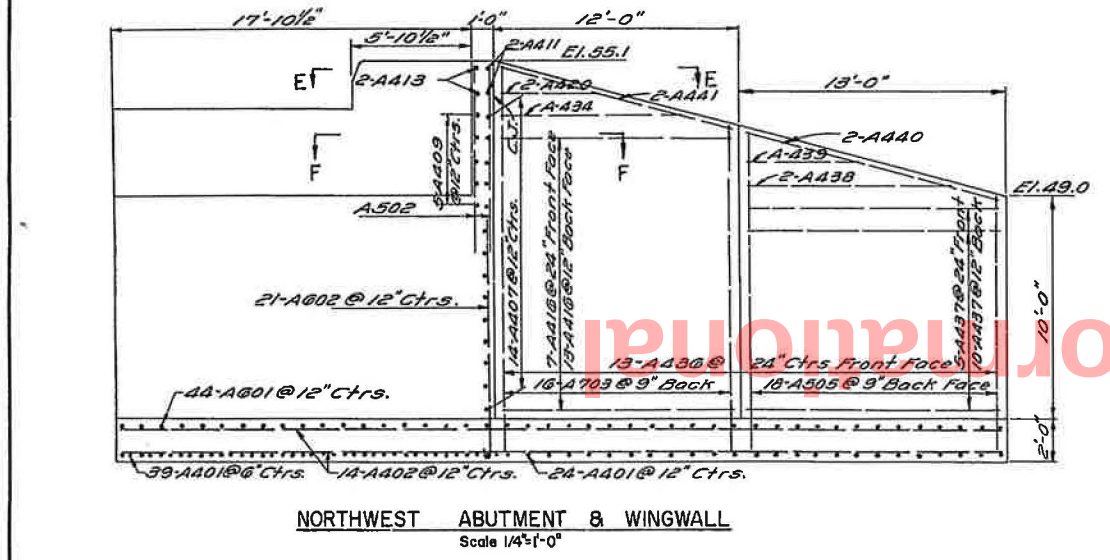
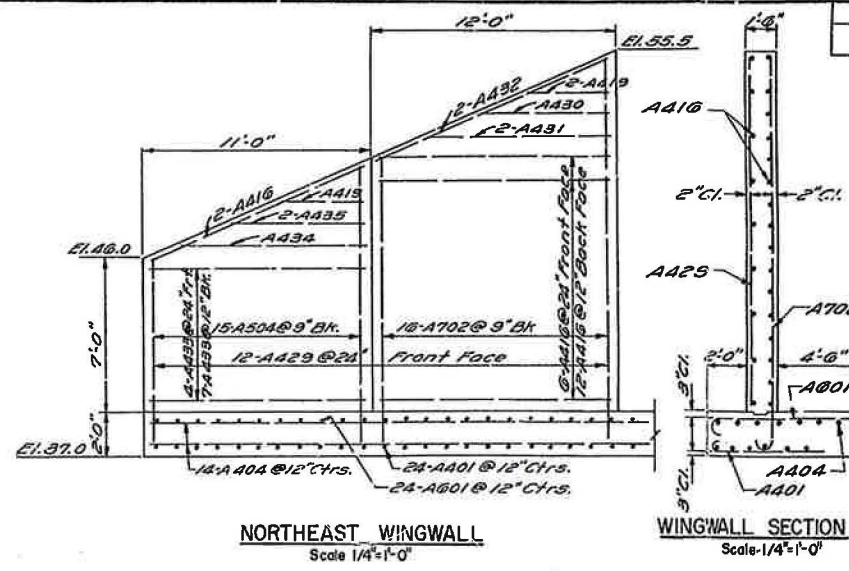
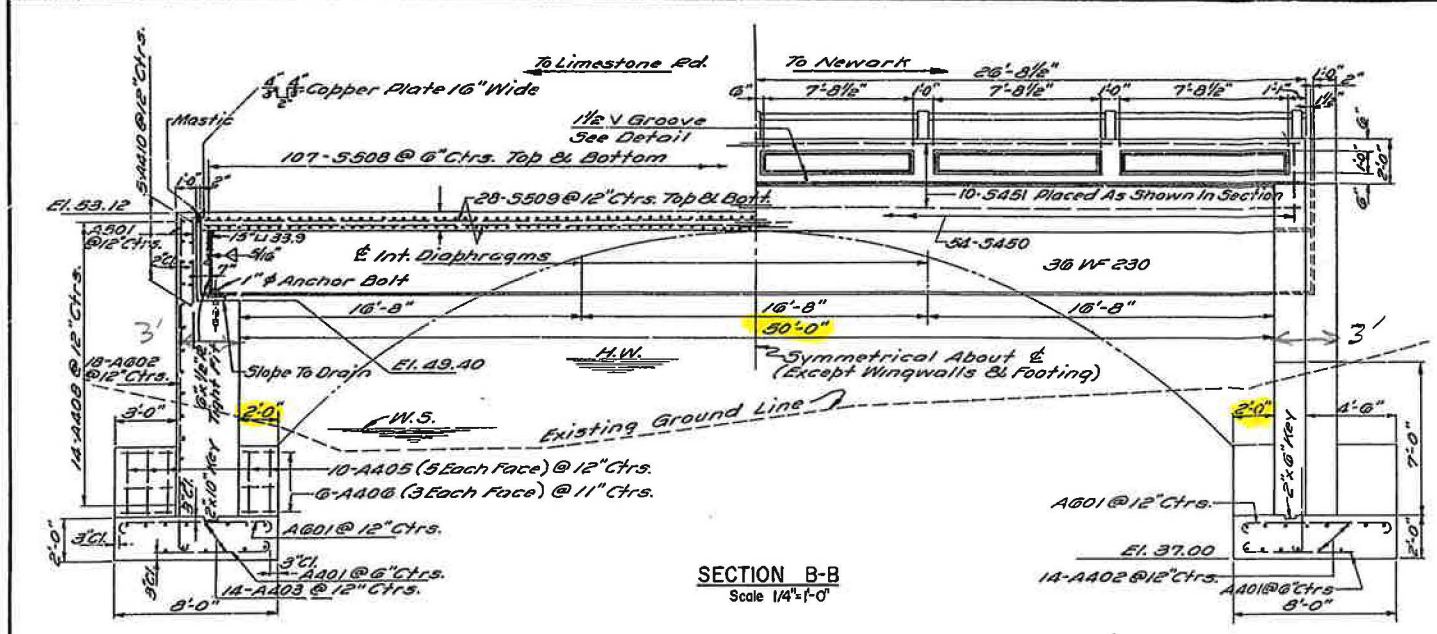
DELAWARE  
STATE HIGHWAY DEPARTMENT  
ADDITION 46'-0" SPAN  
STA. 65+74±  
MIDDLE RUN

DRAWN PW  
TRACED DW  
CHECKED CSQ

SCALE  
AS SHOWN

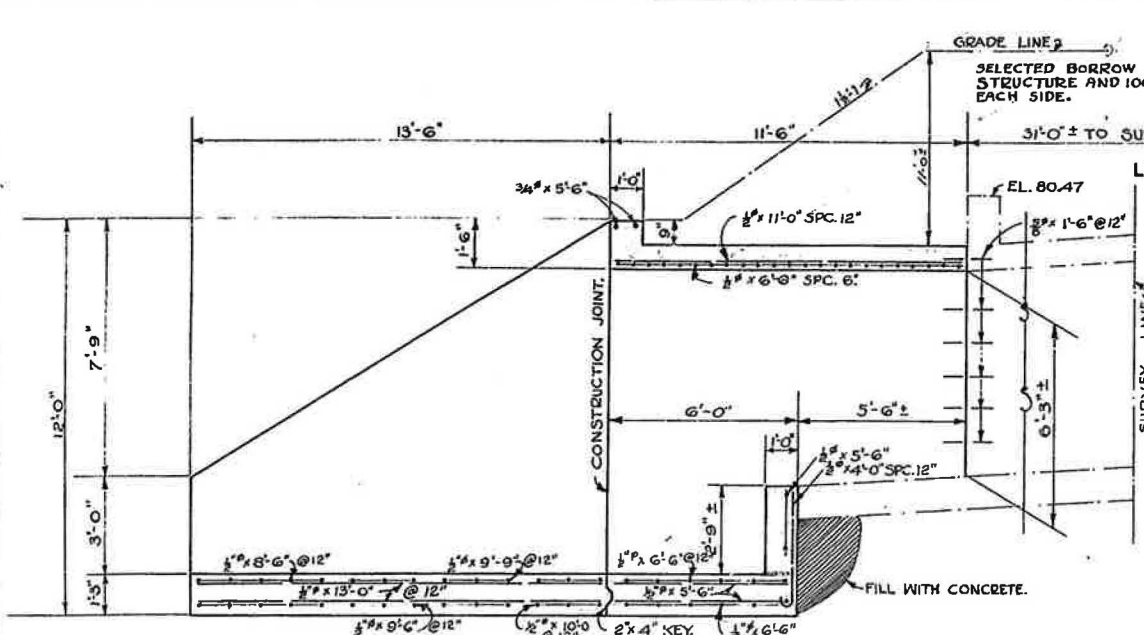
APPROVED BY  
Joe S. Palmer  
BRIDGE ENGINEER

| REVISIONS                |
|--------------------------|
| Rev. Bar Schedule 3-4-57 |

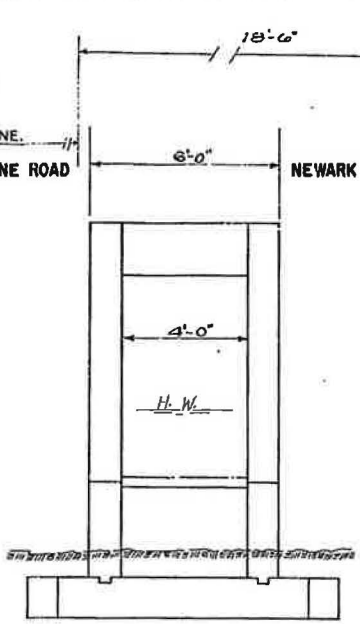


| COUNTY | CONTRACT | P.O.D. NO. | STATE | FED. AID PROJECT NO. | FISCAL YEAR | EXERCISE NO. | TOTAL SHEETS |
|--------|----------|------------|-------|----------------------|-------------|--------------|--------------|
| N.C.   | 907      | 2          | DEL.  | F 166 (5)            | 48          | 11           | 20           |

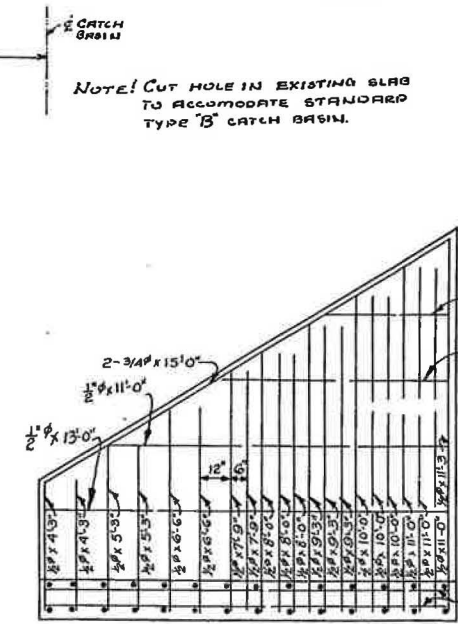
ADDITION 4'-0" SPAN - BRIDGE NO. STA. 17+32 ±  
ROUTE 2. NEWARK TO LIMESTONE ROAD  
SECTION 1



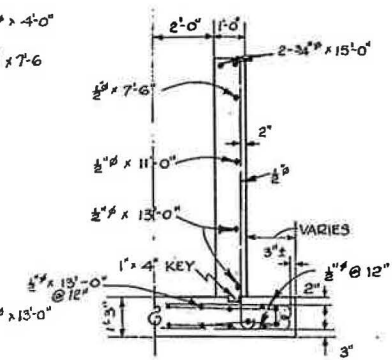
LONGITUDINAL SECTION



ELEVATION



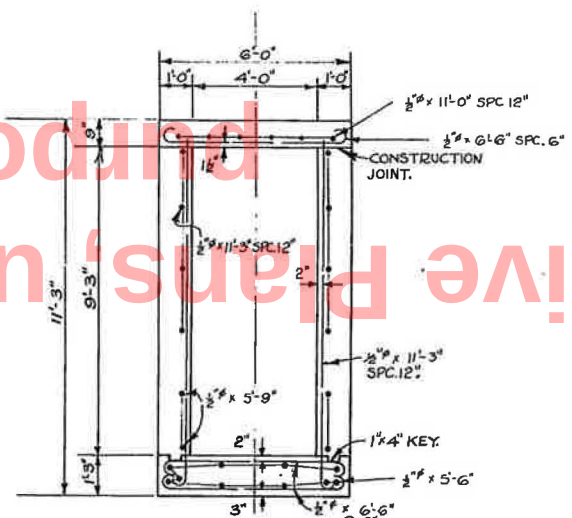
WING ELEVATION



WING SECTION

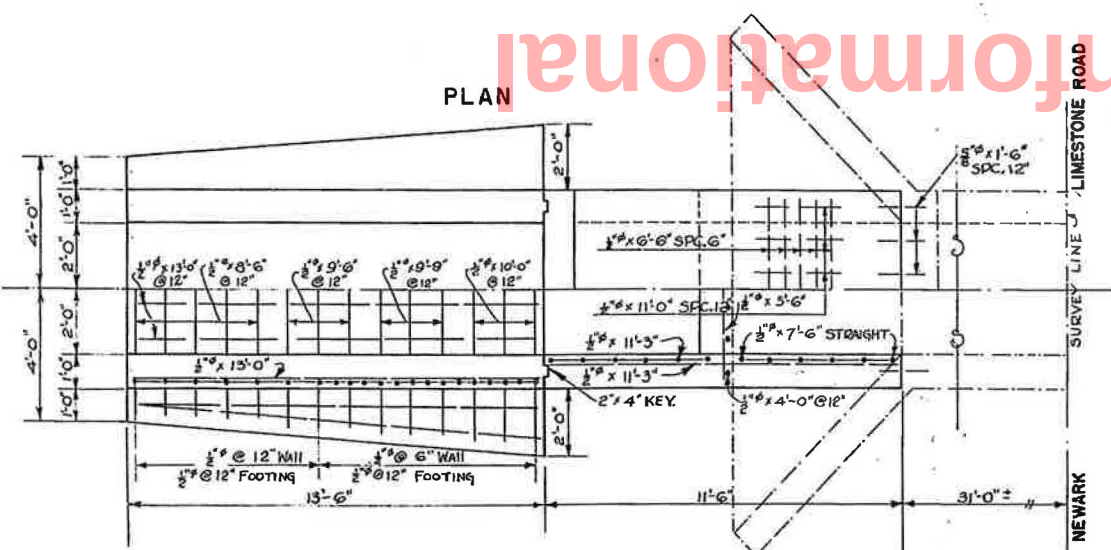
THE EXISTING STRUCTURE WAS BUILT ABOUT 1920 BY THE NEW CASTLE COUNTY LEVY COURT; NO PLANS ARE AVAILABLE. THE SPECIFICATIONS ARE DATED APRIL 1941. REMOVE PORTIONS OF EXISTING STRUCTURE AS DIRECTED TO CONSTRUCT ADDITION. ROUGHEN ALL CONTACT SURFACES TO A DEPTH OF ONE (1) INCH FOR BOND. THE EXTENSION IS DESIGNED FOR A H-20 TRUCK ACCORDING TO THE A.A.S.H.O. SPECIFICATIONS DATED 1944. BORINGS SHOWED EXPOSED ROCK AND BOULDERS. THE EQUIVALENT LOADING CAPACITY IS H-20 WITH NO OVERSTRESS.

WATERSHED C. 50 2 3/4 MI. 20 3/4 FT.

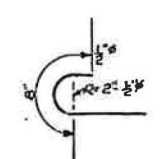


TYPICAL SECTION

| NO.                                         | SIZE | LENGTH | LOCATION        | WT.  |
|---------------------------------------------|------|--------|-----------------|------|
| 4                                           | 3/4" | 15'-0" | WING            |      |
| 2                                           | "    | 5'-6"  | CURB            |      |
| TOTAL 34'                                   |      |        |                 | 107" |
| 16                                          | 3/4" | 1'-6"  | DOWELS          |      |
| TOTAL 34'                                   |      |        |                 | 25"  |
| 24                                          | 1/2" | 13'-0" | WINGS & FOOTING |      |
| 22                                          | "    | 11'-3" | ABUT. & WINGS   |      |
| 14                                          | "    | 11'-0" | SLAB & WINGS    |      |
| 9                                           | "    | 10'-0" | WINGS           |      |
| 3                                           | "    | 9'-9"  | FLOOR           |      |
| 3                                           | "    | 9'-6"  | "               |      |
| 6                                           | "    | 8'-3"  | "               |      |
| 5                                           | "    | 8'-6"  | "               |      |
| 6                                           | "    | 8'-0"  | WINGS           |      |
| 4                                           | "    | 7'-9"  | "               |      |
| 14                                          | "    | 7'-6"  | ABUT.           |      |
| 39                                          | "    | 6'-6"  | SLAB & WINGS    |      |
| 4                                           | "    | 5'-9"  | ABUT.           |      |
| 12                                          | "    | 5'-6"  | FLOOR           |      |
| 4                                           | "    | 5'-3"  | WINGS           |      |
| 4                                           | "    | 4'-3"  | "               |      |
| 8                                           | "    | 4'-0"  | FLOOR           |      |
| TOTAL 1041'                                 |      |        |                 |      |
| TOTAL 1173'                                 |      |        |                 |      |
| 101 C.Y. CEM. CONC. MASONRY ABOVE FOOTINGS. |      |        |                 |      |
| 73 C.Y. " " " IN FOOTINGS.                  |      |        |                 |      |
| 234 C.Y. CEM. CONC. MASONRY TOTAL           |      |        |                 |      |
| 10 ± C.Y. EXCAVATION FOR STRUCTURES.        |      |        |                 |      |
| 10 ± C.Y. ROCK EXCAVATION.                  |      |        |                 |      |



SECTION

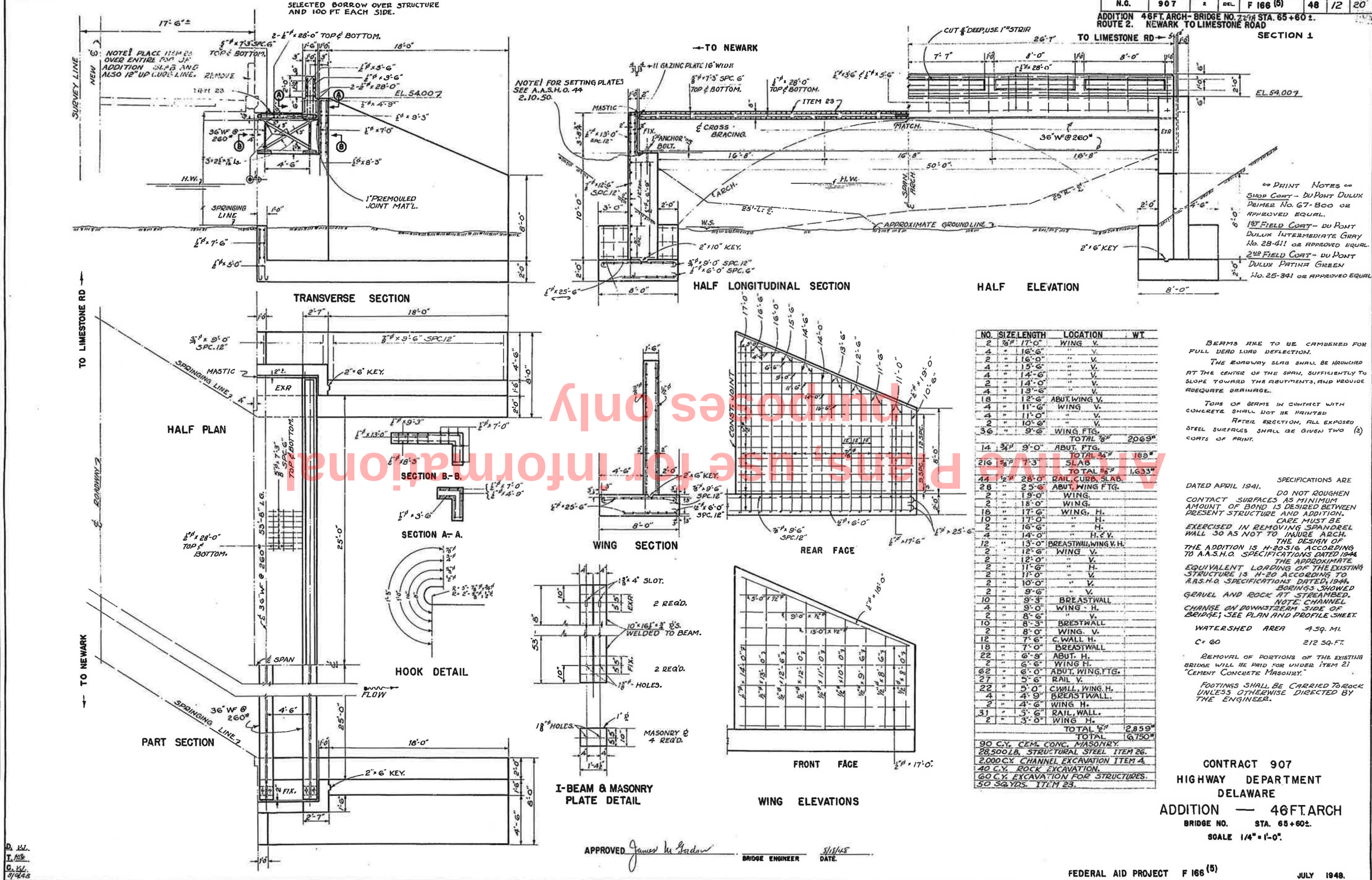


HOOK DETAILS

APPROVED *James H. Gordon* 8/18/48  
BRIDGE ENGINEER

CONTRACT 907  
HIGHWAY DEPARTMENT  
DELAWARE  
ADDITION — 4'-0" SPAN  
BRIDGE NO. — STA. 17+32 ±  
SCALE 3/8" = 1'-0"

NOTE BOOK.



| NO. | SIZE   | LENGTH | LOCATION               | WT.   |
|-----|--------|--------|------------------------|-------|
| 2   | 17'-0" |        | WING V.                |       |
| 4   | 16'-0" |        | " V.                   |       |
| 2   | 16'-0" |        | " V.                   |       |
| 4   | 15'-0" |        | " V.                   |       |
| 4   | 14'-0" |        | " V.                   |       |
| 2   | 14'-0" |        | " V.                   |       |
| 4   | 13'-0" |        | " V.                   |       |
| 18  | 12'-0" |        | ABUT. WING V.          |       |
| 4   | 11'-0" |        | WING V.                |       |
| 4   | 11'-0" |        | " V.                   |       |
| 2   | 10'-0" |        | " V.                   |       |
| 36  | 9'-0"  |        | WING FTG.              | 2069  |
| 14  | 9'-0"  |        | ABUT. FTG.             |       |
| 216 | 7'-3"  |        | SLAB                   | 169   |
| 28  | 25'-0" |        | ABUT. WING FTG.        | 1,633 |
| 44  | 28'-0" |        | RAIL, CURB, SLAB       |       |
| 2   | 19'-0" |        | WING.                  |       |
| 2   | 18'-0" |        | WING.                  |       |
| 18  | 17'-0" |        | WING, H.               |       |
| 10  | 17'-0" |        | " H.                   |       |
| 2   | 16'-0" |        | " H.                   |       |
| 4   | 14'-0" |        | " H. & V.              |       |
| 12  | 13'-0" |        | BREASTWALL, WING V. H. |       |
| 2   | 12'-0" |        | WING V.                |       |
| 2   | 12'-0" |        | " V.                   |       |
| 2   | 11'-0" |        | " H.                   |       |
| 2   | 11'-0" |        | " V.                   |       |
| 2   | 10'-0" |        | " V.                   |       |
| 2   | 9'-0"  |        | " V.                   |       |
| 10  | 9'-0"  |        | BREASTWALL             |       |
| 4   | 9'-0"  |        | WING - H.              |       |
| 2   | 8'-0"  |        | " V.                   |       |
| 10  | 8'-0"  |        | BREASTWALL             |       |
| 2   | 8'-0"  |        | WING, V.               |       |
| 18  | 7'-0"  |        | C. WALL H.             |       |
| 22  | 6'-0"  |        | BREASTWALL             |       |
| 2   | 6'-0"  |        | ABUT. H.               |       |
| 2   | 6'-0"  |        | WING H.                |       |
| 62  | 6'-0"  |        | ABUT. WING FTG.        |       |
| 27  | 5'-0"  |        | RAIL V.                |       |
| 22  | 5'-0"  |        | C. WALL, WING H.       |       |
| 4   | 4'-0"  |        | BREASTWALL             |       |
| 2   | 4'-0"  |        | WING H.                |       |
| 31  | 3'-0"  |        | RAIL, WALL             |       |
| 2   | 3'-0"  |        | WING H.                |       |
|     |        |        | TOTAL                  | 2,859 |
|     |        |        | TOTAL                  | 6,750 |

90 C.Y. CEM. CONC. MASONRY.  
28,500 L.B. STRUCTURAL STEEL ITEM 26.  
2,000 C.Y. CHANNEL EXCAVATION ITEM 4.  
40 C.Y. ROCK EXCAVATION.  
60 C.Y. EXCAVATION FOR STRUCTURES.  
50 S.W. YDS. ITEM 23.

BEAMS ARE TO BE CAMBERED FOR FULL DEAD LOAD DEFLECTION.

THE ROADWAY SLAB SHALL BE HAUNCHED AT THE CENTER OF THE SPAN, SUFFICIENTLY TO SLOPE TOWARD THE ABUTMENTS, AND PROVIDE ADEQUATE DRAINAGE.

TOPS OF BEAMS IN CONTACT WITH CONCRETE SHALL NOT BE PAINTED.

AFTER ERECTION, ALL EXPOSED STEEL SURFACES SHALL BE GIVEN TWO (2) COATS OF PAINT.

SPECIFICATIONS ARE DATED APRIL 1941.

DO NOT ROUGHEN CONTACT SURFACES AS MINIMUM AMOUNT OF BOND IS DESIRED BETWEEN PRESENT STRUCTURE AND ADDITION.

CARE MUST BE EXERCISED IN REMOVING SPANDREL WALL SO AS NOT TO INJURE ARCH.

THE DESIGN OF THE ADDITION IS H-20S16 ACCORDING TO A.A.S.H.O. SPECIFICATIONS DATED 1944.

THE APPROXIMATE EQUIVALENT LOADING OF THE EXISTING STRUCTURE IS H-20 ACCORDING TO A.A.S.H.O. SPECIFICATIONS DATED 1944.

BORINGS SHOWED GRAVEL AND ROCK AT STREAMBED.

NOTE: CHANNEL CHANGE ON DOWNSTREAM SIDE OF BRIDGE; SEE PLAN AND PROFILE SHEET.

WATERSHED AREA 4.50 MI.  
C = 60 212 SQ. FT.

REMOVAL OF PORTIONS OF THE EXISTING BRIDGE WILL BE PAID FOR UNDER ITEM 21 "CEMENT CONCRETE MASONRY."

FOOTINGS SHALL BE CARRIED TO ROCK UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

CONTRACT 907  
HIGHWAY DEPARTMENT  
DELAWARE  
ADDITION — 46FT. ARCH  
BRIDGE NO. STA. 65+60.1.  
SCALE 1/4" = 1'-0".

APPROVED *James W. Gordon*  
BRIDGE ENGINEER DATE *5/15/45*