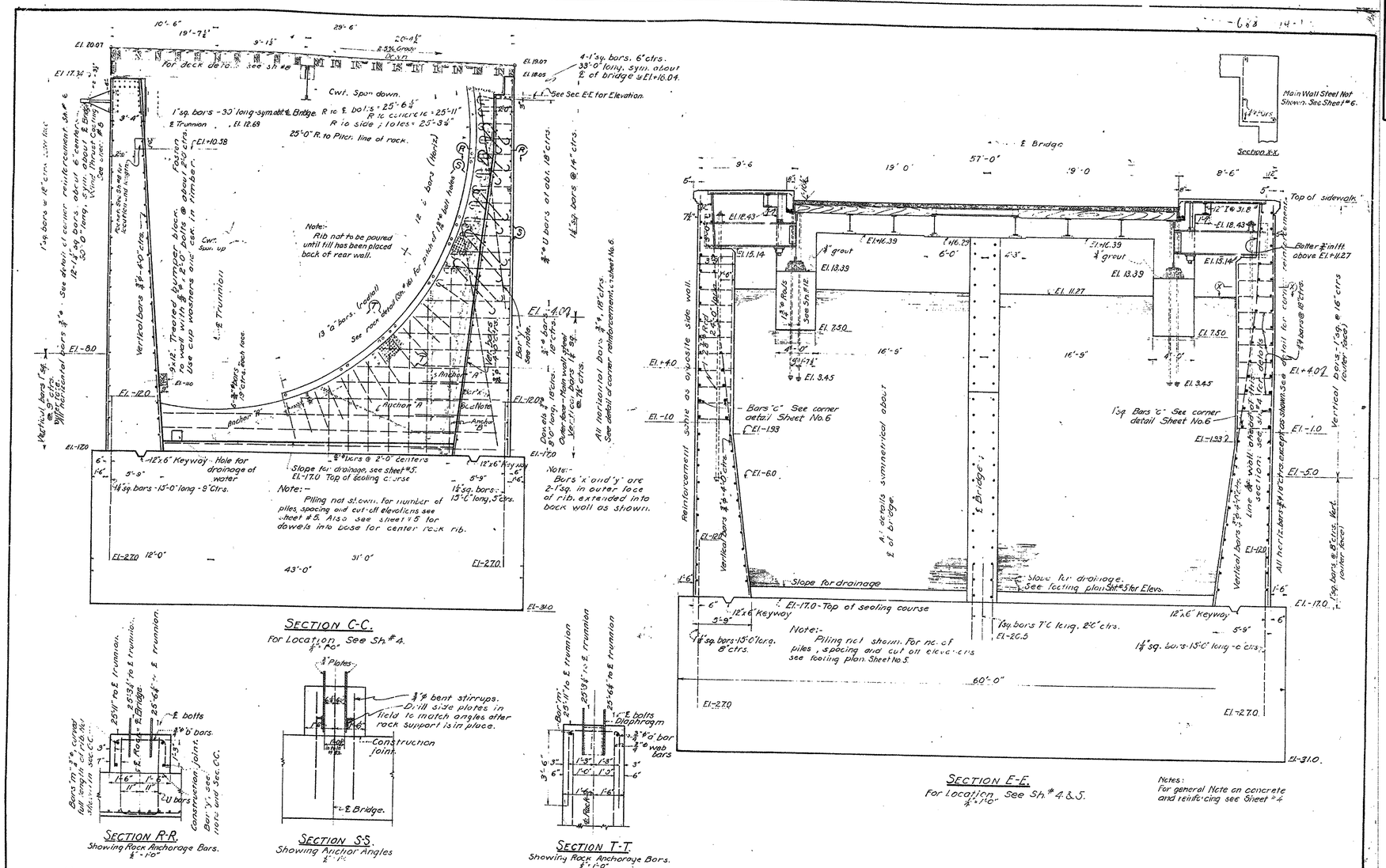

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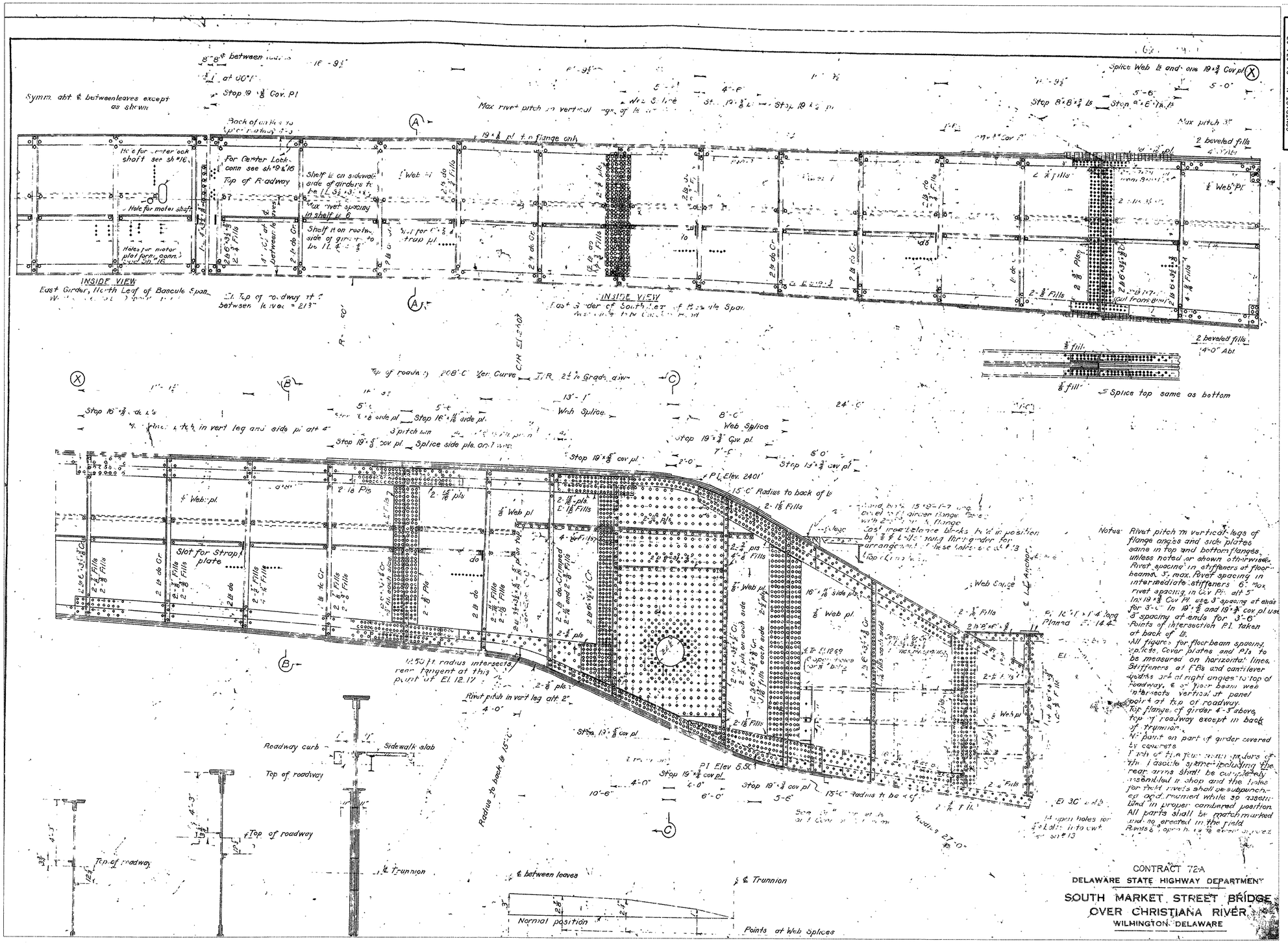
Dimensions: 8800 x 6784 pixels

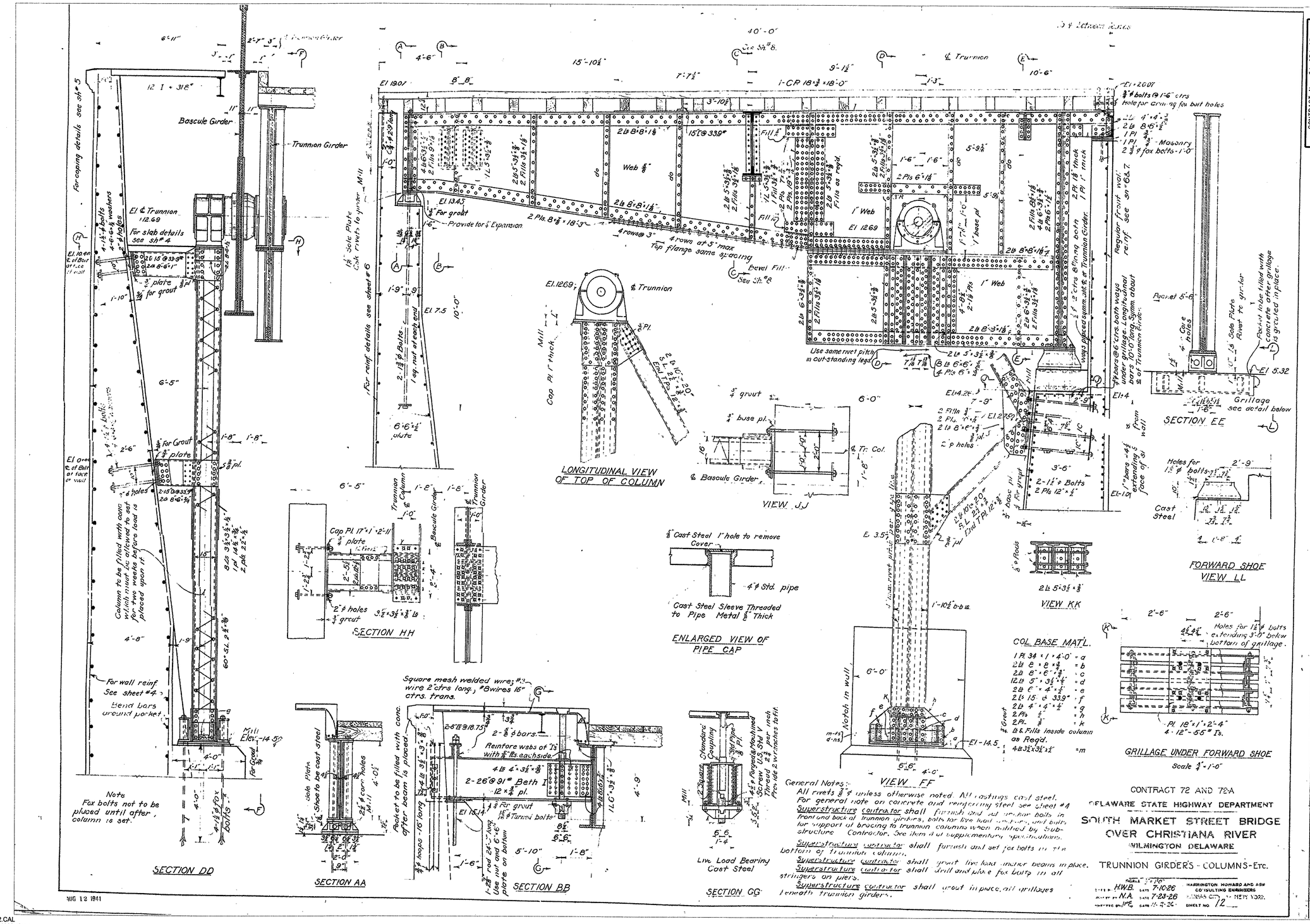


Notes: Rivet pitch in vertical legs of flange angles and side plates same in top and bottom flanges unless noted or shown otherwise. Rivet spacing in stiffeners at floor beams 3" max. Rivet spacing in intermediate stiffeners 6" max. rivet spacing in Cov Pl. alt 5" In 19 × 3/8 Cov Pl. use 3" spacing at ends for 3'-0" In 19 × 5/8 and 19 × 3/4 cov pl. use 3" spacing at ends for 3'-6". Points of intersection P.I. taken at back of Ls. All figures for floor beam spacing, splices, cover plates and PIs to be measured on horizontal lines. Stiffeners at FBs and cantilever beams are at right angles to top of roadway, & of floor beam web intersects vertical at panel point at top of roadway. Top flange of girder 4'-3" above top of roadway except in back of trunnion. No point on part of girder covered by concrete. Each of the four main girders of the bascule span including the rear arms shall be completely assembled in shop and the holes for field rivets shall be subpunched and reamed while so assembled in proper cambered position. All parts shall be match marked and so erected in the field. Rivets & open holes are except as noted.

CONTRACT 72-A
DELAWARE STATE HIGHWAY DEPARTMENT
SOUTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON, DELAWARE

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS CONSULTING ENGINEERS SINCE 1893
DRAWING No. 101 of 169

Name: Cd_021.CAL
Dimensions: 8096 x 5920 pixels



CONTRACT No. 21-074-07

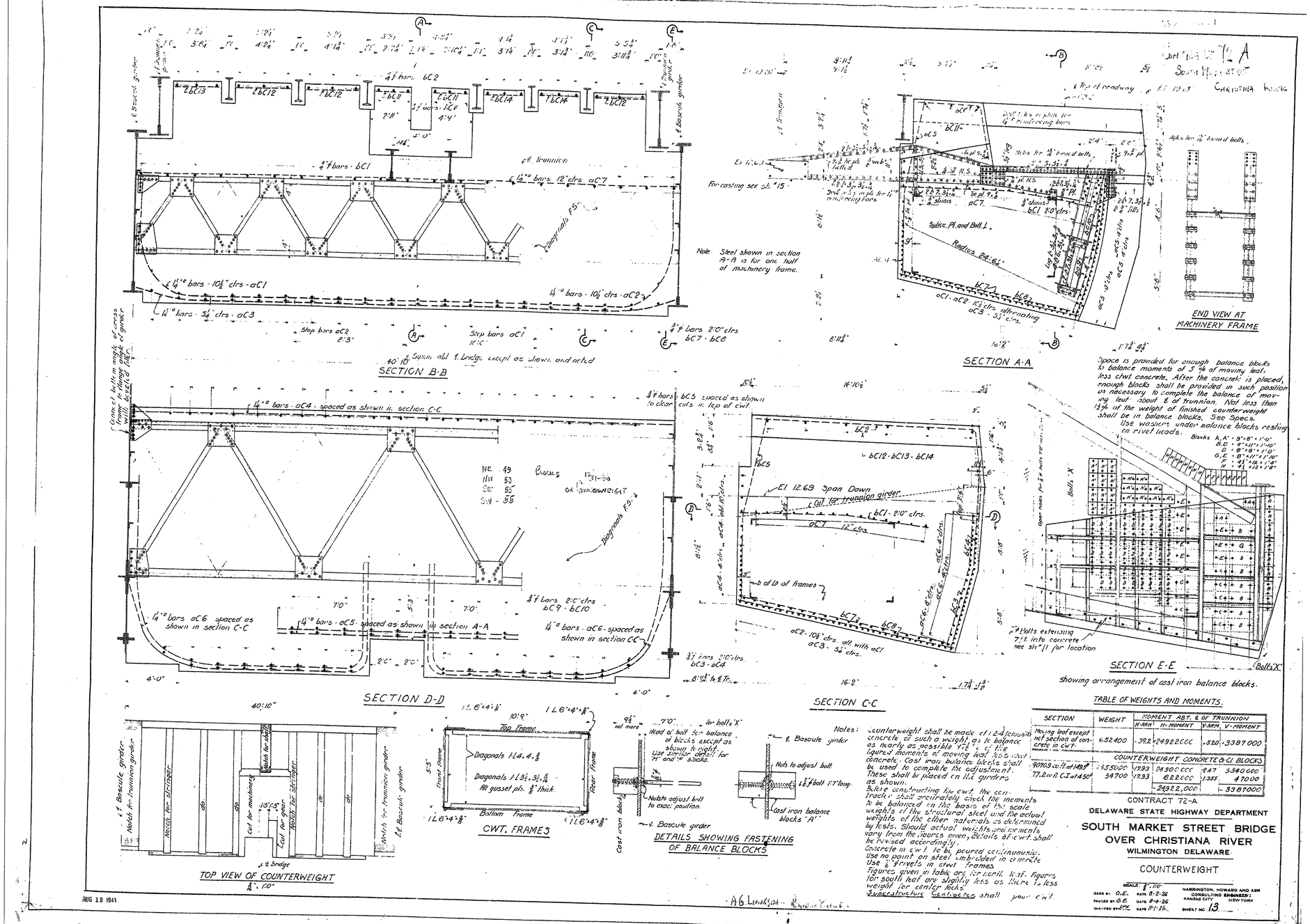
REPRODUCED
ORIGINAL CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

MOULTRIE + MASTERS
CONSULTING ENGINEERS

DRAWING No. 102 of 169

Name: Cd_022.CAL
Dimensions: 7200 x 4800 pixels

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
DRAWING No. 103 of 182



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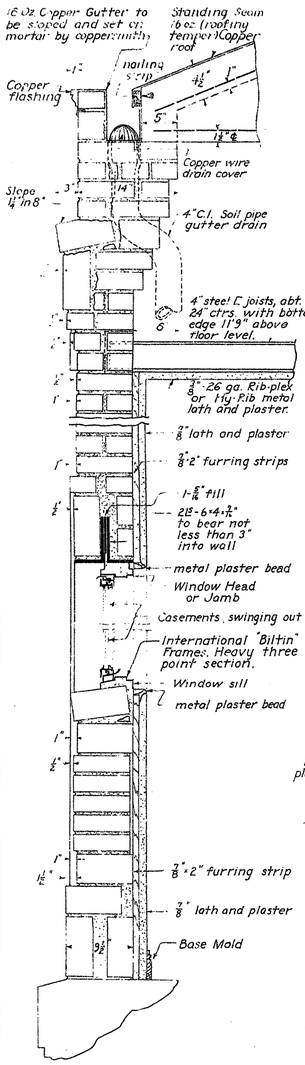
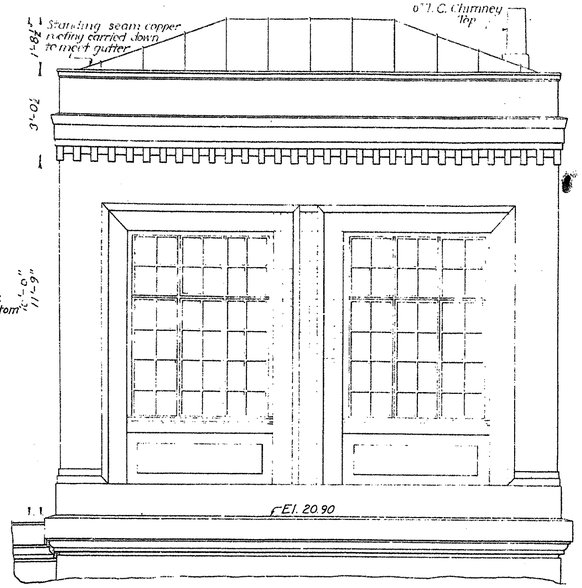
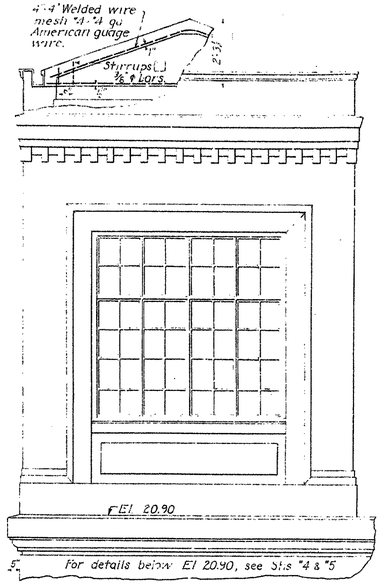


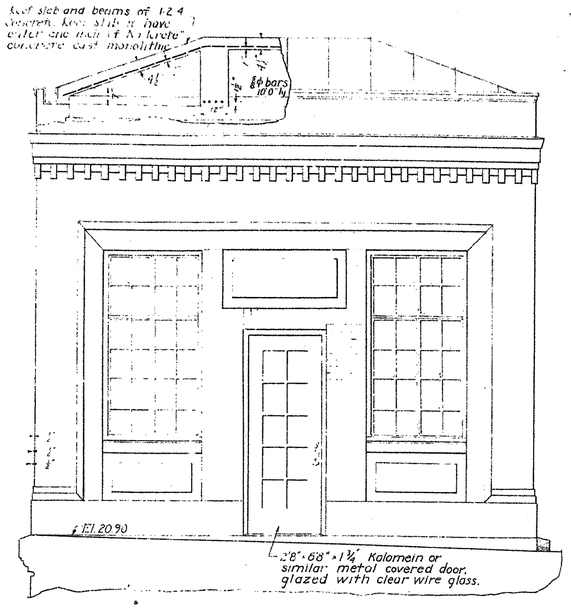
WALL SECTION
Scale: 1½"=1'-0"



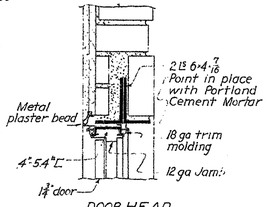
REAR ELEVATION
Scale ½"=1'0"



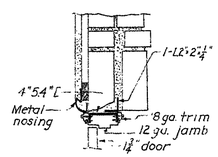
END ELEVATION
RIVER SIDE
Scale ½"=1'0"



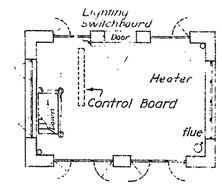
FRONT ELEVATION
Scale ½"=1'0"



DOOR HEAD
Scale: 1½"=1'0"

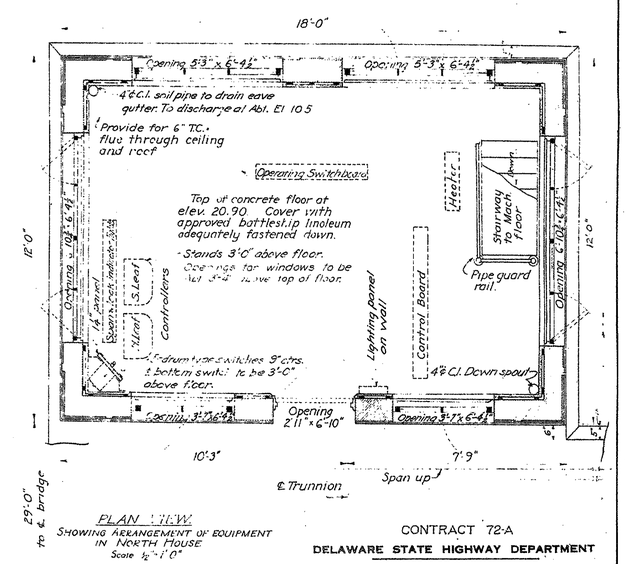


DOOR JAMB
Scale: 1½"=1'-0"



PLAN OF SOUTH HOUSE
SHOWING ARRANGEMENT OF EQUIPMENT
Scale ½"=1'-0"

NOTE-
For additional data on operator's Houses, see specifications



PLAN VIEW
SHOWING ARRANGEMENT OF EQUIPMENT IN NORTH HOUSE
Scale ½"=1'-0"

CONTRACT 72-A
DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE OVER CHRISTIANA RIVER

WILMINGTON DELAWARE

OPERATOR'S HOUSE

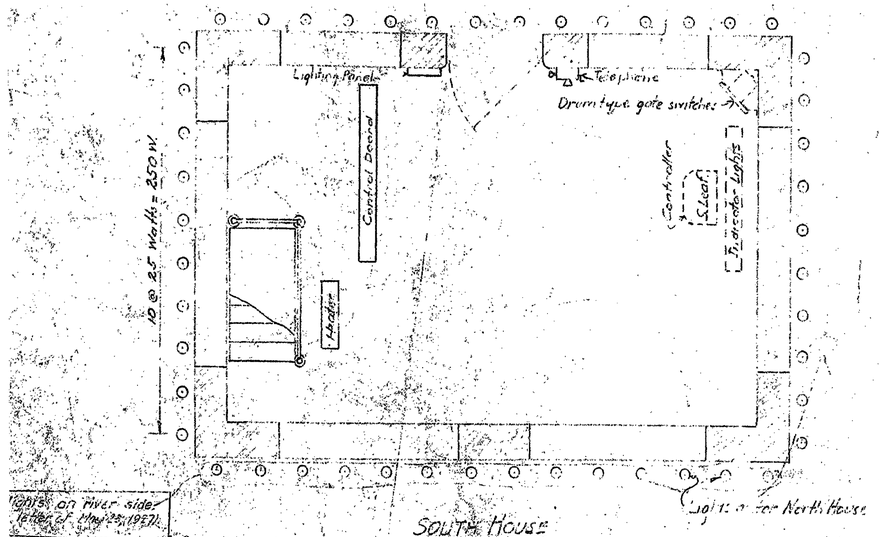
SCALE AS NOTED
MADE BY FNH DATE 7-2-26
TRACED BY C.J.P. DATE 7-13-26
CHECKED BY DATE
SHEET No. 14

HARRINGTON, HOWARD AND ASH
CONSULTING ENGINEERS
KANSAS CITY, - NEW YORK

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 104 of 182
MODJESKI and MASTERS
CONSULTING ENGINEERS

AUG 12 1941

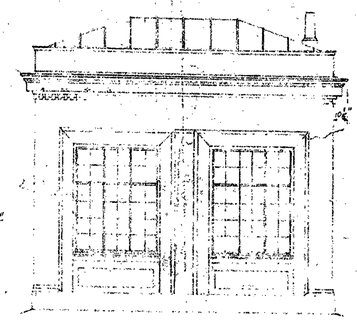
Name: Cd_024.CAL
Dimensions: 8800 x 6784 pixels



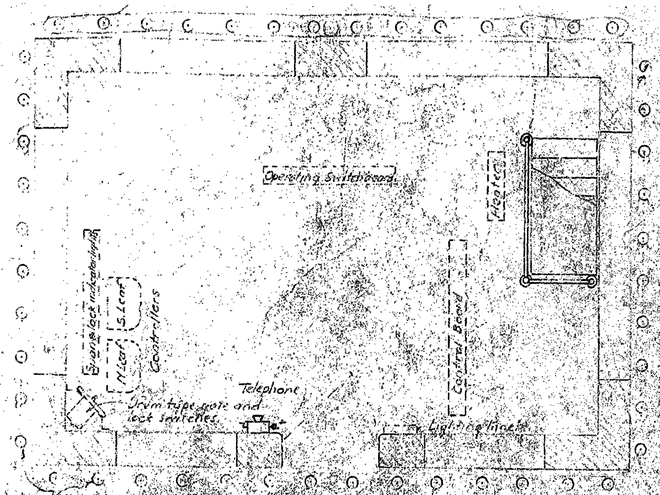
SOUTH HOUSE

Showing additional apparatus required for operating South leaf from South house. Additional apparatus shown dotted

NOTE:
House lights to be wired with a separate circuit for each wall of house, the four circuits for each house being controlled by a common switch, provide fuses for each circuit.
Wiring for house lights, and for additional South Leaf controller, gate switches, and indicator panel, shown on sheet #17.



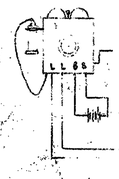
REAR ELEVATION

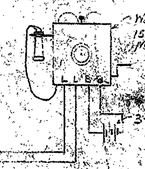


Lighting units are 25 Watt round bulbs set in Porcelain wood cleat receptacles similar to Graybar #9403.
The cleat receptacles shall be fastened with wood screws to a 3"x2" carrying strip supported by wood blocks set in the brick wall.
The 2"x2" strips shall be removable to give access to the wiring in the cornice above.

NORTH HOUSE

Showing additional telephone and lighting fixtures



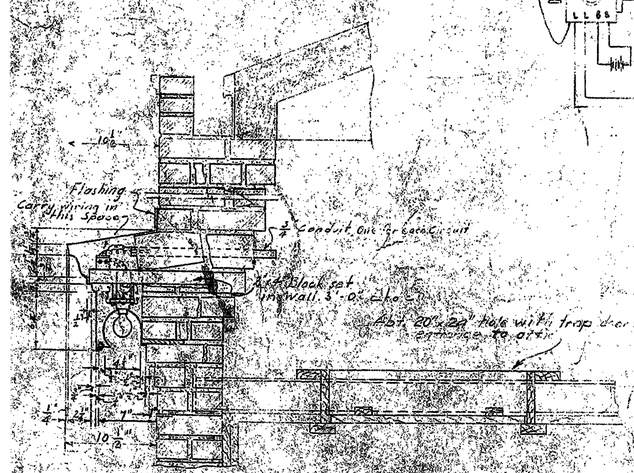


2 lines in submarine cable - See sheet 17.

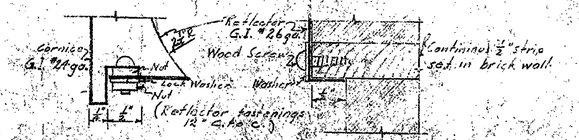
INTERCOMMUNICATING SYSTEM BETWEEN OPERATOR'S HOUSES.

Telephone system to be installed. (See letter of May 23, 1927.)

R1



DETAIL SHOWING LOCATION OF LIGHTING FIXTURES ALSO TRAP DOOR INTO ATTIC



FULL SIZE REFLECTOR CONNECTION TO CORNICE AND BRICK WALL

Note:
Cornice shall be shaped from #24 gauge galvanized iron, oxidized and painted overall with one coat of red lead. The outside shall be given an additional two coats of buff paint to match brick.

The reflector in cornice shall be shaped from #26 gauge galvanized iron and shall be in sections convenient for handling. It shall be oxidized and painted over all with one coat of red lead. The reflecting surface shall be given an additional coat of pure white lead and oil, one coat of white undercoat and two coats of white granite enamel similar to "Porcelite" manufactured by The Thompson Wood Finishing Company, Philadelphia, Pa. The inner coats shall be sanded lightly with #00 sandpaper and dusted before the application of the enamel coat. The finish coat, when set, shall be rubbed with Kettenstone and water to polish.

CONTRACT 72-A
DELAWARE STATE HIGHWAY DEPARTMENT
SOUTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON, DELAWARE
ADDITIONAL ELECTRICAL EQUIPMENT

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS CONSULTING ENGINEERS SINCE 1893
DRAWING No. 105 of 169

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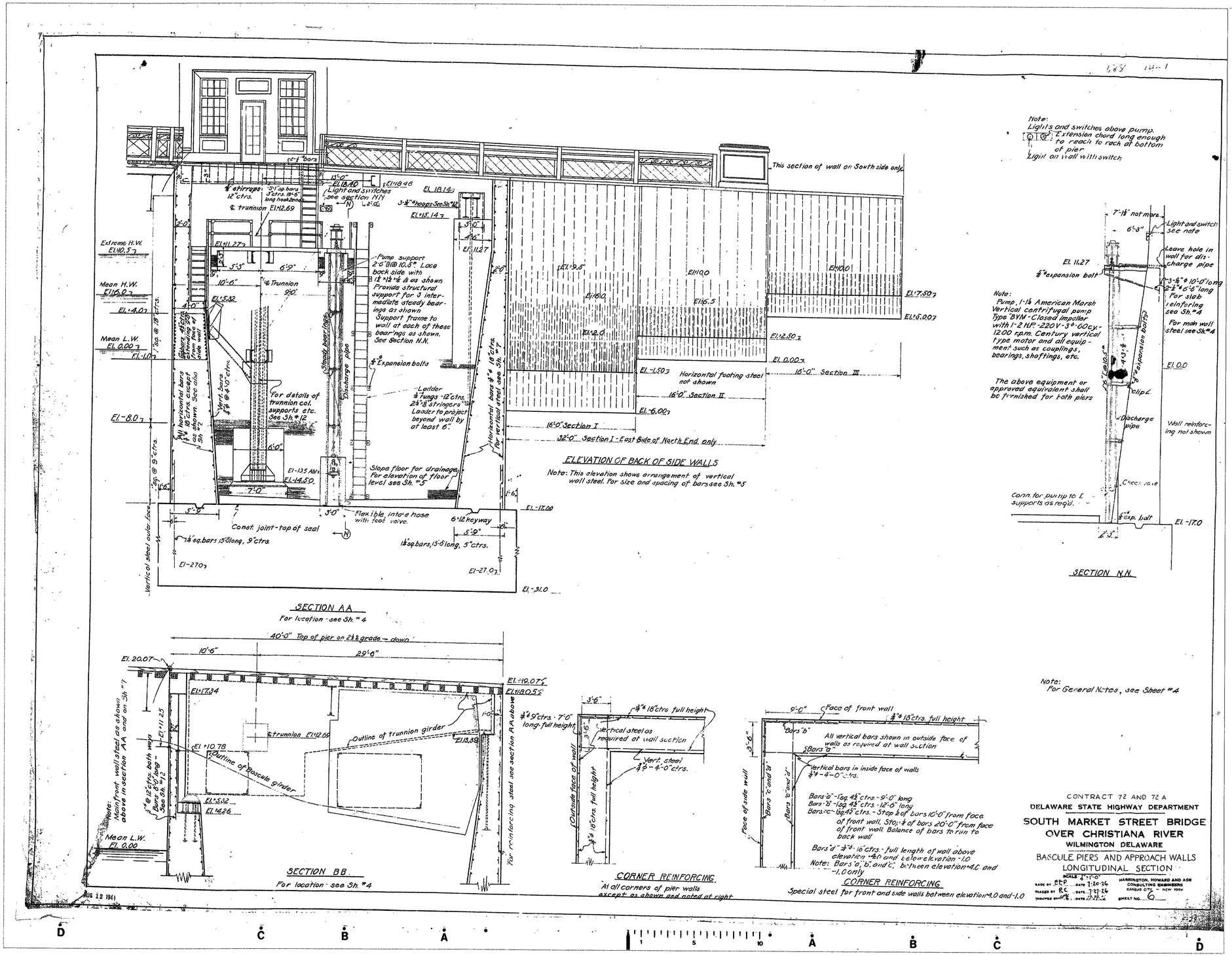
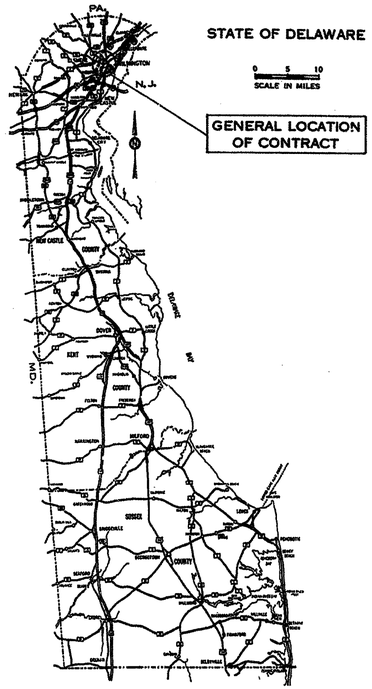
Dimensions: 6240 x 4608 pixels



CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
SINCE 1893
DRAWING No. 106 of 169

Name: Cd_031.CAL
Dimensions: 8800 x 6784 pixels



DESIGN DESIGNATION

FEDERAL CLASS _____
A.D.T. _____
D.H.V. _____
DESIGN SPEED _____ M.P.H.
MIN. STOPPING SIGHT DISTANCE _____ FT.
MAX. S.E. _____ FT./FT.
MAX. DEGREE CURVE _____
MAX. % GRADE _____

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

CONSTRUCTION PLAN FOR:

CONTRACT NUMBER 81-071-02

FEDERAL AID PROJECT NUMBER BRM-1177(2)

BEGIN PROJECT: STATION NO. _____ **END:** STATION NO. _____

LENGTH: 700 FEET = 0.13 MILES
LENGTH: _____ METERS = _____ KILOMETERS

AS BUILT
DATE: 12-5-85 — R.F.

CONTRACT	COUNTY	STATE	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	FISCAL YEAR	SHEET NUMBER	TOTAL SHEETS
81-071-02	NEW CASTLE	DEL.	2	BRM-1177(2)		1	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE - WILMINGTON, DEL.
REHABILITATION

SURVEY BOOKS

INDEX OF SHEETS

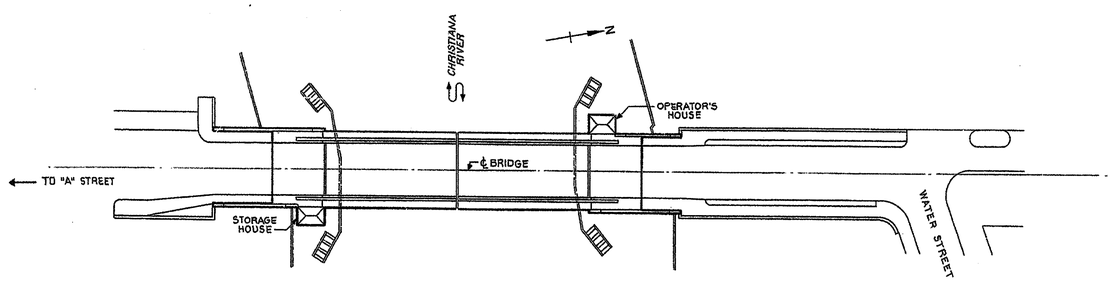
1	TITLE SHEET
–	TYPICAL SECTION SHEETS
2,3	QUANTITY SHEET
–	PLANS & PROFILE SHEETS
4 THRU 34	BRIDGE SHEETS
54	STANDARD SHEETS C-2
35 THRU 44	ELECTRICAL SHEETS
45 THRU 53	TRAFFIC SHEETS

UTILITIES

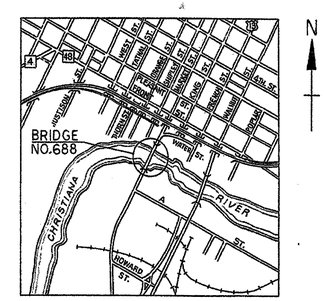
DIAMOND STATE TELEPHONE
WILMINGTON WATER
DELMARVA POWER AND LIGHT (ELECTRIC)
DELMARVA POWER AND LIGHT (GAS)
WILMINGTON SANITARY SEWER

—o— Existing D.P.&L. Co. Pole & Aerial Wire
—DST-UC— Existing D.P.&L. Co. Underground Cable
▭ Existing D.P.&L. Co. Transformer Vault

CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
DRAWING No. 107 of 169



GENERAL PLAN
50 0 50
SCALE IN FEET



LOCATION MAP
1000 0 1000
SCALE IN FEET

SUBMITTED BY:
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS

M.C. Shedd 8-18-80
PROJECT ENGINEER

MILTON C. SHEDD
REGISTERED
No. 4420
DELAWARE
PROFESSIONAL ENGINEER

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS
NEW YORK, N.Y.

RI

SCALES		DIVISION OF HIGHWAYS								DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
TITLE SHEET	1" = ____ FEET ____ METERS	RECOMMENDED	ROBERT C. McDOWELL REGISTERED NO. 3069 DELAWARE PROFESSIONAL ENGINEER	RECOMMENDED		RECOMMENDED		APPROVED		APPROVED _____ 19__
CONSTRUCTION	1" = ____ FEET ____ METERS	Robert C. McDowell BRIDGE ENGINEER	SEAL	Jack J. Schuh CHIEF OF DESIGN	SEAL	Gary B. Homewood DEPUTY DIRECTOR OF HIGHWAYS (ACTING)	SEAL	R D Bennitt DIRECTOR OF HIGHWAYS	SEAL	
VERTICAL PROFILE	1" = ____ FEET ____ METERS	RECOMMENDED 8-21 1980		RECOMMENDED 8/21 1980		RECOMMENDED 8/22 1980		APPROVED 8/22 1980		DIVISION ADMINISTRATOR

Name: Cd_001.CAL
Dimensions: 7200 x 4800 pixels

14-2

COUNTY	CONTRACT	F.A.P. OR S.A.R. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177 (2)	4	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE - WILMINGTON, DEL.

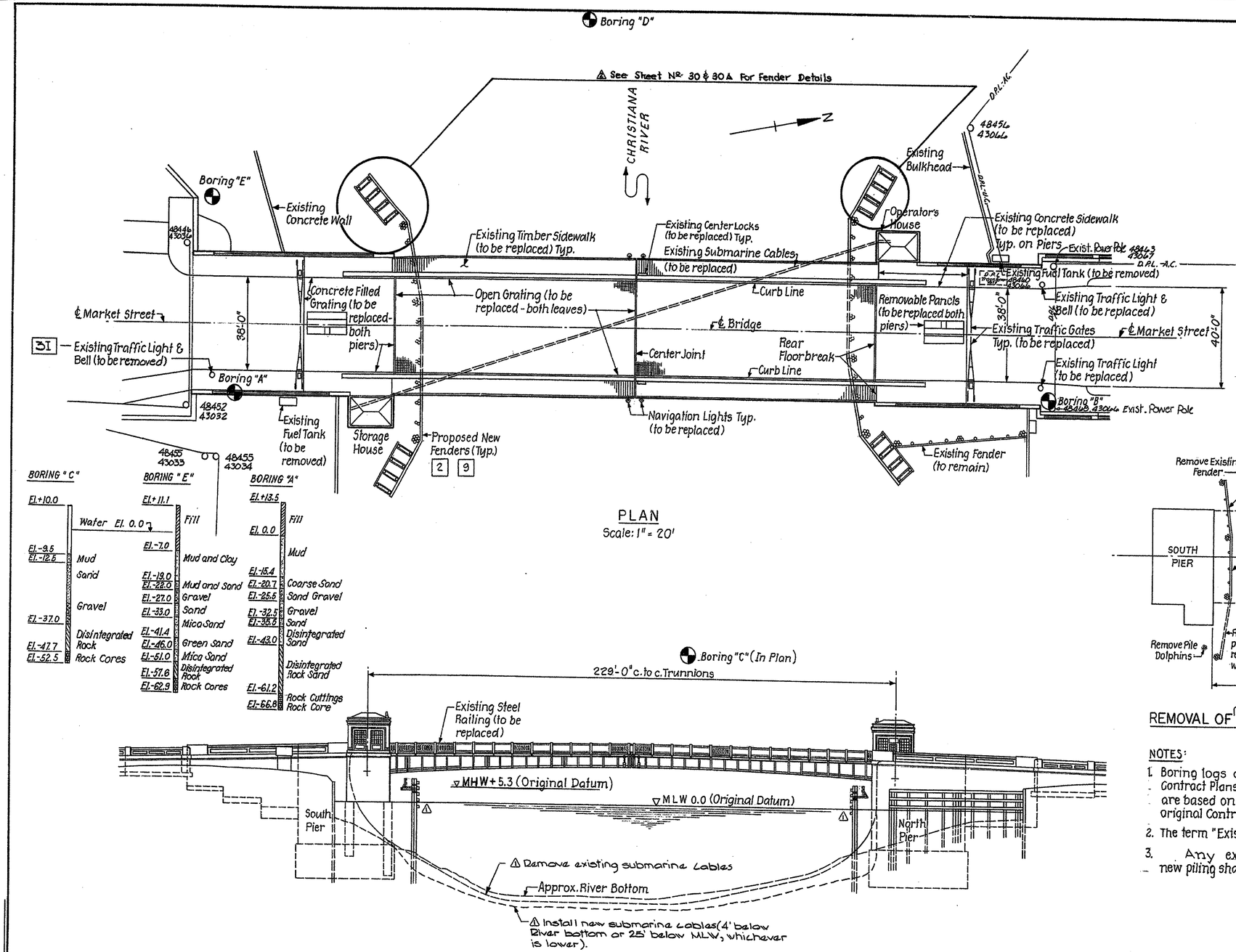
NO.	REVISIONS	BY	DATE
1	Submarine Cable	C.H.H.	3/11/81
2	Fender System Revision	C.H.H.	1/21/82

CONTRACT No. 21-074-07

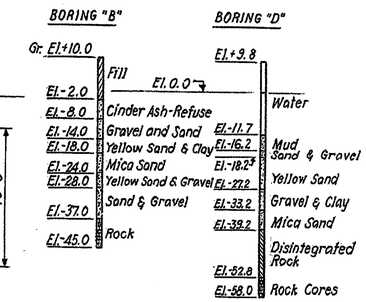
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

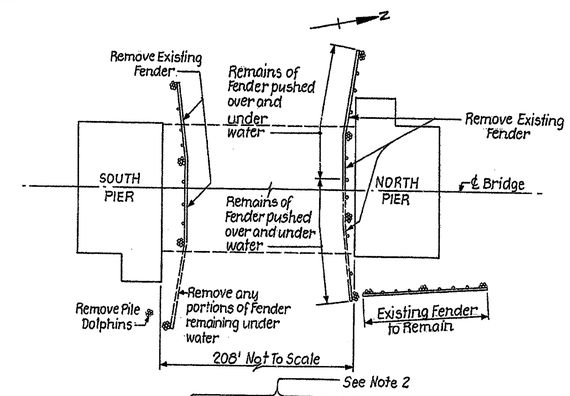
DRAWING No. 108 of 169

MOUSLEY-MASTERS CONSULTING ENGINEERS SINCE 1905



PLAN
Scale: 1" = 20'





REMOVAL OF EXISTING FENDER - REPAIR 1

ELEVATION
Scale: 1" = 20'

NOTES:

1. Boring logs are taken from the original Contract Plans dated July, 1926. Elevations are based on M.L.W. Datum shown on original Contract Plans.
2. The term "Existing Fender" includes all walers & piling.
3. Any existing piling which will interfere with new piling shall be completely removed.

R4

DRAWN BY:
CHECKED BY:
APPROVED BY:

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

GENERAL PLAN AND ELEVATION
EXISTING BRIDGE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. PATRICIA HALKIN T. C. M.C.S.	SCALE As shown	APPROVED BY: BRIDGE ENGINEER

D C B A 5 10 A B C D

Name: Cd_004.CAL
Dimensions: 7200 x 4800 pixels

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	5	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

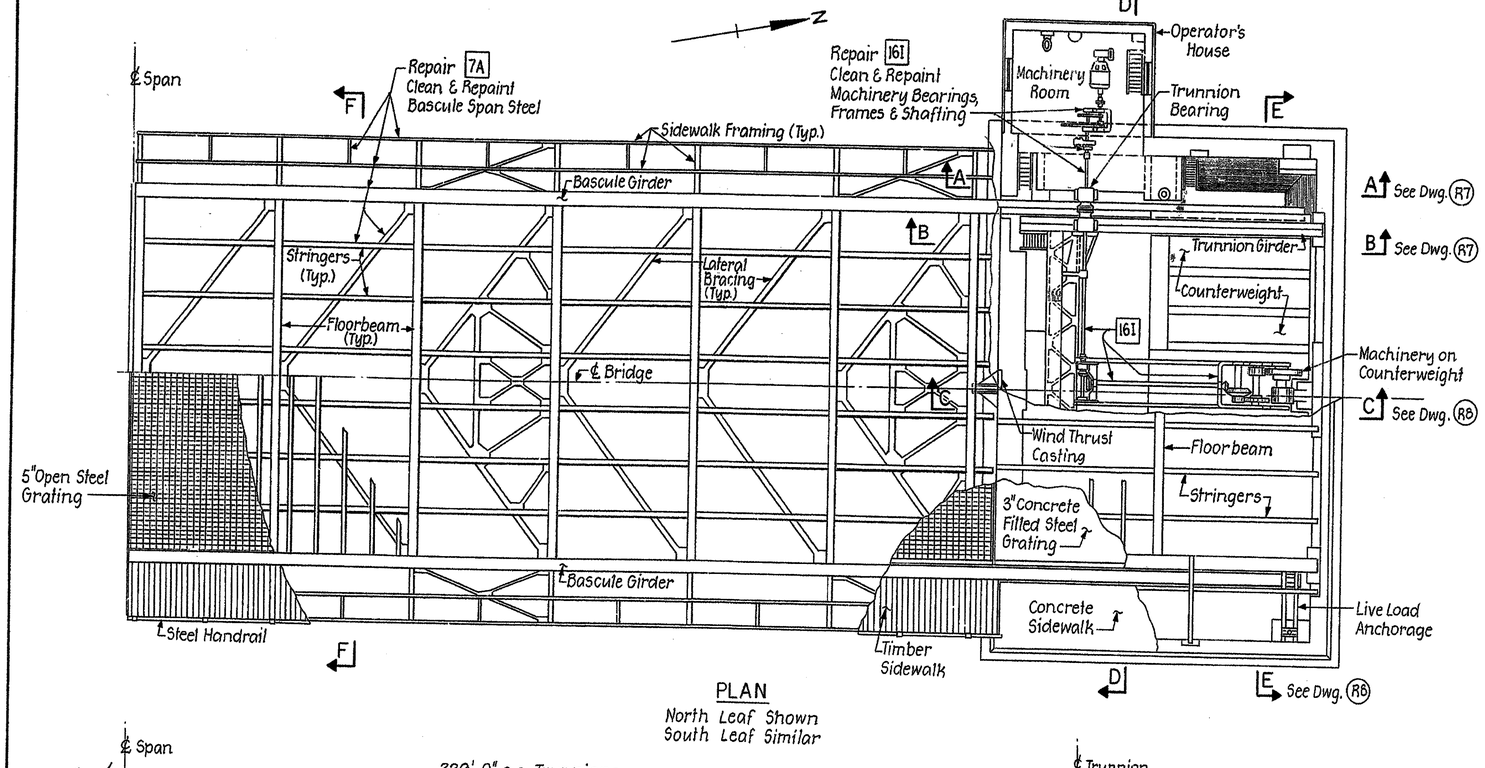
NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

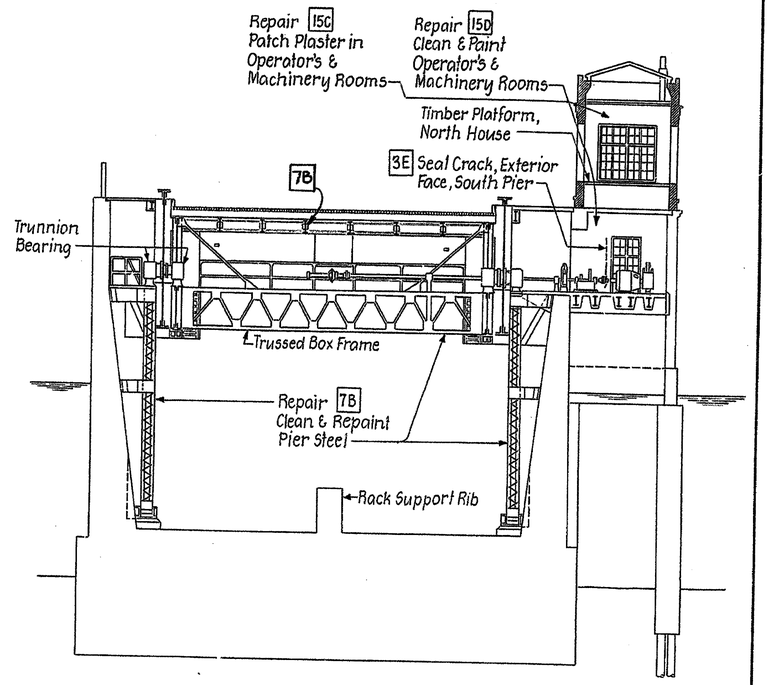
REPRODUCED REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 101 of 169

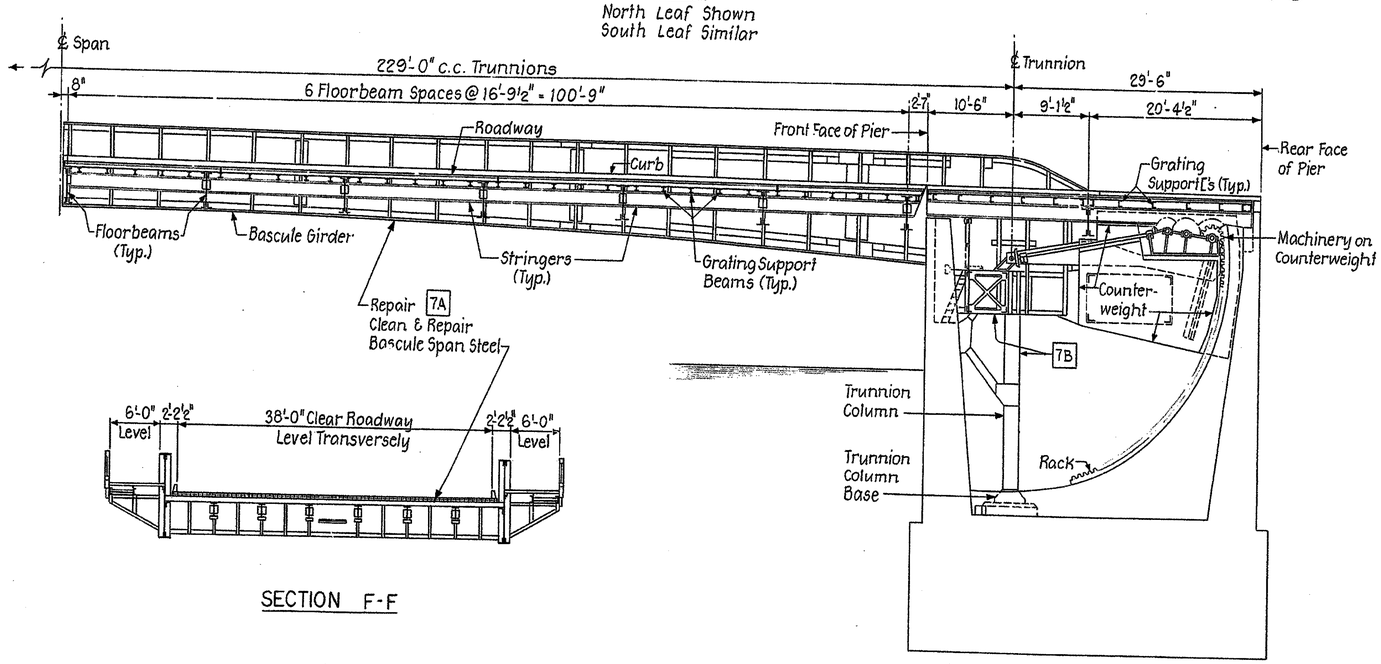
MODJESKI and MASTERS CONSULTING ENGINEERS HARRISBURG, PENNSYLVANIA



PLAN
North Leaf Shown
South Leaf Similar



SECTION D-D



SECTION F-F

LONGITUDINAL SECTION NEAR ℄ BRIDGE

R5

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

GENERAL ARRANGEMENT OF BASCULE SPAN AND PIERS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

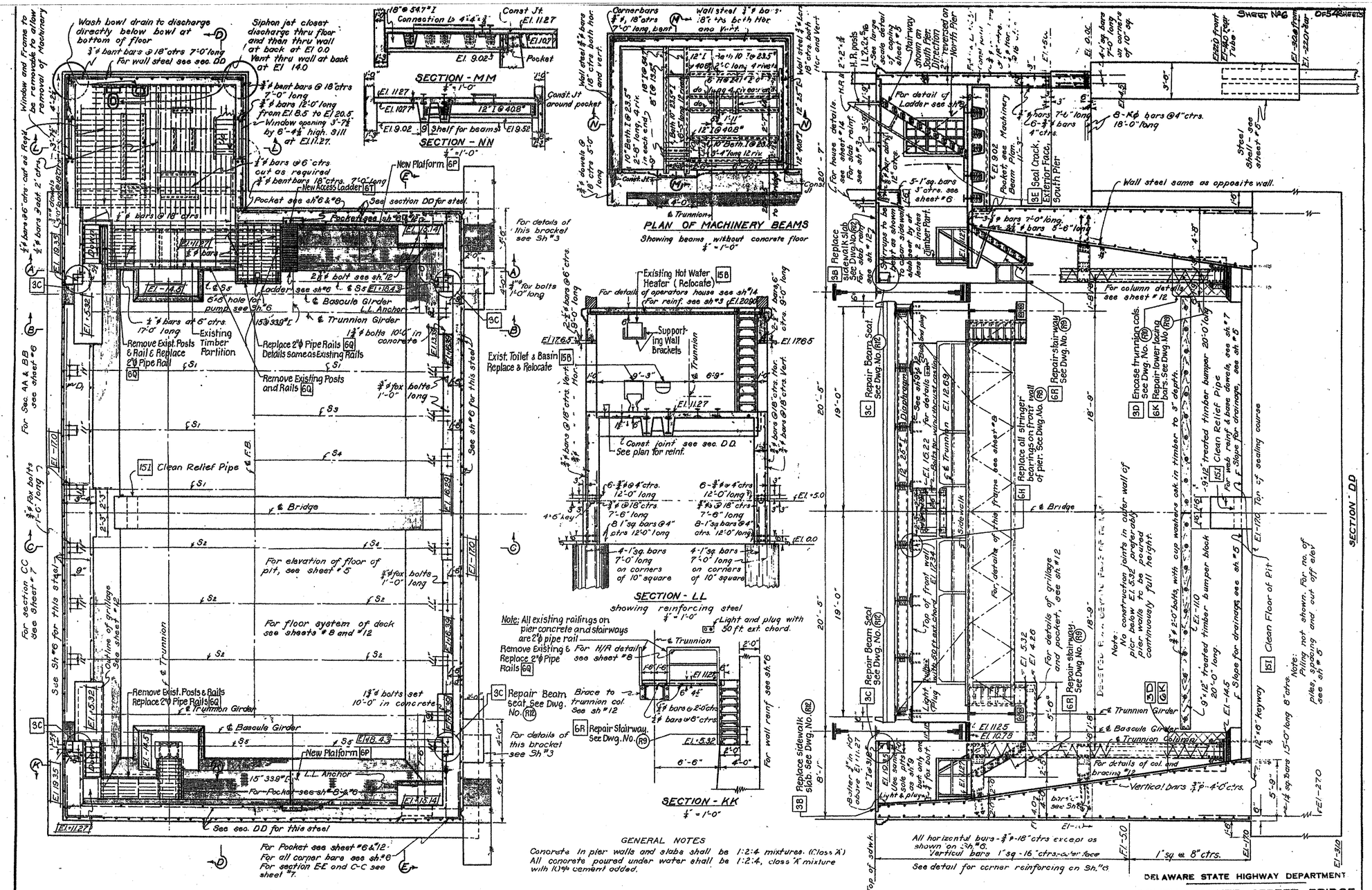
D. PATRICIA MALKIN
T.
C. W. KAM

SCALE ⅛" = 1'-0"

APPROVED BY:
BRIDGE ENGINEER

DRAWN BY: PATRICIA MALKIN
CHECKED BY:
APPROVED BY:

CD-005



Name: Cd_006.CAL
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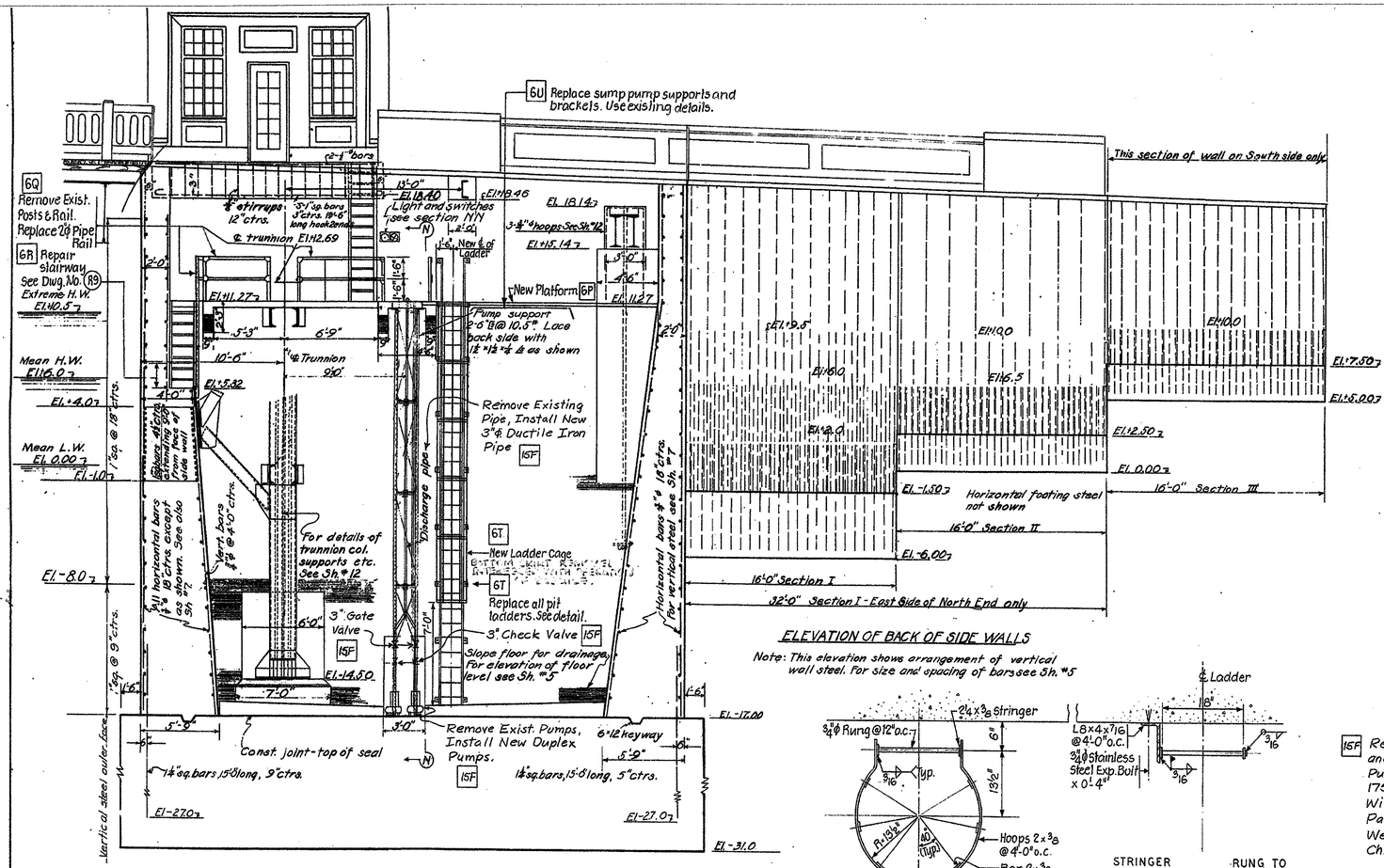
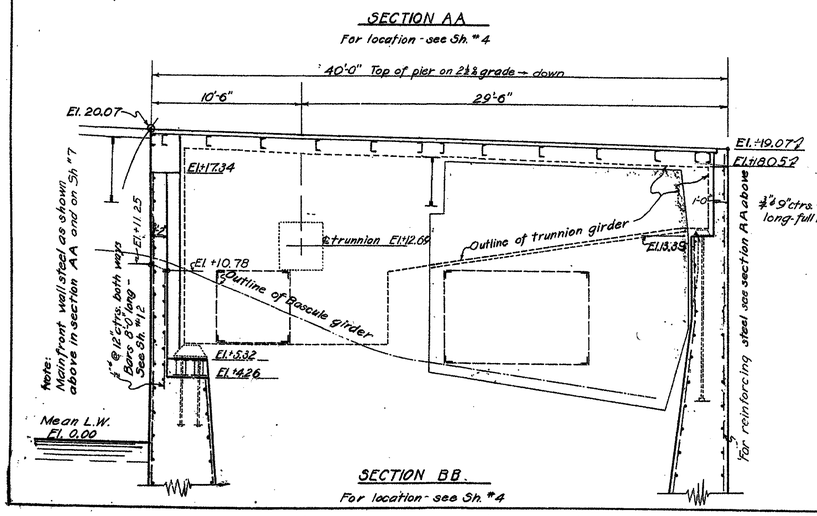


ELEVATION OF BACK OF SIDE WALLS

Note: This elevation shows arrangement of vertical wall steel. For size and spacing of bars see Sh. #5

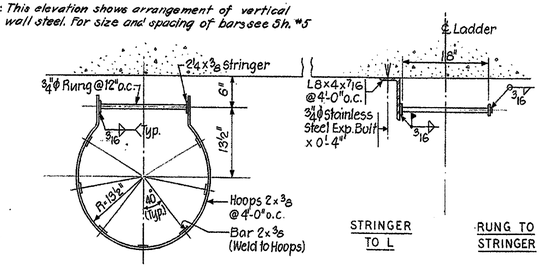


SECTION AA

For location - see Sh. #4

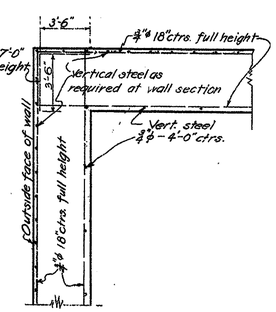
SECTION BB

For location - see Sh. #4

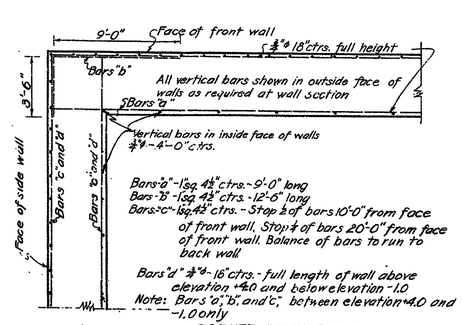


CAGE DETAIL 6T
Scale: 1" = 1'-0"

NEW LADDER & CONNECTION DETAILS 6T
Scale: 1" = 1'-0"



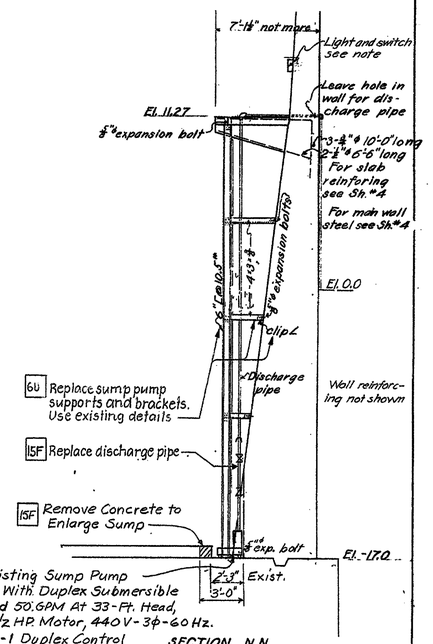
CORNER REINFORCING
At all corners of pier walls except as shown and noted at right



Bars "a" - 1" sq. 4½" ctrs. - 9'-0" long
Bars "b" - 1" sq. 4½" ctrs. - 12'-6" long
Bars "c" - 1" sq. 4½" ctrs. - Stop ½ of bars 10'-0" from face of front wall. Stop ¼ of bars 20'-0" from face of front wall. Balance of bars to run to back wall
Bars "d" #8 - 16" ctrs. - full length of wall above elevation +4.0 and below elevation -1.0
Note: Bar "c", "b", and "c", between elevation +4.0 and -1.0 only

CORNER REINFORCING
Special steel for front and side walls between elevation +4.0 and -1.0

Note: Lights and switches above pump. Extension chord long enough to reach to rack at bottom of pier. Light on wall with switch



15F Remove Existing Sump Pump and Replace With Duplex Submersible Pumps, Rated 50 GPM At 33-Ft. Head, 1750 RPM, 1½ HP. Motor, 440V-3ϕ-60 Hz. With NEMA-1 Duplex Control Panel As Manufactured By Weil Pump Co., Clow Corp. or Chicago Pump Co.

SECTION N-N

Note: For General Notes, see Sheet #4

REHAB. CONTRACT 81-071-02

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R7

DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE OVER CHRISTIANA RIVER

WILMINGTON DELAWARE

BASCULE PIERS AND APPROACH WALLS
LONGITUDINAL SECTION

MADE BY E.E.P. DATE 7-20-26
TRACED BY R.C. DATE 7-27-26
CHECKED BY DATE 8-27-26

SCALE: 2"=1'-0" & 0.05" = 1'-0"
HARRINGTON, HOWARD AND ASH CONSULTING ENGINEERS KANSAS CITY — NEW YORK
SHEET No. 6

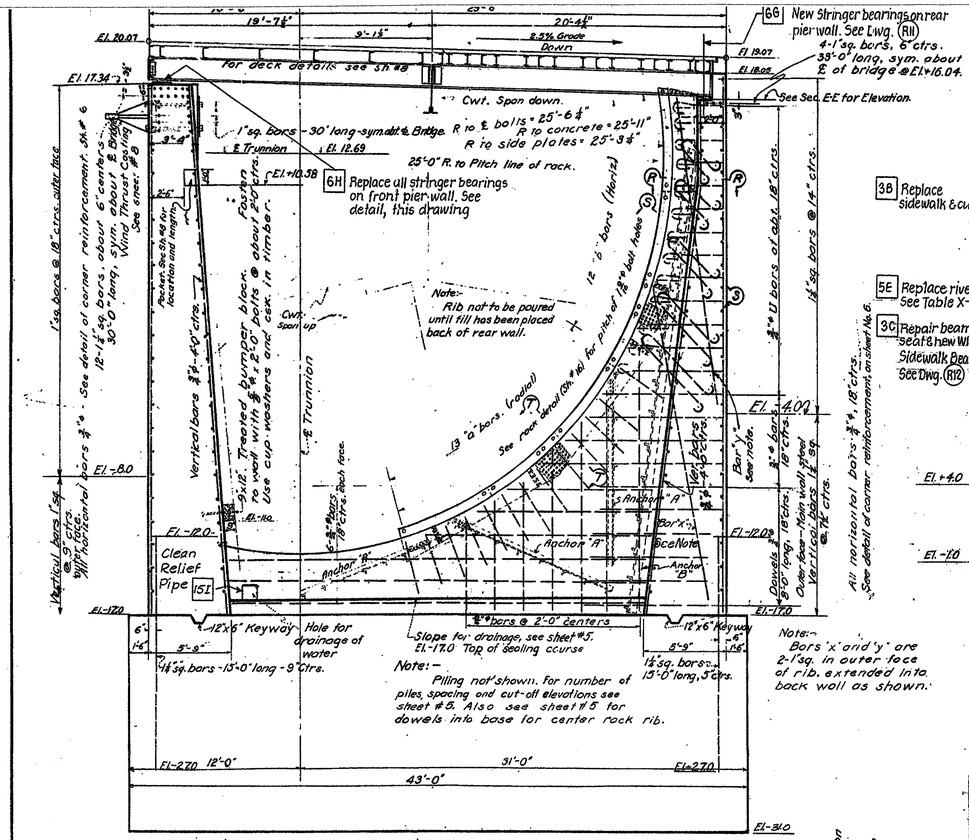
REPRODUCED REVISED CONTRACT DRAWING INCLUDED FOR INFORMATIONAL PURPOSES

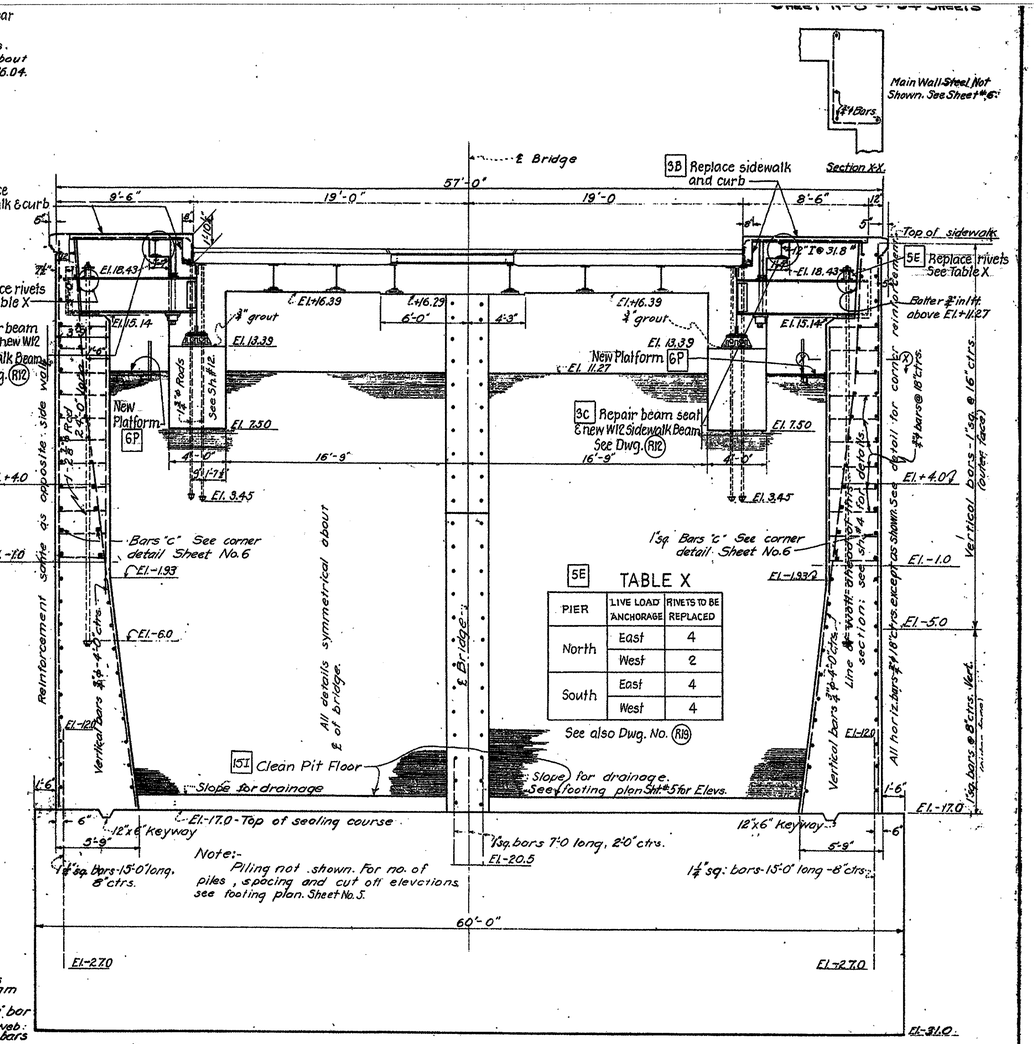
CONTRACT No. 21-074-07

MODJESKI and MASTERS CONSULTING ENGINEERS SINCE 1893

DRAWING No. 111 of 189

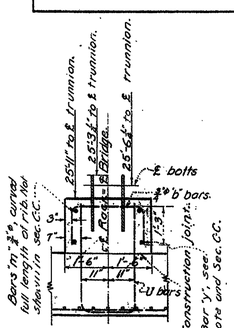
Name: Cd_007.CAL
Dimensions: 7200 x 4800 pixels

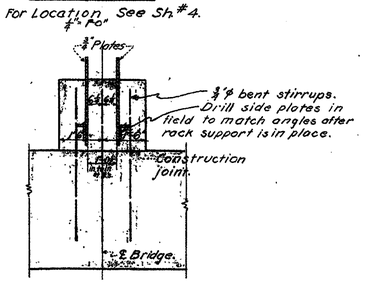


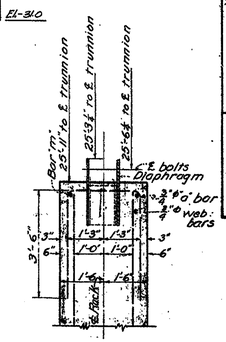


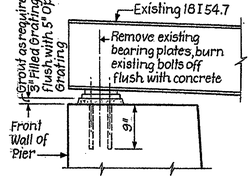
5E TABLE X

PIER	LIVE LOAD ANCHORAGE	RIVETS TO BE REPLACED
North	East	4
	West	2
South	East	4
	West	4

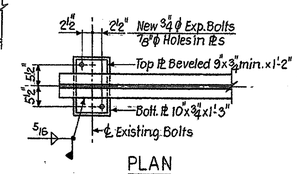








ELEVATION



PLAN

NEW STRINGER BEARINGS

REPAIR 6H

SECTION E-E.
For Location See Sh. #4 & 5.
1/4" = 1'-0"

Notes:
For general Note on concrete and reinforcing see Sheet #4
REHAB. CONTRACT 81-071-02

Note:-

Rock Anchorage.
Superstructure contractor shall pour rib under rock:- Also pier floor above El.-17.0.
Steel Rock Frame (rock removed when pouring concrete) to be set and concrete rib poured, after earth fill has been completed back of rear pit wall.

Steel Rock Frame Make Up.
Side plates 3/8" thick of size and shape shown. Min. embedded depth 12".

2-1/2" thick splice plates per splice.
Diaphragms of length indicated are to be 12"-35.0# ⊏ and 2-1/2" fills.
Anchors to be 4 ⊏ 3 1/2" x 3 1/2" x 1/2" in this manner.

All lug angles to be 3 1/2" x 3" x 3/8" - 20" long. with one shop rivet in 3 1/2" leg to each angle of anchor.
Anchor "B" to be 2 ⊏ 6" x 3 1/2" x 3/8" with lug ⊏ 3 1/2" x 3" x 3/8".

Superstructure contractor shall furnish and fasten bumper blocks.

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R8

DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON DELAWARE

BASCULE PIERS
LONGITUDINAL AND CROSS SECTIONS

SCALE: AS PLOTTED
TRACE BY F.W.H. DATE 7-17-86
TRACED BY O.E.R. DATE 7-27-89
CHECKED BY DATE 11-2-86
HARRINGTON, HOWARD AND ASSOC. CONSULTING ENGINEERS KANSAS CITY-NEW YORK
SHEET NO. 7

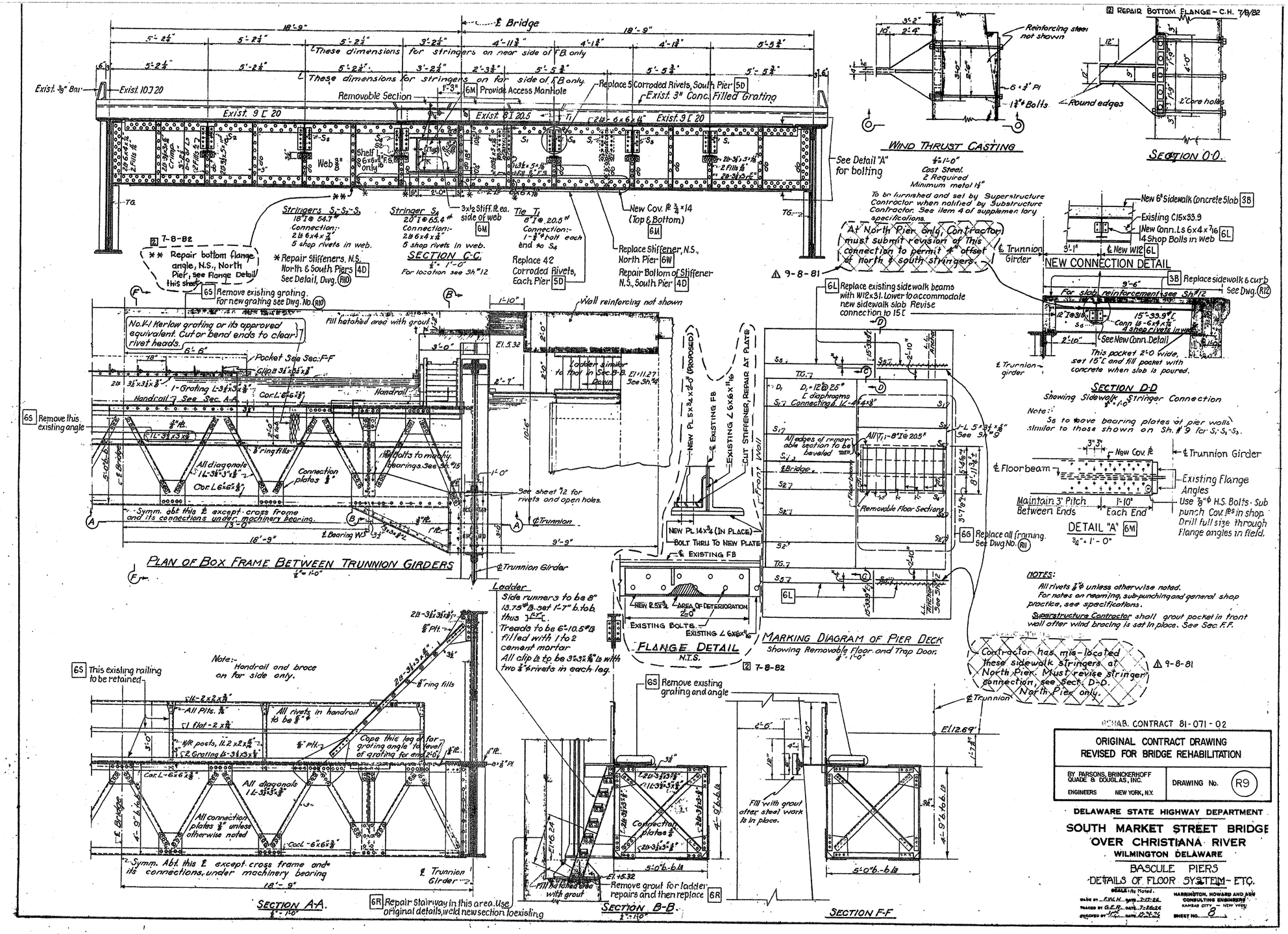
CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 112 of 162

MODJESKI and MASTERS
CONSULTING ENGINEERS

Name: Cd_008.CAL
Dimensions: 7200 x 4800 pixels



Name: Cd_009.CAL
Dimensions: 7200 x 4800 pixels

COUNTY	CONTRACT	F.E.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	11	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE - WILMINGTON, DEL.

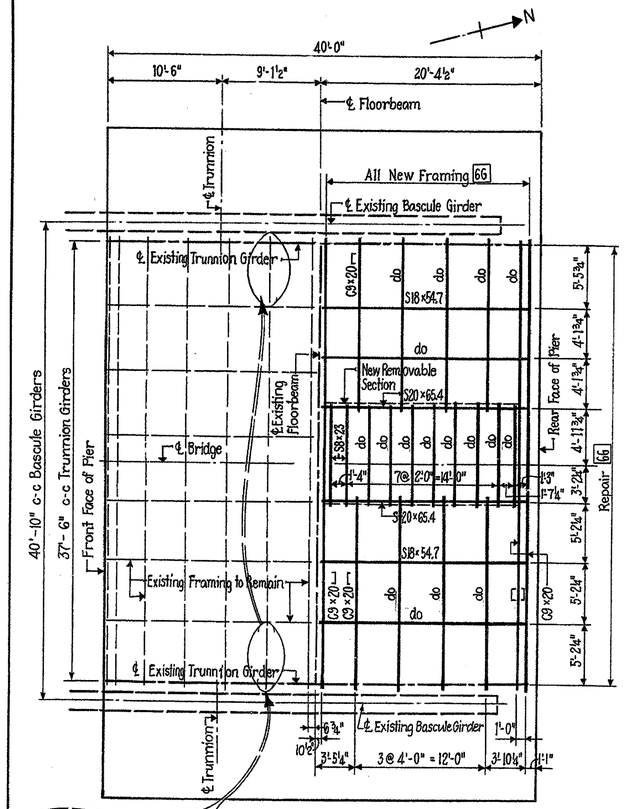
NO.	REVISIONS	BY	DATE
1	Replace grating support 15	PB	12-2-81
2	NEW HEADER AT BACKWALL - DETAIL B	PB	6-1-82

CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 111 of 169

MOUSLEY-MASTRIS CONSULTING ENGINEERS WILMINGTON, DELAWARE

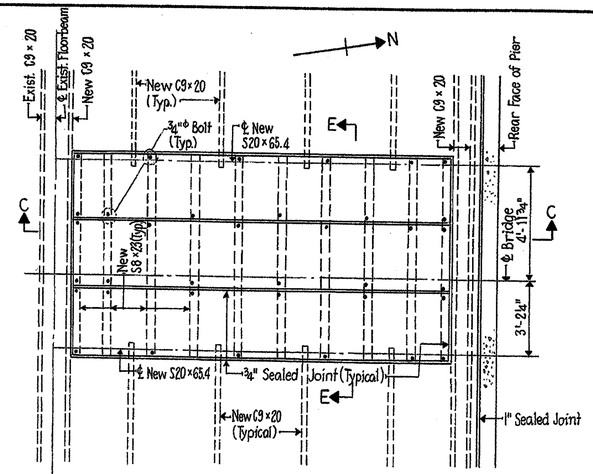


NORTH PIER
NEW FRAMING NORTH OF FLOOR BEAM 6G

New Framing at South Pier Symmetrical About ℄ Span By Rotation

Scale: 3/16" = 1'-0"

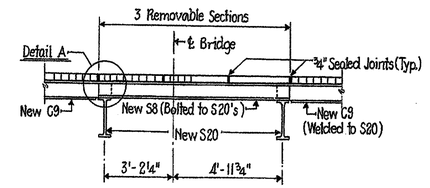
EXISTING C9's BURNED OFF BY CONTRACTOR FOR CONCRETE BUCKET ACCESS, SOUTH PIER ONLY, SEE DETAIL X
△ 12-2-81



NORTH PIER
PLAN OF REMOVABLE SECTIONS 14

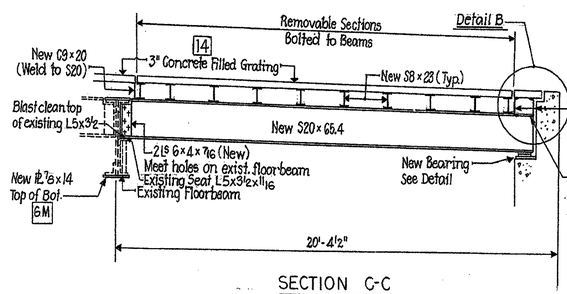
Plan of South Pier Symmetrical About ℄ Span By Rotation

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



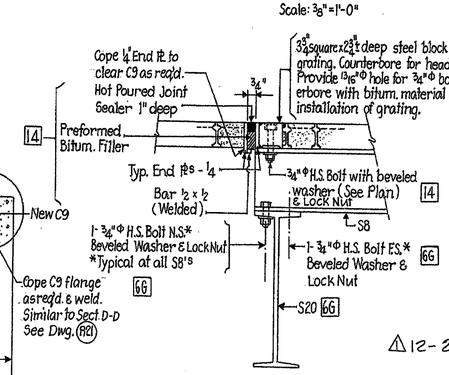
SECTION E-E

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



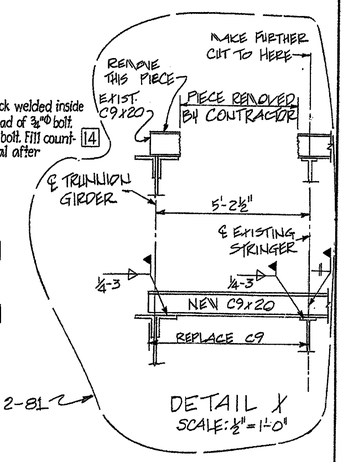
SECTION C-C

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



DETAIL A

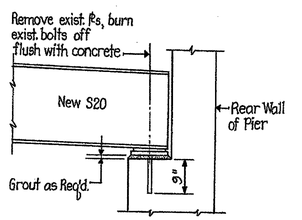
Scale: 1½" = 1'-0"



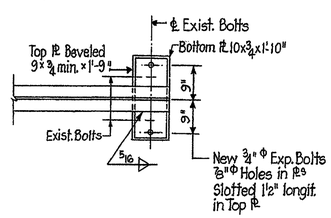
△ 12-2-81

DETAIL X
SCALE: ½" = 1'-0"

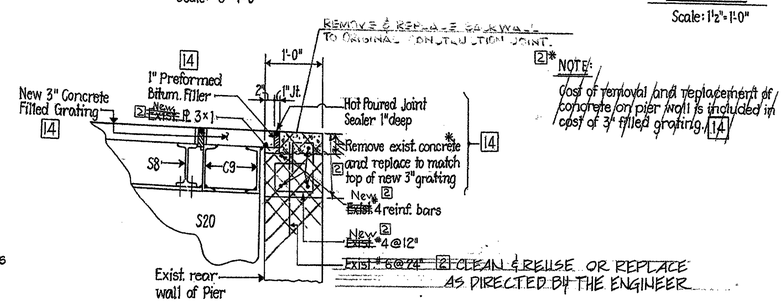
NOTES:
1. For General Notes, see Dwg. R2



ELEVATION - NEW STRINGER BEARINGS
REPAIR 6G



PLAN



DETAIL B

Scale: 1" = 1'-0"

2* NOTE:
Cost of removal and replacement of concrete on pier wall is included in cost of 3" filled grating. 14

R11

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

NEW DECK FRAMING OVER PIERS
DETAILS OF REMOVABLE PANELS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. S. S.	SCALE	APPROVED BY:
T.	As Shown	
C. W. KAM		BRIDGE ENGINEER

DRAWN BY:
CHECKED BY:
APPROVED BY:

D C B A

Name: Cd_011.CAL
Dimensions: 7200 x 4800 pixels

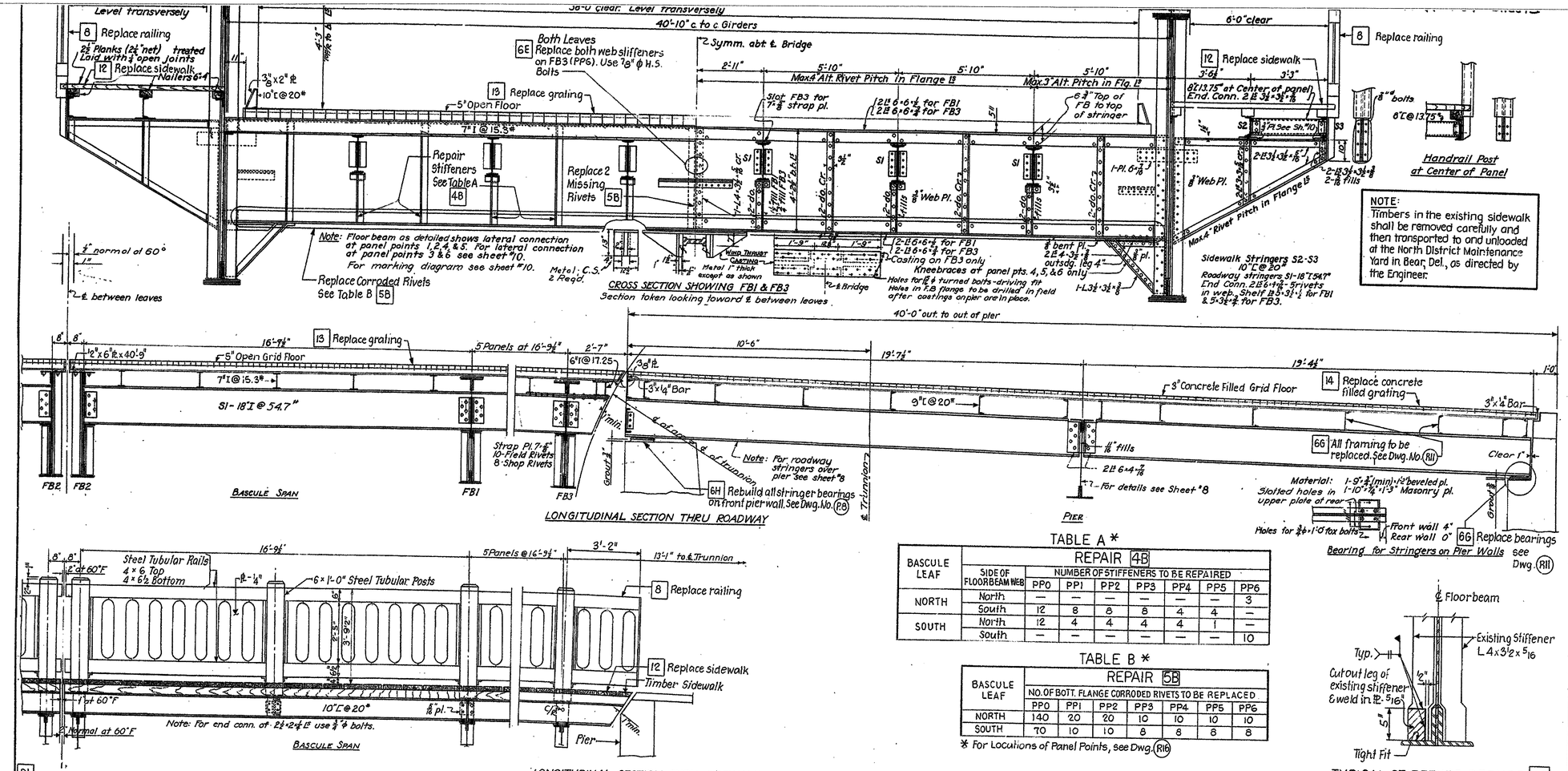


TABLE A *

BASCULE LEAF	SIDE OF FLOORBEAM WEB	REPAIR 4B — NUMBER OF STIFFENERS TO BE REPAIRED						
		PP0	PP1	PP2	PP3	PP4	PP5	PP6
NORTH	North	—	—	—	—	—	—	3
	South	12	8	8	8	4	4	—
SOUTH	North	12	4	4	4	4	1	—
	South	—	—	—	—	—	—	10

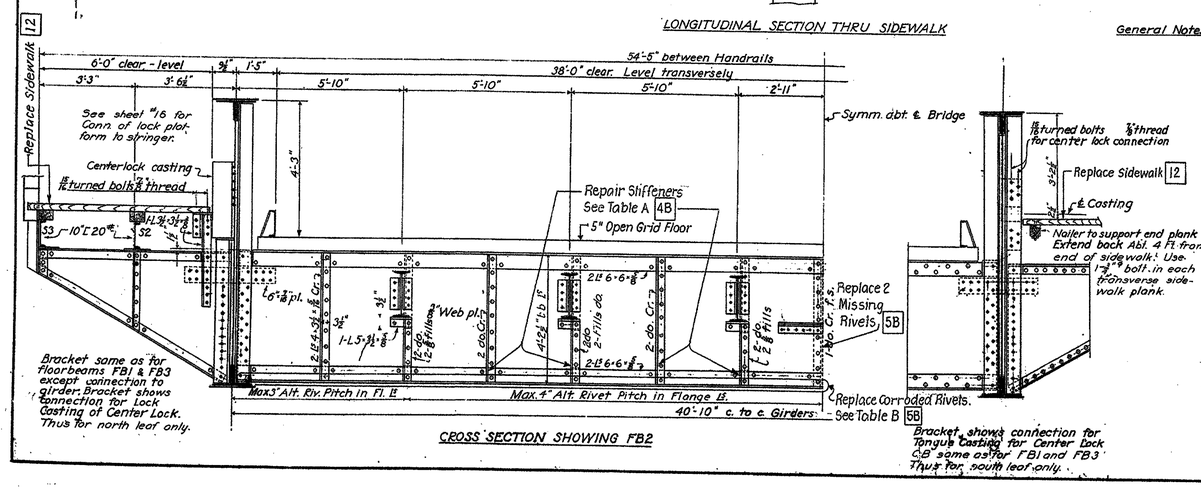
TABLE B *

BASCULE LEAF	REPAIR 5B — NO. OF BOTT. FLANGE CORRODED RIVETS TO BE REPLACED						
	PP0	PP1	PP2	PP3	PP4	PP5	PP6
NORTH	140	20	20	10	10	10	10
SOUTH	70	10	10	8	8	8	8

* For Locations of Panel Points, see Dwg. (R16)

TYPICAL STIFFENER REPAIRS 4B

Scale: 1½" = 1'-0"



General Notes:

All timber to be creosoted southern long leaf yellow pine except as noted.
Sidewalk planks shall be nailed to nailing strips with 2-30d nails at each strip.
~~Roadway planks shall be spiked to ties with 2-7½" spikes at each tie.~~
Sidewalk nailers shall be bolted to stringers with ⅝"ϕ carriage bolts spaced abt. 2'-0" ctrs.
~~Roadway ties shall be bolted to stringers and shelf angles on girders with one ¾"ϕ carriage bolt at each stringer.~~
~~Curb shall be bolted to each tie with one ¾" carriage bolt.~~
Use ⅜" malleable O.G. washers at each end of timber bolts.
Use beveled washers under stringer flanges.
All bolt holes in timber shall be filled with hot bitumen before insertion of bolts.
For marking diagram of stringers and floorbeams, see sheet #10
Waterproofing on top of floorbeams to be two layers of woven cotton fabric, saturated with asphaltic bitumen, weighing untreated at least 3¾ oz. and treated at least 14¾ oz. per sq. yd. When placing waterproofing the top of the floorbeam shall be dry and clean of dust. Then hot asphalt shall be applied on which the membrane shall be immediately laid. This shall be swabbed with a heavy coating of hot asphaltic cement and the second layer shall be applied which shall then be swabbed with a heavy finish coating of asphaltic cement. Each layer shall be adequately lapped at ends.
Rivets to be ⅞"ϕ unless otherwise noted
~~Traffic plates shall be ⅜" "All" Diamond Pattern Rolled Steel traffic plates weighing about 20 pounds per sq. ft. only by Alan Wood Iron and Steel Company, Philadelphia, Pennsylvania, or the approved equivalent thereof, fastened with ¾" J-Slug screws spaced according to the manufacturer's specifications subject to engineers approval. Care shall be taken to arrange floor plants and bolting so that bolts will not be in joints.~~
All longitudinal dimensions in longitudinal sections measured on a horizontal line.
Superstructure contractor shall pour concrete H.R. posts.

REHAB. CONTRACT 81-071-02

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R14

DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON DELAWARE

BASCULE SPAN FLOOR SYSTEM
HANDRAILS

SCALE: ¼" = 1'-0" ORIG. 10/62
MARRINGTON, HOWARD AND ASH CONSULTING ENGINEERS KANSAS CITY • NEW YORK
MADE BY O.E. DATE 6-30-26
TRACED BY C.J.P. DATE 7-22-26
CHECKED BY DATE 8-27-26
SHEET NO. 9

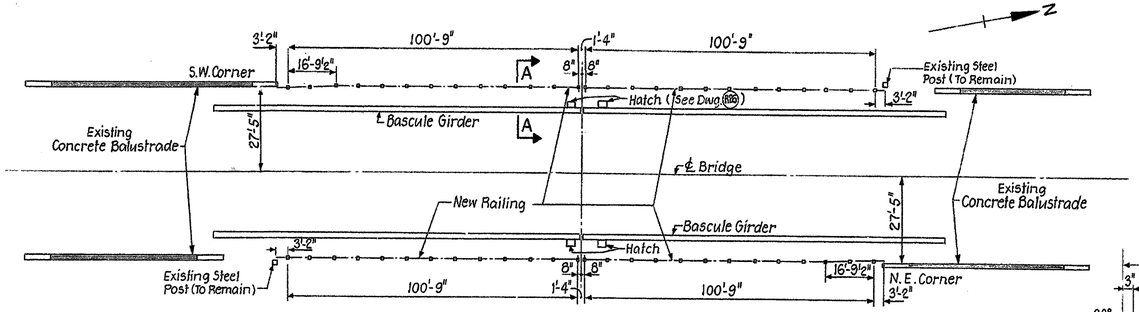
CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 1/5 of 162
MODJESKI-MASTERS CONSULTING ENGINEERS

Name: Cd_014.CAL
Dimensions: 7200 x 4800 pixels

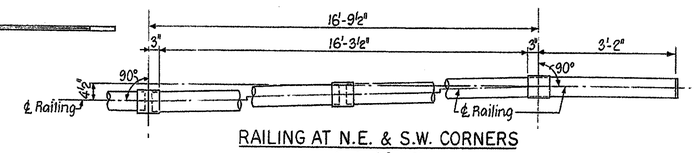
COUNTY	CONTRACT	P. S.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177 (2)	15	64

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE - WILMINGTON, DEL.

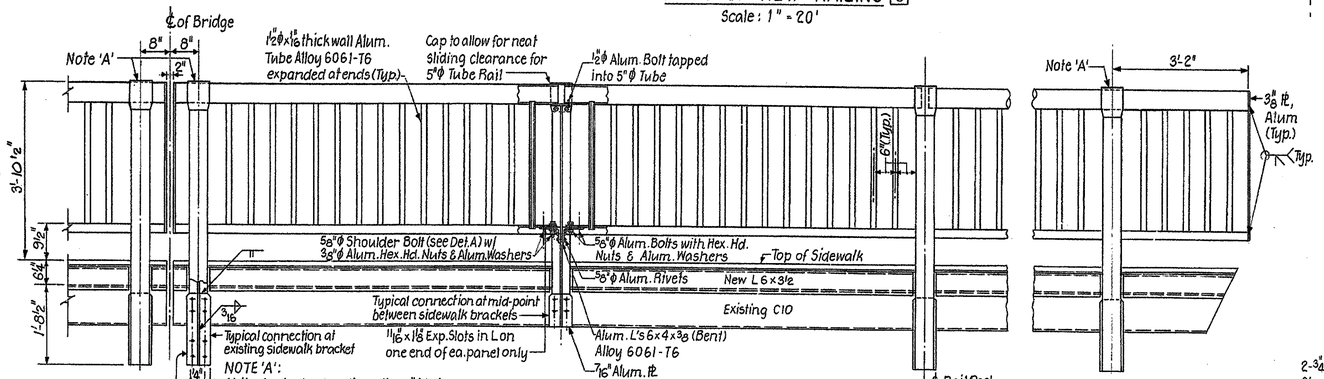
NO.	REVISIONS	BY	DATE



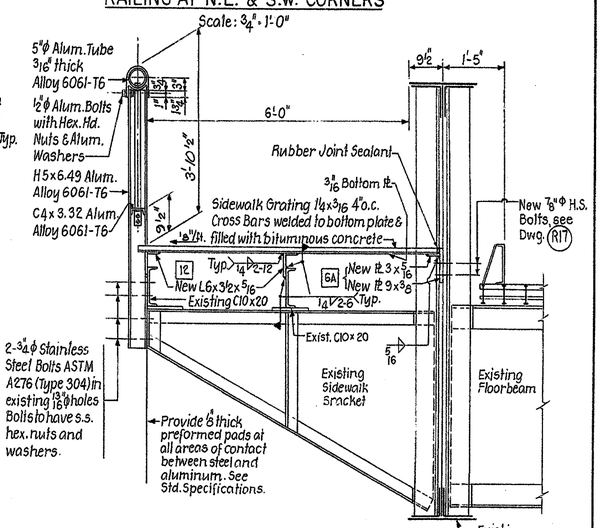
PLAN OF NEW RAILING 8
Scale: 1" = 20'



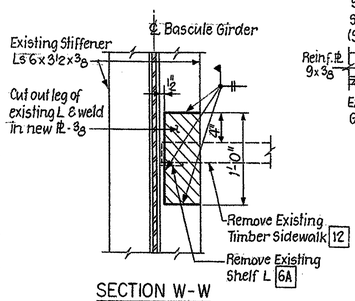
RAILING AT N.E. & S.W. CORNERS
Scale: ¾" = 1'-0"



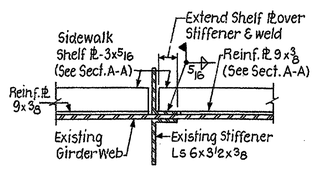
TYPICAL RAILING PANELS
Scale: ¾" = 1'-0"
REPAIR 8



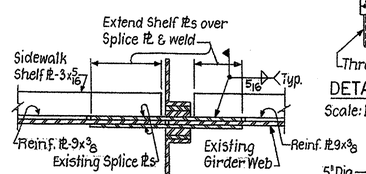
SECTION A-A
Scale: ¾" = 1'-0"
NEW SIDEWALK - REPAIR 12



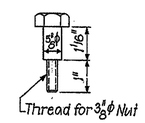
SECTION W-W
STIFFENER REPAIR ON EXISTING BASCULE GIRDER 4A
Scale: 1½" = 1'-0"
New Reinf. Pl. & Shelf Pl. Not Shown



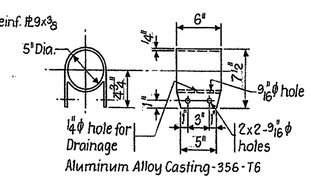
SECTION X-X
Scale: 1½" = 1'-0"
REPAIR 6A



SECTION Y-Y
Scale: 1½" = 1'-0"
REPAIR 6A



DETAIL A
Scale: Half Size



RAILING POST CAP
Scale: 1½" = 1'-0"

NOTES:
1. For locations of Sections W-W, X-X & Y-Y, see Dwg. R17.

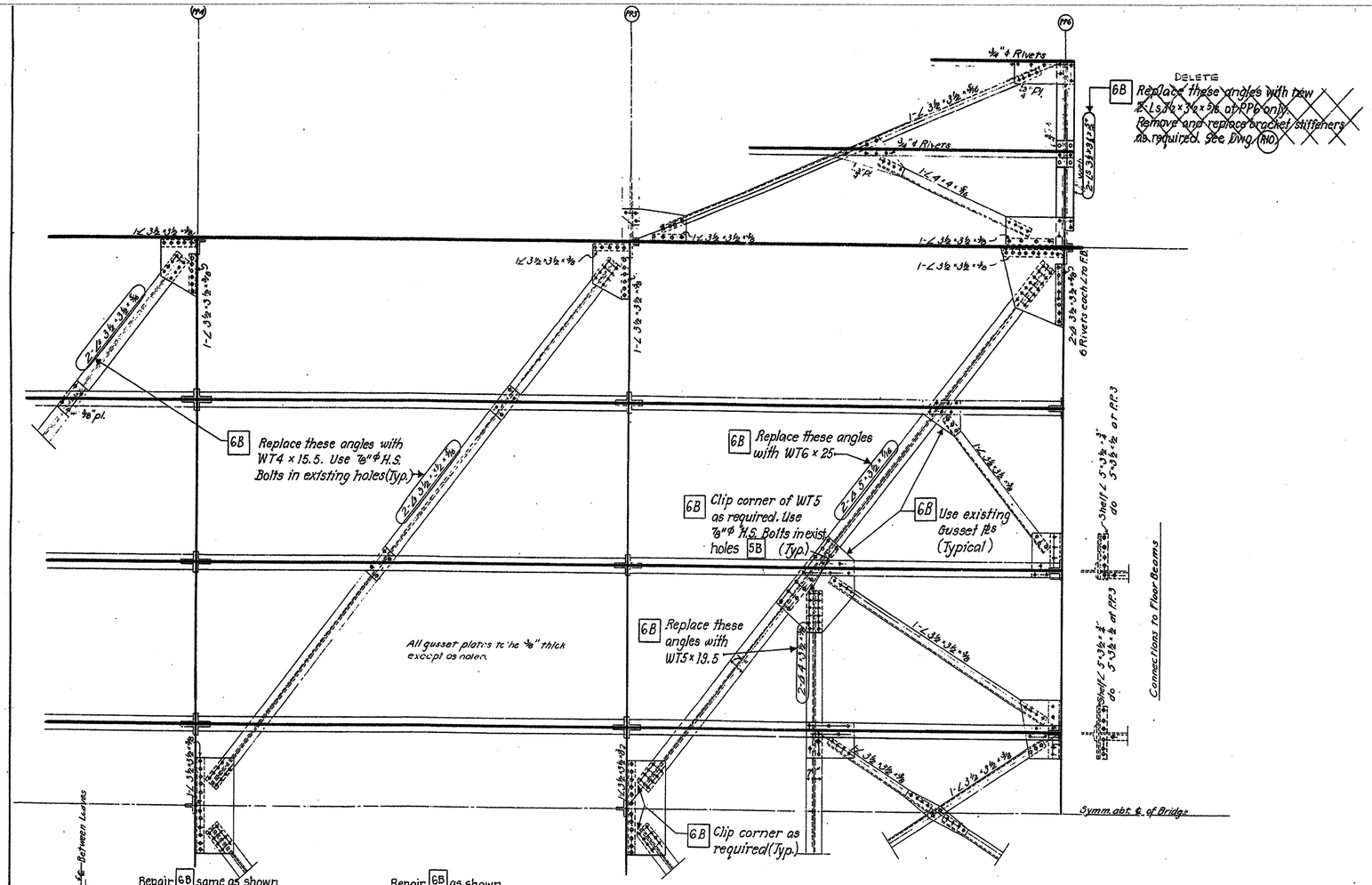
R15

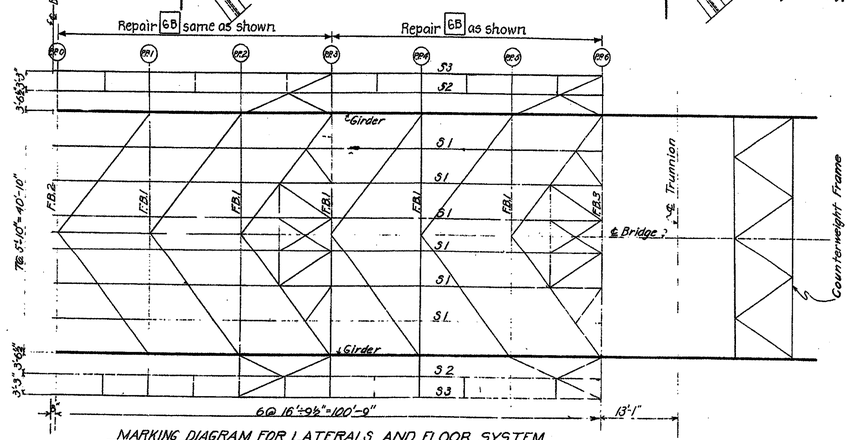
DRAWN BY:
CHECKED BY:
APPROVED BY:

DELAWARE DEPARTMENT OF HIGHWAYS & TRANSPORTATION DIVISION OF HIGHWAYS			
BRIDGE REHABILITATION			
NEW RAILING AND SIDEWALK DETAILS			
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. PATRICIA MALKIN T. C. W. KAM	SCALE As shown	APPROVED BY: BRIDGE ENGINEER

CONTRACT No. 21-074-07
REVISED CONTRACT DRAWING
REPRODUCED INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 116 of 169
MOULTON & MASTERS

Name: Cd_015.CAL
Dimensions: 7200 x 4800 pixels





MARKING DIAGRAM FOR LATERALS AND FLOOR SYSTEM
1/8" = 1'-0"

NOTE:
Repairs 6B shown are to be made on both bascule leaves.

Note:
Laterals between P.P.2-P.P.3 same as between P.P.5-P.P.6.
Laterals between P.P.0-P.P.1, P.P.1-P.P.2, P.P.3-P.P.4 same as between P.P.4-P.P.5.
In members composed of two ∠s, use stitch rivets @ 12" Ctrs.
Rivets 7/8"φ except as noted.
Holes for lateral connections may be punched full size.

REHAB. CONTRACT 81-071-02

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R16

DELAWARE STATE HIGHWAY DEPARTMENT
SOUTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON DELAWARE

LATERAL BRACING

SCALE: 1/2" = 1'-0" except as denoted
MADE BY O.E. DATE 7-1-26
TRACED BY R.C. DATE 7-17-26
CHECKED BY [illegible] DATE 10-27-26

HARRINGTON, HOWARD AND ASH
CONSULTING ENGINEERS
KANSAS CITY - NEW YORK
SHEET NO. 10

CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
Consulting Engineers
SINCE 1896
DRAWING No. 117 of 169

Name: Cd_016.CAL
Dimensions: 7200 x 4800 pixels

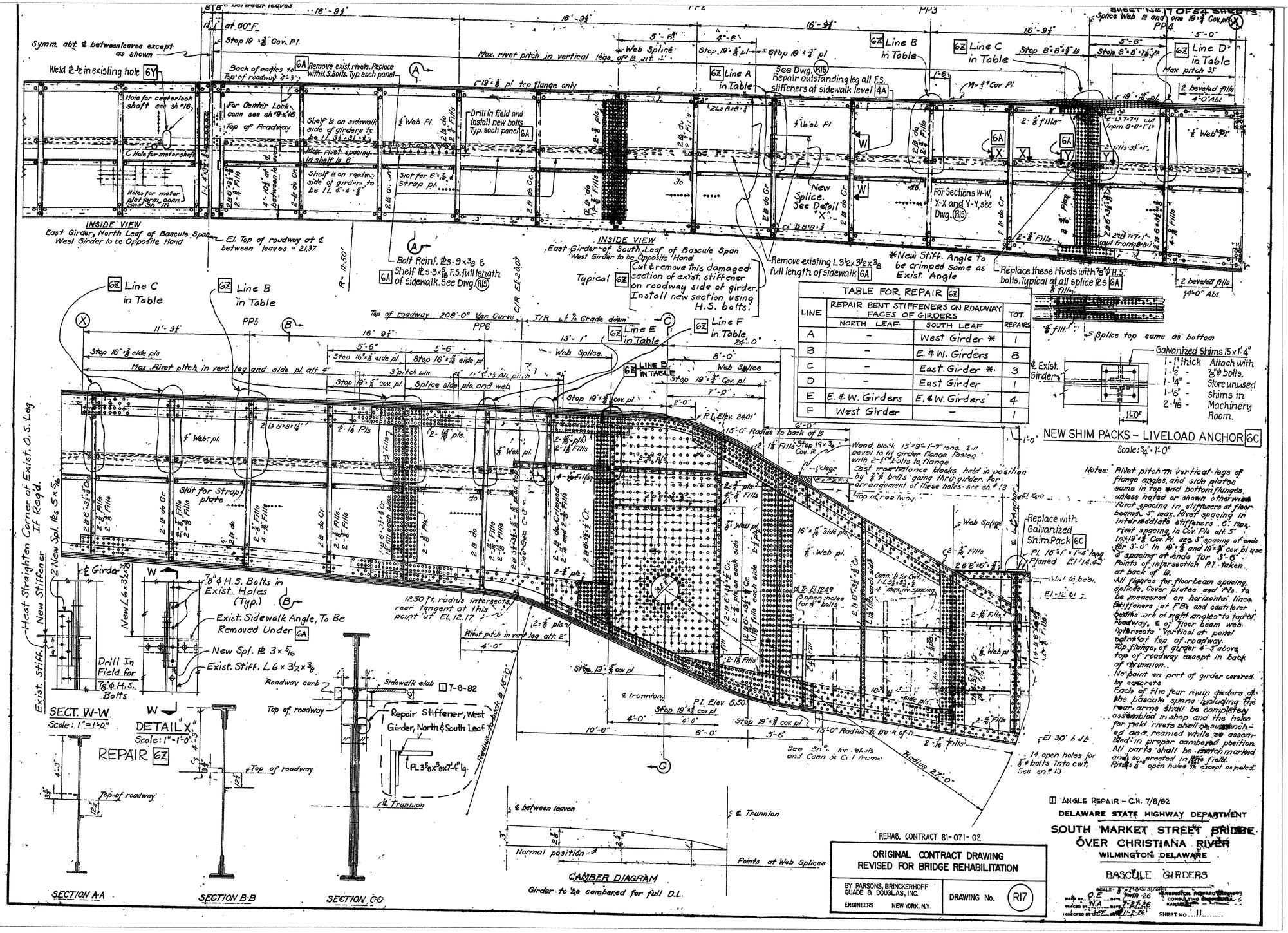
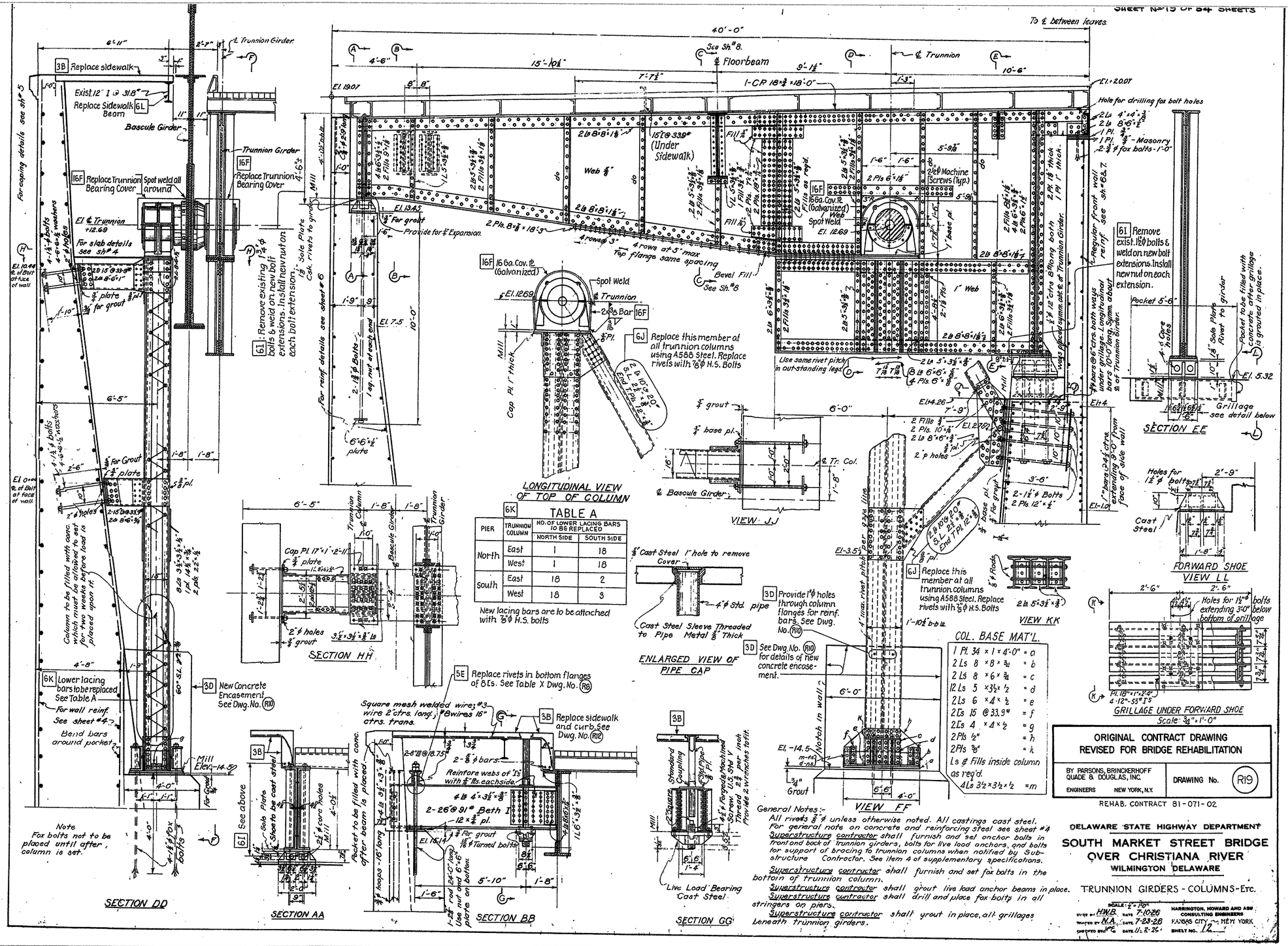


TABLE FOR REPAIR 6Z

LINE	REPAIR BENT STIFFENERS ON ROADWAY FACES OF GIRDERS		TOT. REPAIRS
	NORTH LEAF	SOUTH LEAF	
A	–	West Girder *	1
B	–	E. & W. Girders	8
C	–	East Girder *	3
D	–	East Girder	1
E	E. & W. Girders	E. & W. Girders	4
F	West Girder	–	1

Name: Cd_017.CAL
Dimensions: 7200 x 4800 pixels



PIER	TRUNNION COLUMN	NO. OF LOWER LACING BARS TO BE REPLACED	
		NORTH SIDE	SOUTH SIDE
North	East	1	18
	West	1	18
South	East	18	2
	West	18	3

TABLE A

New lacing bars are to be attached with 7/8" ϕ H.S. bolts

COL. BASE MAT'L.

1 Pl. 3/4 × 1 × 4'-0"	= a
2 Ls 8 × 8 × 3/4	= b
2 Ls 8 × 6 × 3/4	= c
12 Ls 5 × 3 1/2 × 1/2	= d
2 Ls 6 × 4 × 1/2	= e
2 Ls 15 @ 33.9#	= f
2 Ls 4 × 4 × 1/2	= g
2 Pls 1/2"	= h
2 Pls 3/8"	= k
Ls & Fills inside column as req'd.	
4 Ls 3 1/2 × 3 1/2 × 1/2	= m

General Notes:-

All rivets 7/8" ϕ unless otherwise noted. All castings cast steel.

For general note on concrete and reinforcing steel see sheet #4

Superstructure contractor shall furnish and set anchor bolts in front and back of trunnion girders, bolts for live load anchors, and bolts for support of bracing to trunnion columns when notified by Substructure Contractor. See item 4 of supplementary specifications.

Superstructure contractor shall furnish and set fox bolts in the bottom of trunnion column.

Superstructure contractor shall grout live load anchor beams in place.

Superstructure contractor shall drill and place fox bolts in all stringers on piers.

Superstructure contractor shall grout in place, all grillages beneath trunnion girders.

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R19

REHAB. CONTRACT 81-071-02

DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE OVER CHRISTIANA RIVER

WILMINGTON DELAWARE

TRUNNION GIRDERS - COLUMNS - Etc.

SCALE: 1/4" = 1'-0"
DESIGNED BY H.N.B. DATE 7-10-26
TRACED BY N.K.A. DATE 7-23-26
CHECKED BY C. DATE 11-8-26

HARRINGTON, HOWARD AND ASH
CONSULTING ENGINEERS
KANSAS CITY - NEW YORK
SHEET NO. 12

CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 112 of 162

MODJESKI and MASTERS
CONSULTING ENGINEERS
TRENTON, NEW JERSEY

Name: Cd_019.CAL
Dimensions: 7200 x 4800 pixels

COUNTY	CONTRACT	R.R.A. REG. NO.	STATE	FED.AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEWCASTLE	81-071-02	2	DEL.	BRM-1177(2)	21	54

BRIDGE No. 688

SOUTH MARKET STREET BRIDGE - WILMINGTON, DEL.

NO.	REVISIONS	BY	DATE

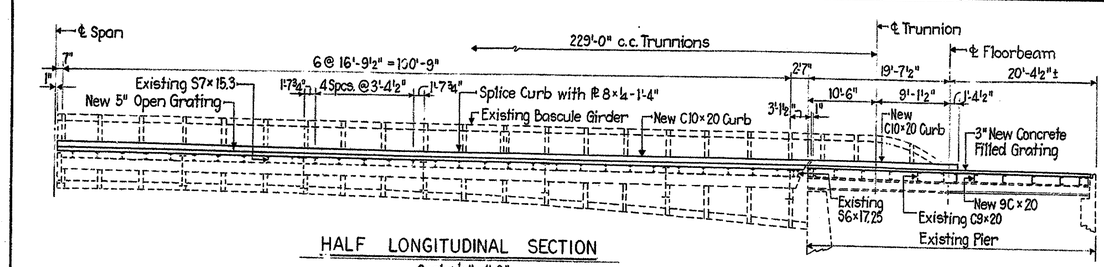
CONTRACT No. 21-074-07

REPRODUCED INCLUDED FOR INFORMATIONAL PURPOSES

REVISED CONTRACT DRAWING

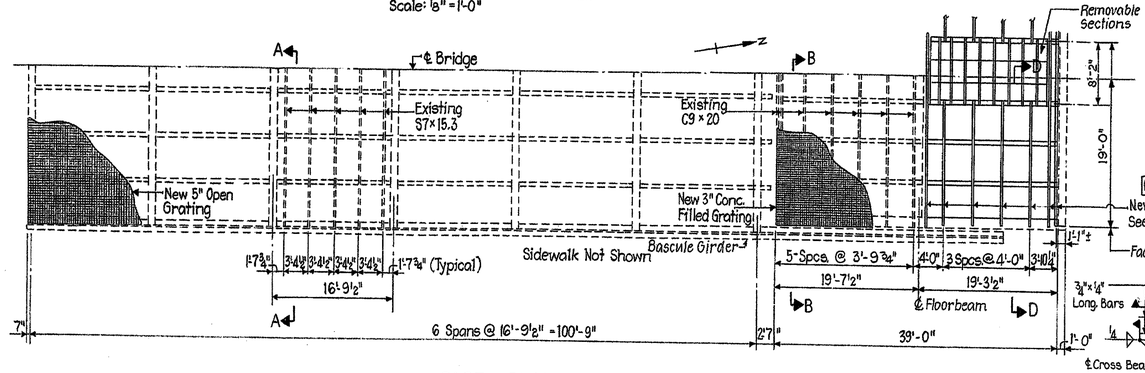
DRAWING No. 120 of 189

MODJESKI and MASTERS CONSULTING ENGINEERS HARRISBURG, PENNSYLVANIA



HALF LONGITUDINAL SECTION

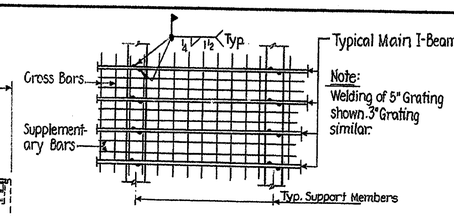
Scale: ⅛" = 1'-0"



PART PLAN

Scale: ⅛" = 1'-0"

North Pier - As Shown
South Pier - Same by Rotation About ℄ of Span

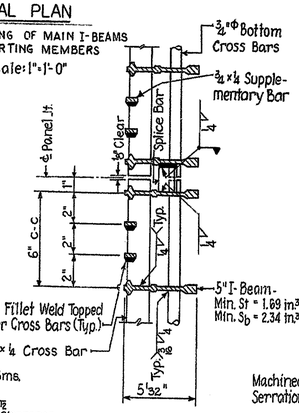


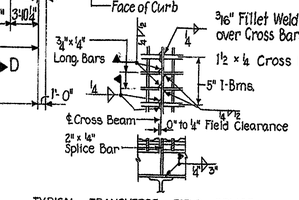
Note: Welding of 5" Grating shown. 3" Grating similar.

PARTIAL PLAN

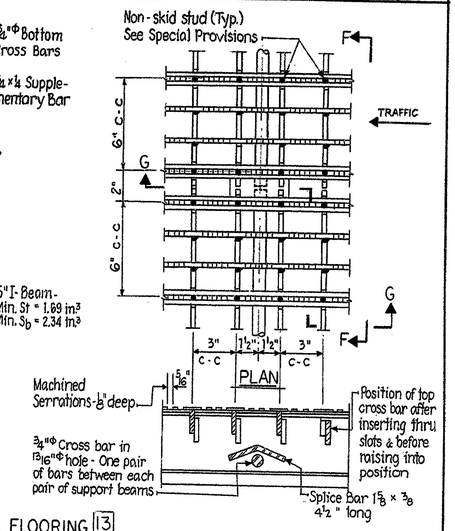
FIELD WELDING OF MAIN I-BEAMS TO SUPPORTING MEMBERS

Scale: 1" = 1'-0"





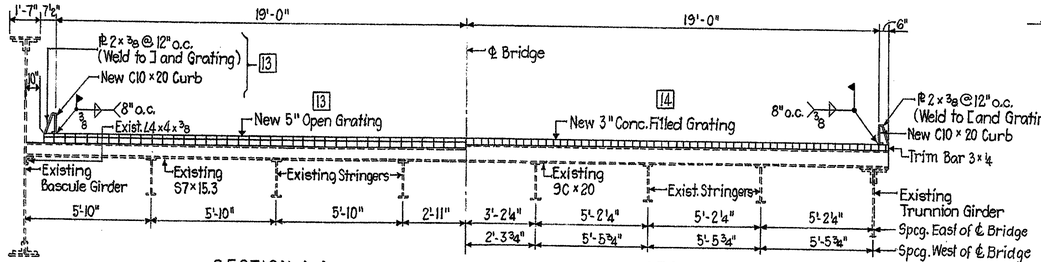
TYPICAL TRANSVERSE FIELD SPLICE



SECTION G-G

DETAILS OF 5" STEEL BRIDGE FLOORING 13

Scale: 3" = 1'-0"

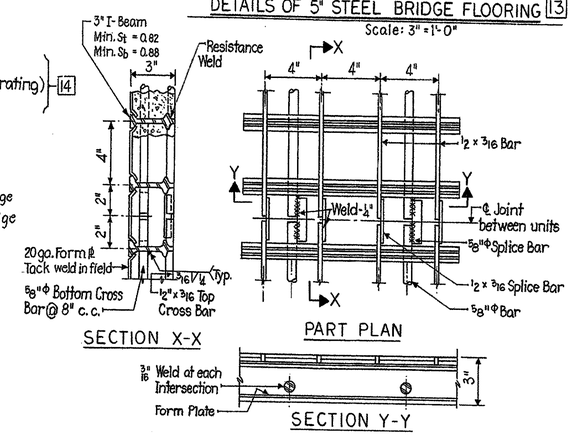


SECTION A-A

Scale: ⅜" = 1'-0"

SECTION B-B

Scale: ⅜" = 1'-0"



SECTION X-X

PART PLAN

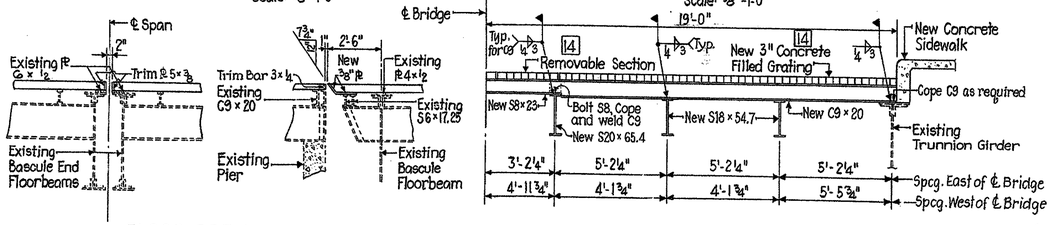
SECTION Y-Y

DETAILS OF 3" STEEL BRIDGE FLOORING 14

Scale: 3" = 1'-0"

NOTES:

1. For General Notes, see Dwg. R2
2. For Removable Sections Details, see Dwg. R11



FLOOR BREAK DETAILS

Scale: ⅜" = 1'-0"

SECTION D-D

Scale: ⅜" = 1'-0"

R21

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

DETAILS OF NEW ROADWAY GRATING

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

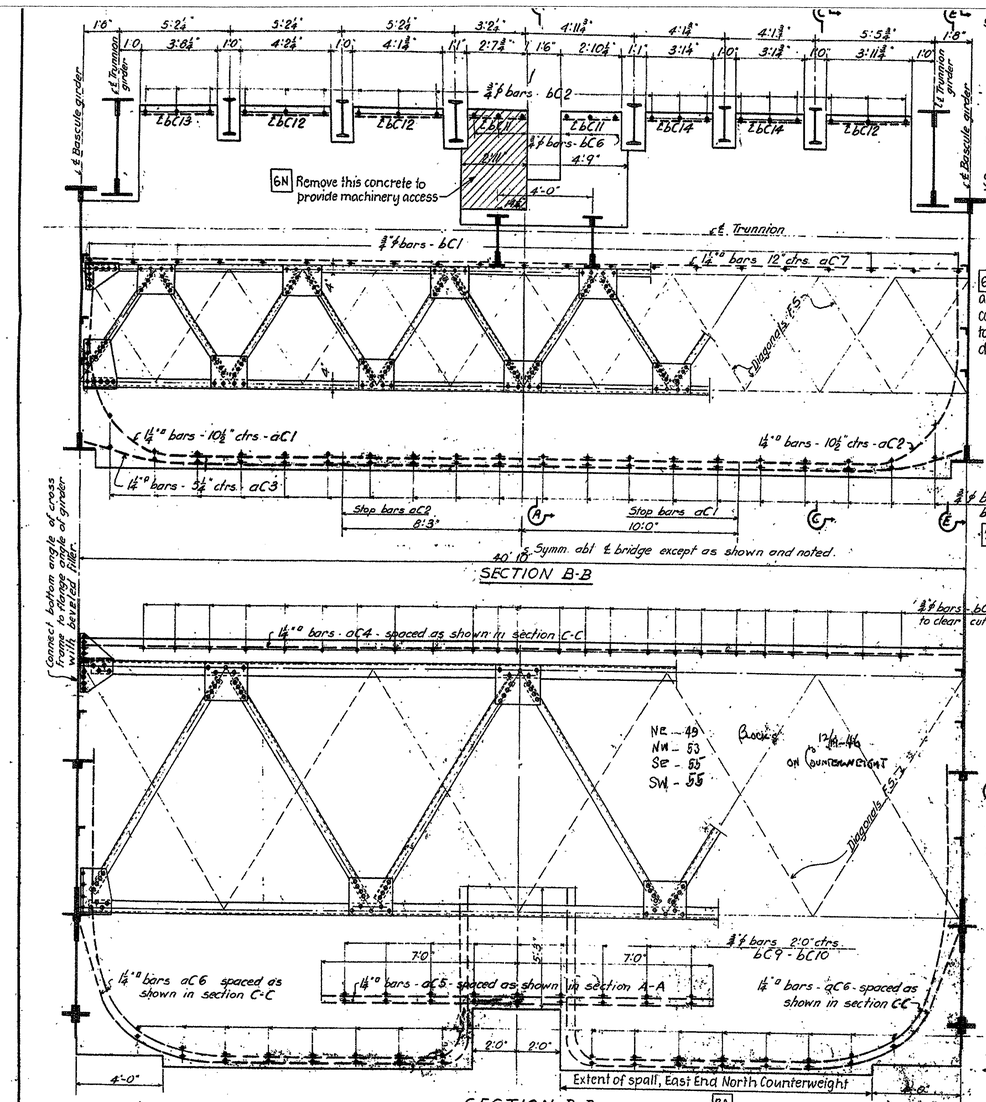
D. S.S.
T.
C. W. KAM

SCALE: As Shown

APPROVED BY:
BRIDGE ENGINEER

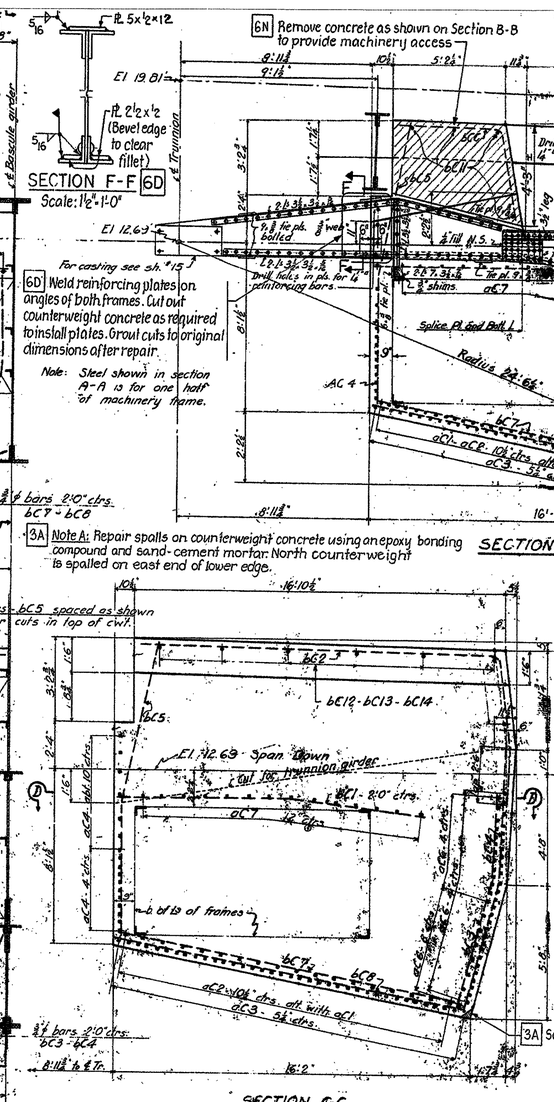
DRAWN BY:
CHECKED BY:
APPROVED BY:

Name: Cd_021.CAL
Dimensions: 7200 x 4800 pixels



SECTION B-B

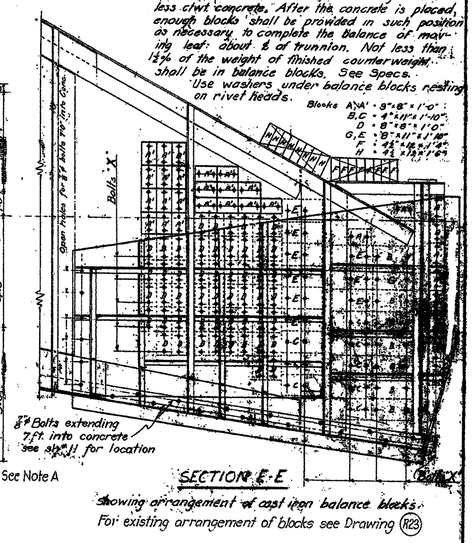
SECTION D-D



SECTION F-F 6D
Scale: 1½" = 1'-0"

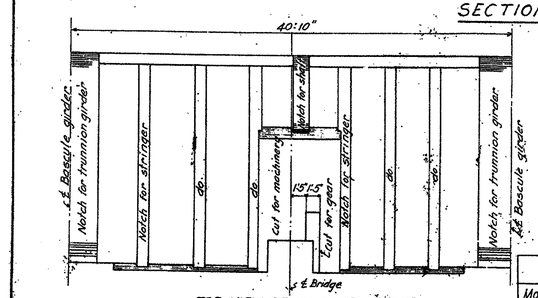
SECTION A-A

SECTION C-C

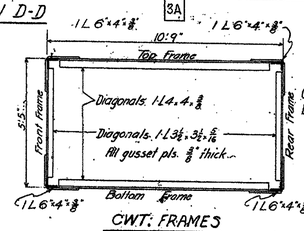


SECTION E-E

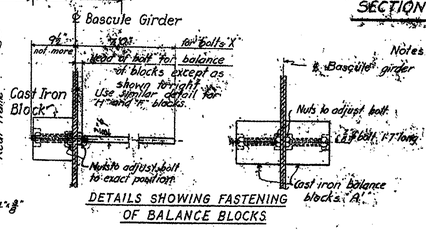
showing arrangement of cast iron balance blocks.
For existing arrangement of blocks see Drawing (R23)



TOP VIEW OF COUNTERWEIGHT



CWT. FRAMES



DETAILS SHOWING FASTENING OF BALANCE BLOCKS

Notes:

Counterweight shall be made of 1:2:4 (Class A) concrete of such a weight as to balance as nearly as possible 71% of the figured moments of moving leaf less c'wt concrete. Cast iron balance blocks shall be used to complete the adjustment. These shall be placed on the girders as shown.

Before constructing the c'wt. the contractor shall accurately check the moments to be balanced on the basis of the scale weights of the structural steel and the actual weights of the other materials as determined by tests. Should actual weights and moments vary from the figures given, details of the c'wt. shall be revised accordingly.

Concrete in c'wt. to be poured continuously. Use no paint on steel embedded in concrete.

Use ⅞" ϕ rivets in c'wt. frames.

Figures given in table are for north leaf. Figures for south leaf are slightly less as there is less weight for center block.

Over trucks concrete shall be poured c'wt.

TABLE OF WEIGHTS AND MOMENTS

SECTION	WEIGHT	MOMENT ABT. ℄ OF TRUNNION H-ARM	H-MOMENT	V-ARM	V-MOMENT
Moving leaf except net section of concrete in c'w't.	652400	33.2	24922,000	15.20	+3387,000

SECTION	WEIGHT	MOMENT ABT. ℄ OF TRUNNION H-ARM	H-MOMENT	V-ARM	V-MOMENT
COUNTERWEIGHT CONCRETE & C.I. BLOCKS					
3070.9 cu.ft. at 145#	1355,000	17.93	24300,000	-2.47	3340,000
71.2 cu.ft. C.I. at 450#	34,700	17.93	622,000	-1.350	47,000
			24,922,000		-3387,000

REHAB. CONTRACT 81-071-02

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R22

DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON DELAWARE

COUNTERWEIGHT

SCALE: 1" = 1'0"
MADE BY O.R. DATE 8-8-36
TRACED BY O.R. DATE 8-8-36
DESIGNED BY O.R. DATE 8-8-36

HARRINGTON, HOWARD AND ASH
CONSULTING ENGINEERS
KANSAS CITY, MO.
SHEET No. 12

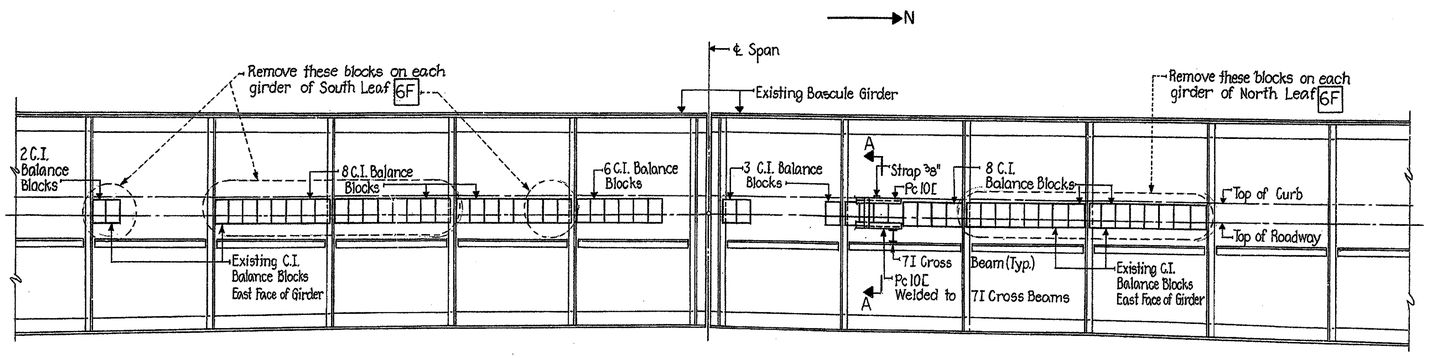
CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
DRAWING No. 121 of 169

Name: Cd_022.CAL
Dimensions: 7200 x 4800 pixels

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177 (2)	23	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

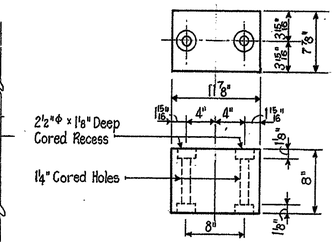
NO.	REVISIONS	BY	DATE



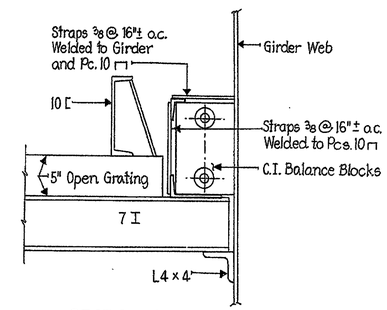
SOUTH LEAF-TOE END WEST GIRDER
TOE END EAST GIRDER OPPOSITE HAND
Scale: 3/8" = 1'-0"

REPAIR ITEM 6F

NORTH LEAF-TOE END WEST GIRDER
TOE END EAST GIRDER OPPOSITE HAND
Scale: 3/8" = 1'-0"

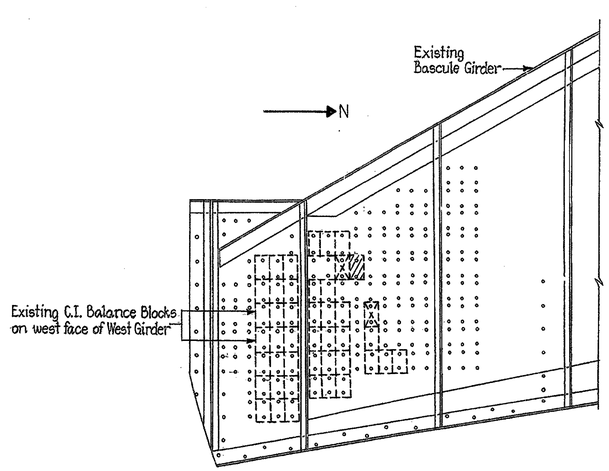


TYPICAL EXISTING CAST IRON BALANCE BLOCK
Scale: 1 1/2" = 1'-0"



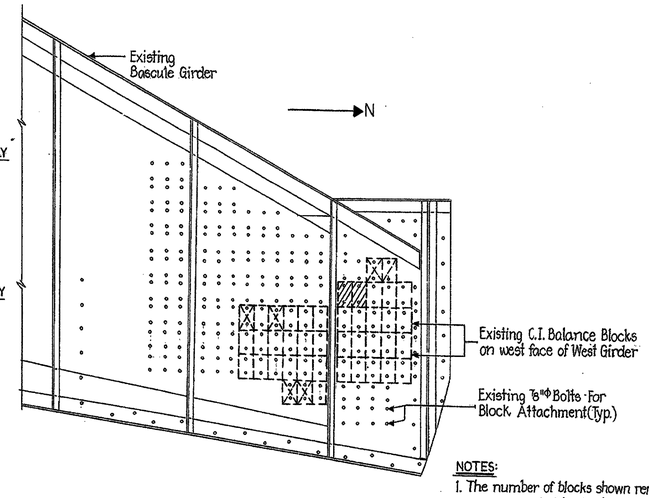
SECTION A-A
Attachment of Existing C.I. Balance Blocks at Toe Ends of Bascule Leaves
Scale: 1 1/2" = 1'-0"

ALL BLOCKS WERE REMOVED FROM TOE OF BOTH LEAVES AND USED, ALONG WITH EXTRA CI PLATES, TO BALANCE LEAVES. CONSULTANTS GIVEN COPIES OF BALANCE BLOCK & PLATE PLACEMENT FOR COMPUTATIONS.



BLOCK ON WEST GIRDER ONLY

BLOCK ON EAST GIRDER ONLY



SOUTH LEAF-HEEL END WEST GIRDER
HEEL END-EAST GIRDER OPPOSITE HAND

REPAIR ITEM 6F

NORTH LEAF-HEEL END WEST GIRDER
HEEL END-EAST GIRDER OPPOSITE HAND

NOTES:
1. The number of blocks shown removed is for bidding purposes only. The Contractor shall submit a procedure for determining and adjusting the balance of the bascule leaves. Each leaf shall be approximately 1,000 # toe heavy in the closed position.

NOTES: (cont.)
2. Removed C.I. blocks shall be transported to and unloaded at the North District Maintenance Yard in Bear, Del., as directed by the Engineer.

R23

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

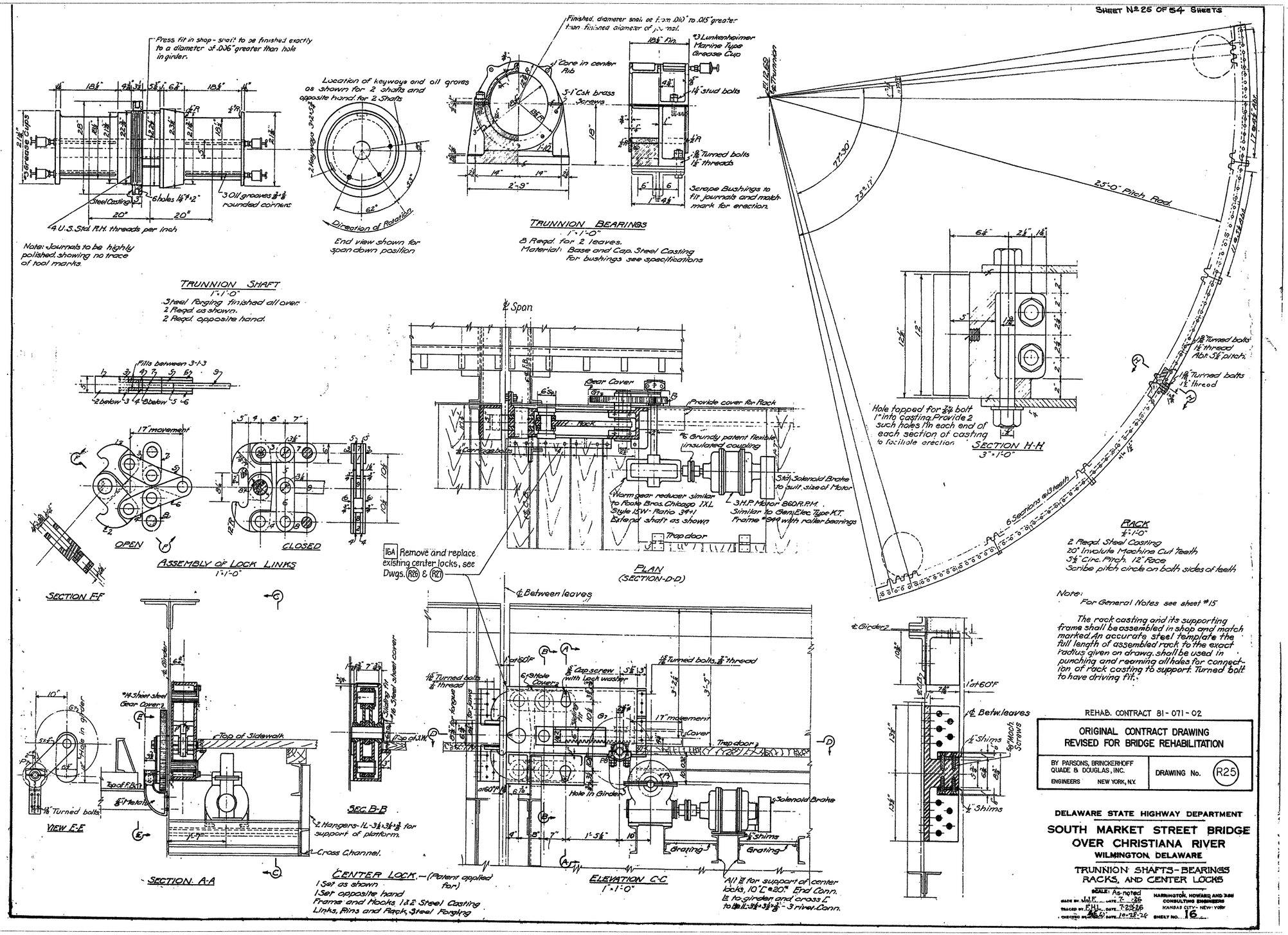
REBALANCE OF BASCULE LEAVES

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. S.S. T. C. W. Karl	SCALE As Noted	APPROVED BY: BRIDGE ENGINEER

CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS CONSULTING ENGINEERS BRIDGE 1980
DRAWING No. 122 of 169

Name: Cd_023.CAL
Dimensions: 7200 x 4800 pixels



Note:
For General Notes see sheet #15

The rack casting and its supporting frame shall be assembled in shop and match marked. An accurate steel template the full length of assembled rack to the exact radius given on drawg. shall be used in punching and reaming all holes for connection of rack casting to support. Turned bolt to have driving fit.

REHAB. CONTRACT 81-071-02

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R25

DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON, DELAWARE

TRUNNION SHAFTS - BEARINGS
RACKS, AND CENTER LOCKS

SCALE: As noted
MADE BY J.J.F. DATE 7-26
TRACED BY F.H.L. DATE 7-29-26
CHECKED BY [illegible] DATE 10-28-26

HARRINGTON, HOWARD AND ASH
CONSULTING ENGINEERS
KANSAS CITY - NEW YORK
SHEET NO. 16

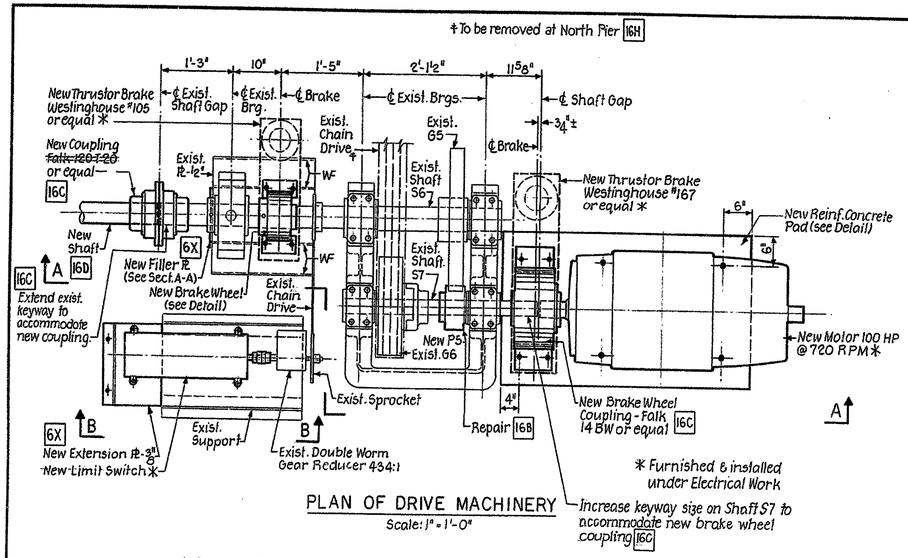
CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS SINCE 1893
DRAWING No. 123 of 169

Name: Cd_025.CAL
Dimensions: 7200 x 4800 pixels

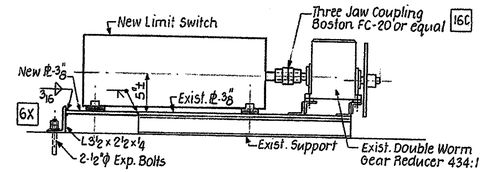
COUNTY	CONTRACT	F.R.A. RES. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	25A	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

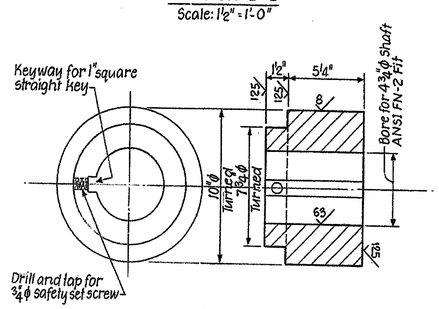
NO.	REVISIONS	BY	DATE



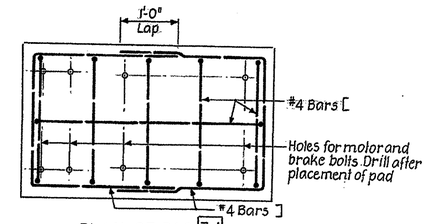
PLAN OF DRIVE MACHINERY
Scale: 1" = 1'-0"



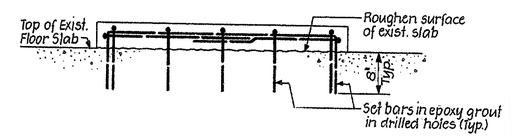
SECTION B-B
Scale: 1½" = 1'-0"



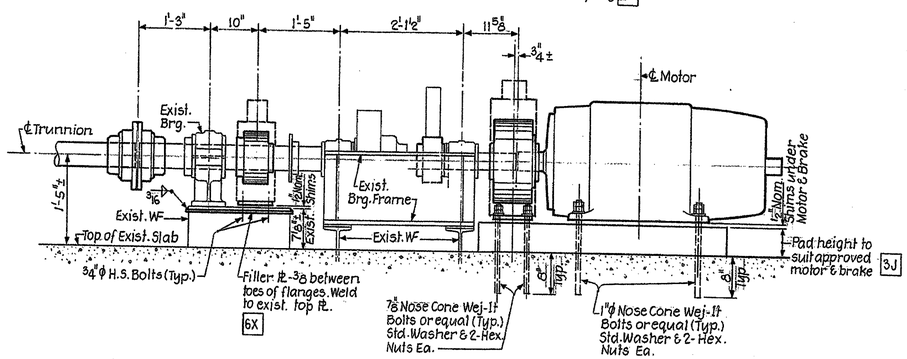
DELETE
~~BRAKE WHEEL DETAIL 6E~~
Scale: 3" = 1'-0"



PLAN OF PAD 3J
Scale: 1" = 1'-0"



SECTION OF PAD
Scale: 1" = 1'-0"



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

[illegible]

R25A

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

REVISIONS TO
OPERATING MACHINERY

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D PATRICIA MALKIN T C. W. KAM	SCALE As Shown	APPROVED BY: BRIDGE ENGINEER

CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 124 of 187

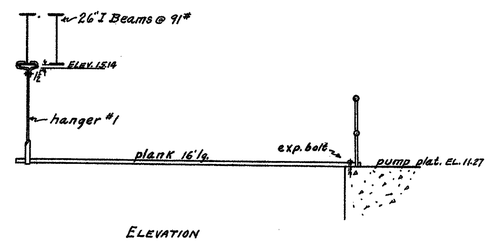
MODJESKI and MASTERS
CONSULTING ENGINEERS

Name: Cd_026.CAL
Dimensions: 7200 x 4800 pixels

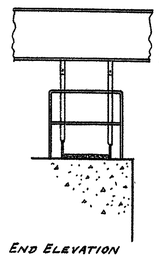
ROUTE	CONTRACT	COUNTY	SHEET
	81-071-02	NEW CASTLE	

ACCESS PLATFORM TO LIVE LOAD SCREWS

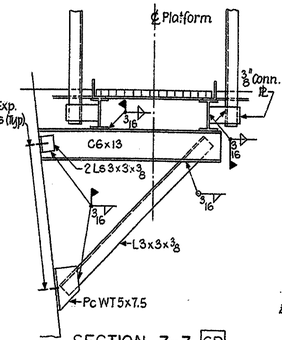
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
10	DEL.	BRIR 1177(2)		28	54



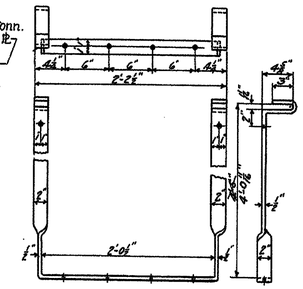
ELEVATION



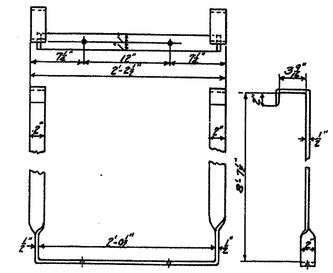
END ELEVATION



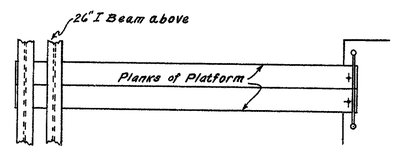
SECTION Z-Z 6P
Scale: 1" = 1'-0"



EXISTING
HANGER No. 1 STEEL PLATE 2"x½"x 12'-2½" LG.
4-REQ'D. ⅞" DIA. HOLES, BENT AS SHOWN

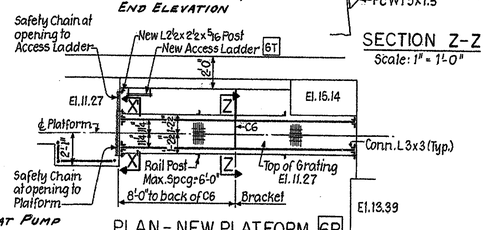


EXISTING
HANGER No. 2. STEEL PLATE 2"x½"x 20'-4½" LG.
2 REQ'D. ⅞" DIA. HOLES BENT AS SHOWN

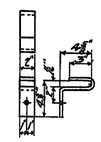


PLAN

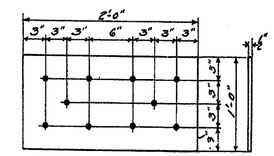
EXISTING PLATFORM AT PUMP
2-REQUIRED



PLAN - NEW PLATFORM 6P
Scale: ¼" = 1'-0"
Platform at Pump (North Pier) - As Shown
Platform at Pump (South Pier) - Similar

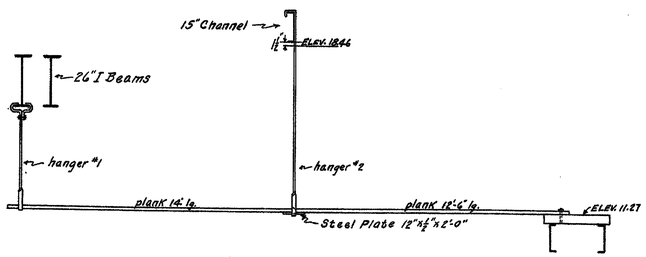


CLAMP - STEEL 12. 2"x½"x 1'-0½" LG.
8-REQ'D. ⅞" HOLE
BENT AS SHOWN

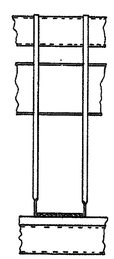


STEEL PLATE 12"x½"x 2'-0" LG.
2-REQ'D. ⅞" HOLES
BOLT TO HANGER #2

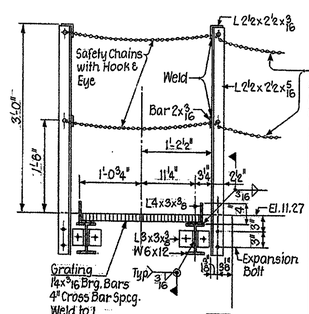
EXISTING
HANGER DETAILS



ELEVATION



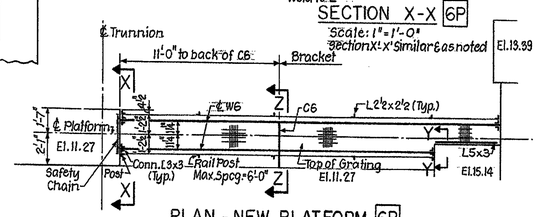
END ELEVATION



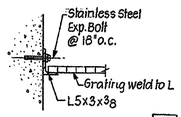
SECTION X-X 6P
Scale: 1" = 1'-0"
Section X-X' Similar & as noted

EXISTING
BILL OF MATERIAL

No.	SIZE	LENGTH	LOCATION	WT.
4	2"x½"	12'-2½"	STEEL PLATE (BENT)	166#
2	2"x½"	20'-4½"	" " "	139
8	2"x½"	1'-0½"	" " "	28
2	12"x½"	2'-0"	" "	82
			TOTAL	415#
8	⅞"φ	4"	EXPANSION BOLTS	
92	⅞"φ	3"	CARRIAGE BOLTS	
12	⅞"φ	2"	SQ. HD. BOLTS	
			TOTAL	16#
4	2"x12"	16'-0"	OAK PLANK	
4	2"x12"	12'-6"	" "	
4	2"x12"	14'-0"	" "	
			TOTAL B.M.	340'



PLAN - NEW PLATFORM 6P
Scale: ¼" = 1'-0"
Platform at Northeast Side (North Pier) - As Shown
Platform at Southwest Side (South Pier) - Similar



SECTION Y-Y 6P
Scale: 1" = 1'-0"

Repair 6P Replace Existing Timber Platforms to Live Load Screw

-NOTES-

THE LOCATION OF THE PLATFORMS SHOULD BE VIEWED BY CONTRACTOR.

ALL MATERIALS SHOULD BE SUPPLIED AND ERECTED IN PLACE. THERE WILL BE NO PAINTING IN PLACE. ALL BOLTS ARE STANDARD AND SHOULD BE PROVIDED WITH WASHERS AND NUTS. THE STEEL PLATES SHOULD BE FREE OF ANY DEFECTS LIKELY TO AFFECT ITS STRENGTH.

THE OAK PLANKING SHOULD BE GIVEN TWO COATS OF ACCEPTED PAINT BEFORE ERECTION. THIS PLANKING SHOULD EQUAL THE BEST FLOOR PLANKING FOR BRIDGES.

6P NEW EXPANSION BOLTS ARE TO BE ¾"φ STAINLESS STEEL x 4" LONG (TYP.)

REHAB. CONTRACT 81-071-02

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R28

HIGHWAY DEPARTMENT
-DELAWARE-

ACCESS PLATFORM TO L.L. SCREWS
WILMINGTON BRIDGE

1 0 1 2 3 4 5 6 FT.
SCALE ¾" = 1'-0"
MARCH 1928

DRAWN N.R.T.
TRACED N.R.T.
CHECKED W.M.L.
4-14-28

J.E.W. & Co. 10-28

THE POINTING BETWEEN THE EARTHWORK AND DRAINAGE.

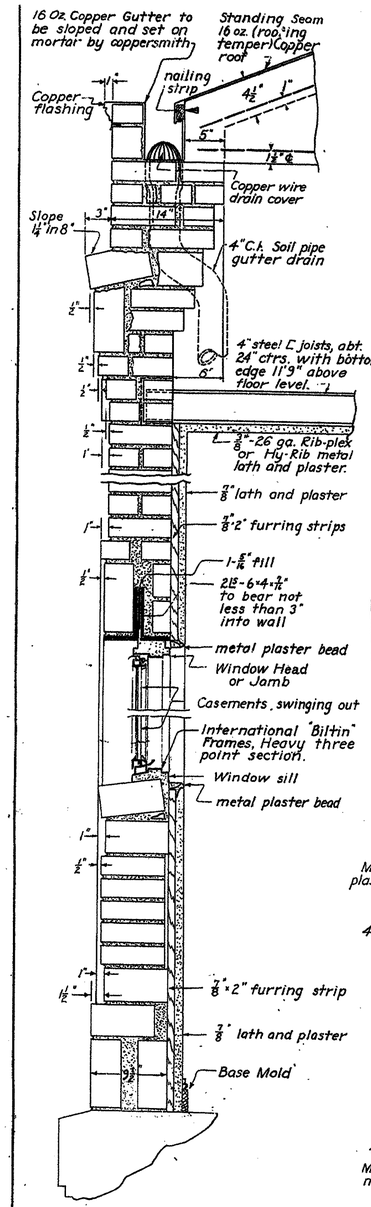
CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES.

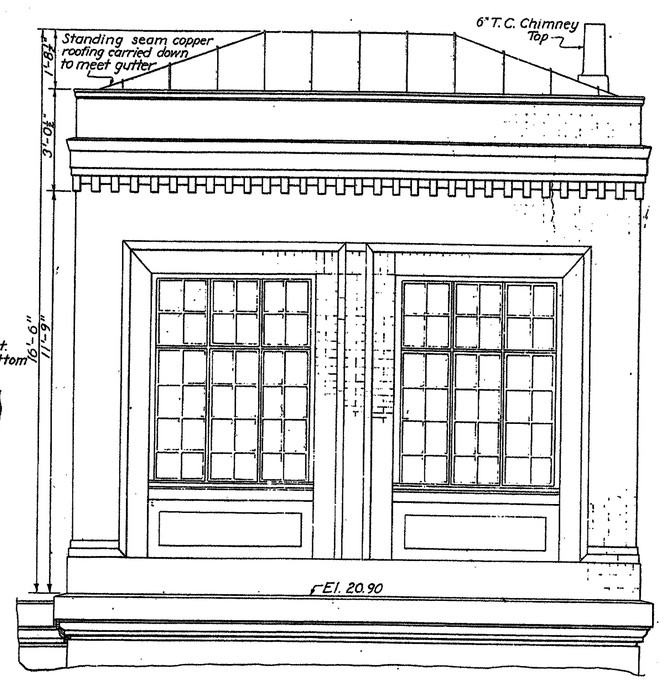
DRAWING No. 125 of 169

MOUSLEY & MASTERS
CONSULTING ENGINEERS
WILMINGTON, DELAWARE

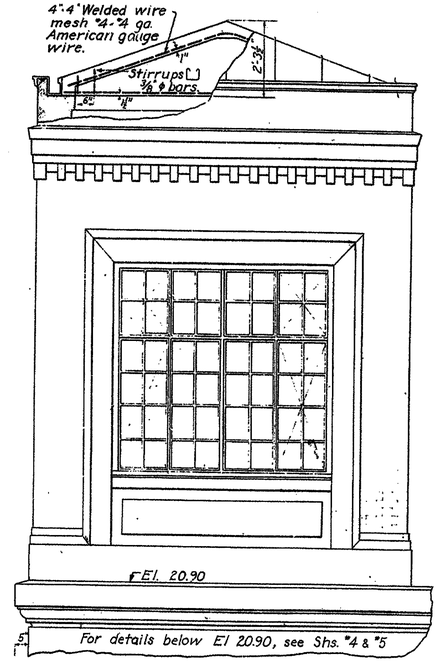
Name: Cd_029.CAL
Dimensions: 7200 x 4800 pixels



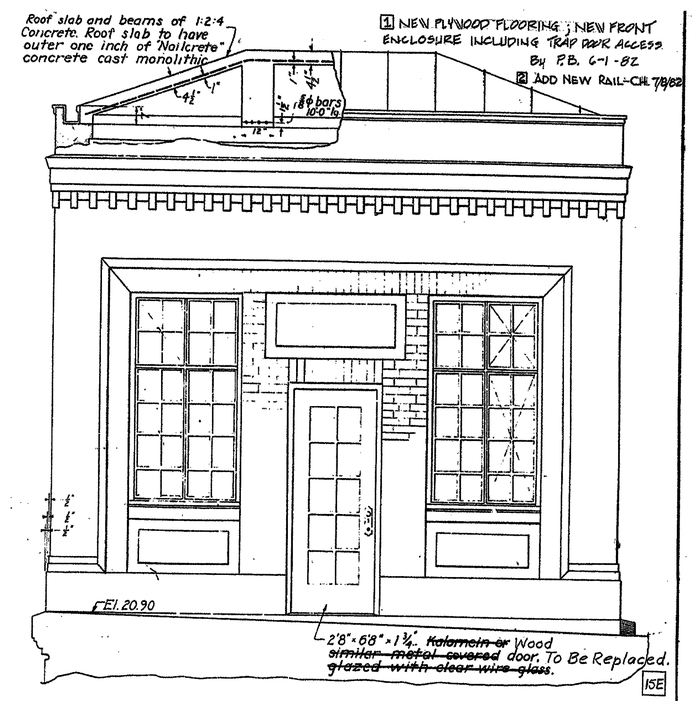
WALL SECTION
Scale: 1½"=1'-0".



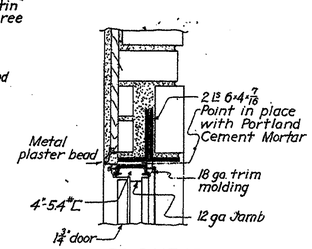
REAR ELEVATION
Scale: ½"=1'0"



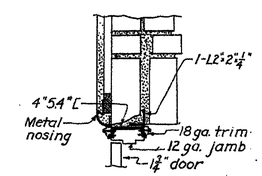
END ELEVATION
RIVER SIDE
Scale: ½"=1'-0"



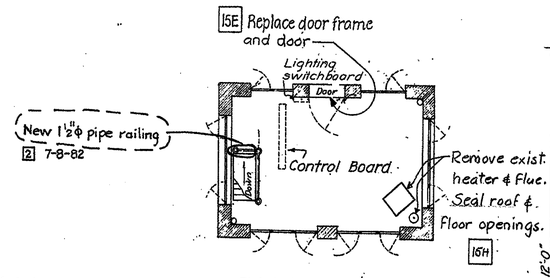
FRONT ELEVATION
Scale: ½"=1'-0"



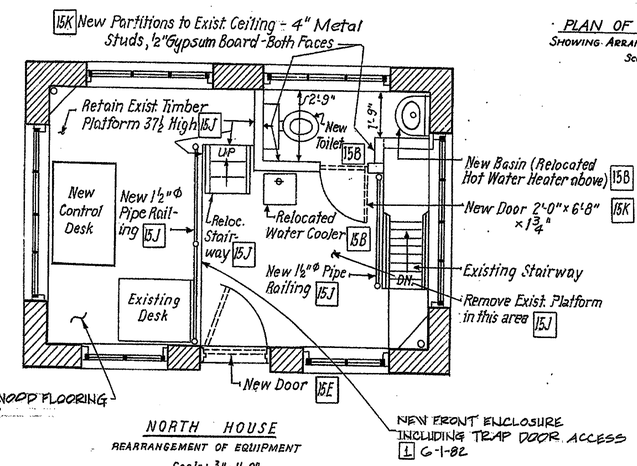
DOOR HEAD
Scale: 1½"=1'-0"



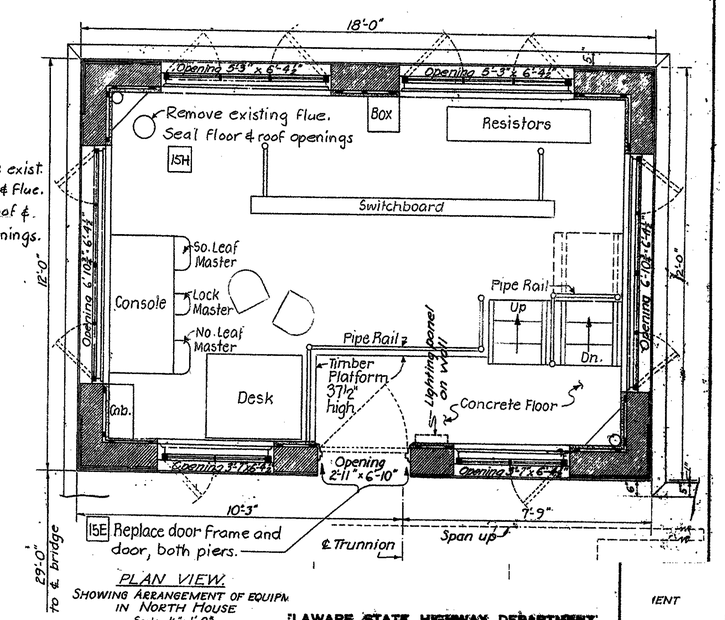
DOOR JAMB
Scale: 1½"=1'-0"



PLAN OF SOUTH HOUSE
SHOWING ARRANGEMENT OF EQUIPMENT
Scale: 3/16"=1'-0"



NORTH HOUSE
REARRANGEMENT OF EQUIPMENT
Scale: ⅜"=1'-0"



PLAN VIEW
SHOWING ARRANGEMENT OF EQUIPM IN NORTH HOUSE
Scale ½"=1'-0"

REHAB. CONTRACT 81-071-02

ORIGINAL CONTRACT DRAWING
REVISED FOR BRIDGE REHABILITATION

BY PARSONS, BRINCKERHOFF QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

DRAWING No. R29

DELAWARE STATE HIGHWAY DEPARTMENT
UTH MARKET STREET BRIDGE
OVER CHRISTIANA RIVER
WILMINGTON DELAWARE

OPERATOR'S HOUSE

SCALE AS NOTED
DESIGN BY BNH DATE 7-1-82
TRACED BY C.L.D. DATE 7-13-82
CHECKED BY DATE
SHEET NO. 14

CONTRACT No. 21-074-07
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
REPRODUCED
DRAWING No. 126 of 168
WOODWARD-MASTERS ENGINEERS & ARCHITECTS

CD-0030

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	30	54

BRIDGE No. 688

SOUTH MARKET STREET BRIDGE - WILMINGTON, DEL.

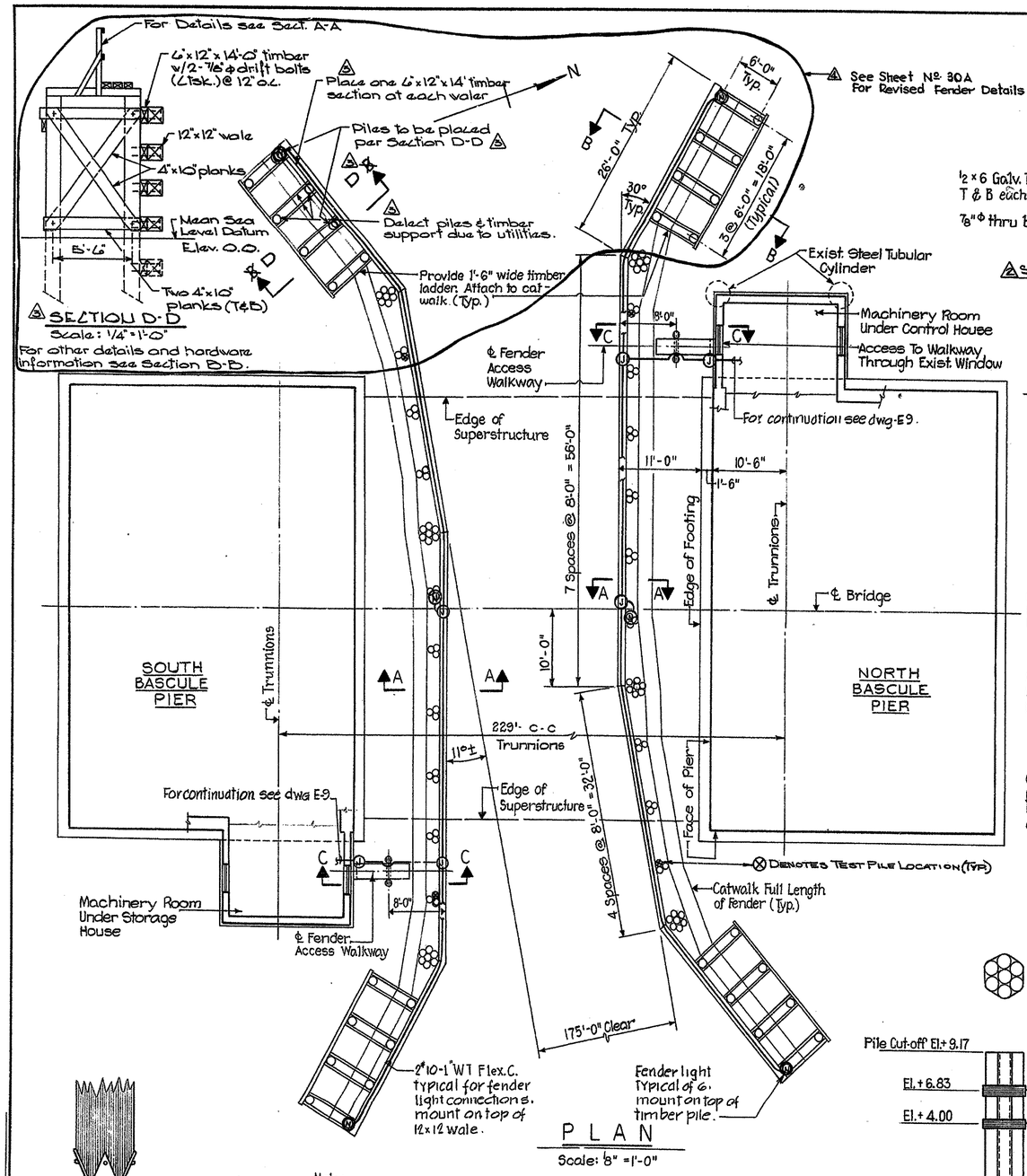
NO.	REVISIONS	BY	DATE
1	Add waler	C.H.H.	3/11/81
2	Recess & SetBack	C.H.H.	3/11/81
3	Fender System	C.H.H.	6/22/81
4	Fender System Revision	C.H.H.	1/21/82

CONTRACT No. 21-074-07

REPRODUCED **REVISED CONTRACT DRAWING** INCLUDED FOR INFORMATIONAL PURPOSES

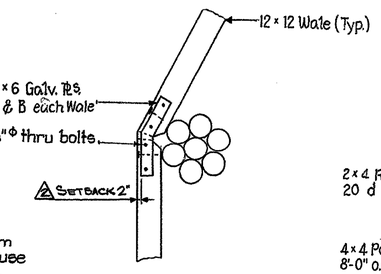
DRAWING No. 122 of 168

MOUNT-MASTERS



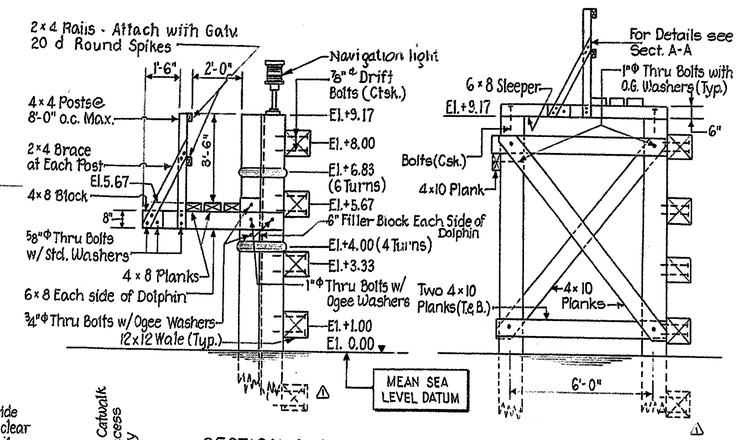
PLAN

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



TYPICAL CORNER DETAIL

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

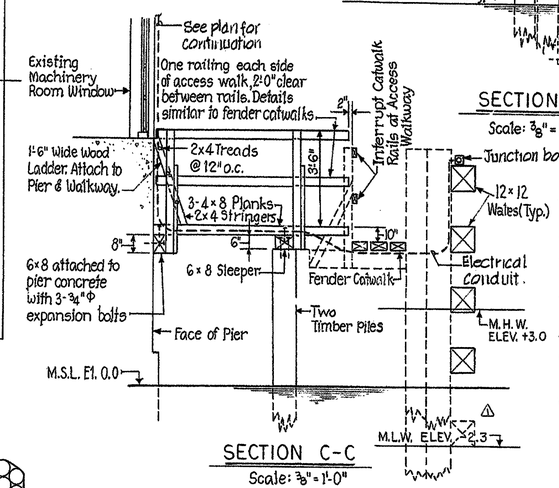


SECTION A-A

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

SECTION B-B

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

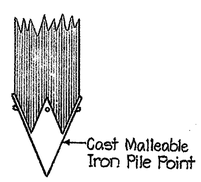


SECTION C-C

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

NOTES:

1. All elevations on this sheet are based on 1929 M.S.L. 0.0 datum.
2. Piles shall be treated as per Sect. 601 Std. Supplement.
3. Timber shall be rough and shall be treated as per Sect. 601 Std. Supplement.
4. All piles shall have a minimum bearing capacity of 15 Tons per pile and min. penetration of 20'-0" or top of rock.
5. Pile heads shall be capped according to Special Provisions.
6. Splice wales only at center of a Dolphin.
7. All hardware shall be galvanized per ASTM A 153.
8. All catwalk connections not specifically called for shall be Galv. Round Spikes, 7- inches long.
9. Bolt heads on the channel face shall be recessed 2" below surface of timber. (See Sketch "A")
10. Estimated Pile Length for Timber Piles Is 50'. For Timber Test Pile 65'.

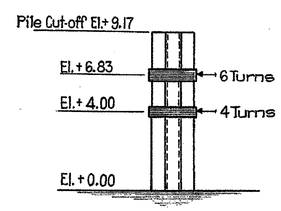


PILE POINT DETAIL

Scale: 1" = 1'-0"

Note:

All Timber and Hardware in fenders and catwalks - Repair [2]
Treated Timber Piles - Repair [9]
Points for Timber Piles - Repair [11]

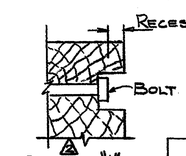


DETAIL OF SEVEN PILE DOLPHIN

Notes for Dolphins

7 Pile Dolphin - the outside piles shall be driven on a 6 ft. circle and drawn together at Elevs. +4.0 & +6.8 with 3/4" dia 6x19 galvanized wire rope. Wrap with number of turns as shown and secure each cable to face of alternate piles with 3/8" galv. staples. Piles to which wales are attached shall remain vertical.

3 Pile Dolphins - Piles shall be driven on 3 ft. centers other details similar to 7 Pile Dolphin.



SKETCH "A"

NOT TO SCALE

R30

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

FENDER DETAILS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. S.S.
T.
C. W. KAM

SCALE: As Noted

APPROVED BY:
BRIDGE ENGINEER

DRAWN BY:
CHECKED BY:
APPROVED BY:

CD-003

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	31	54

BRIDGE No. 688

SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

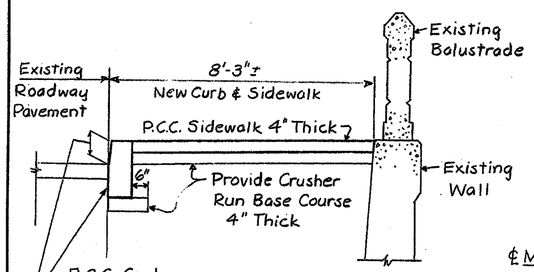
REPRODUCED

REVISED CONTRACT DRAWING

INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 128 of 168

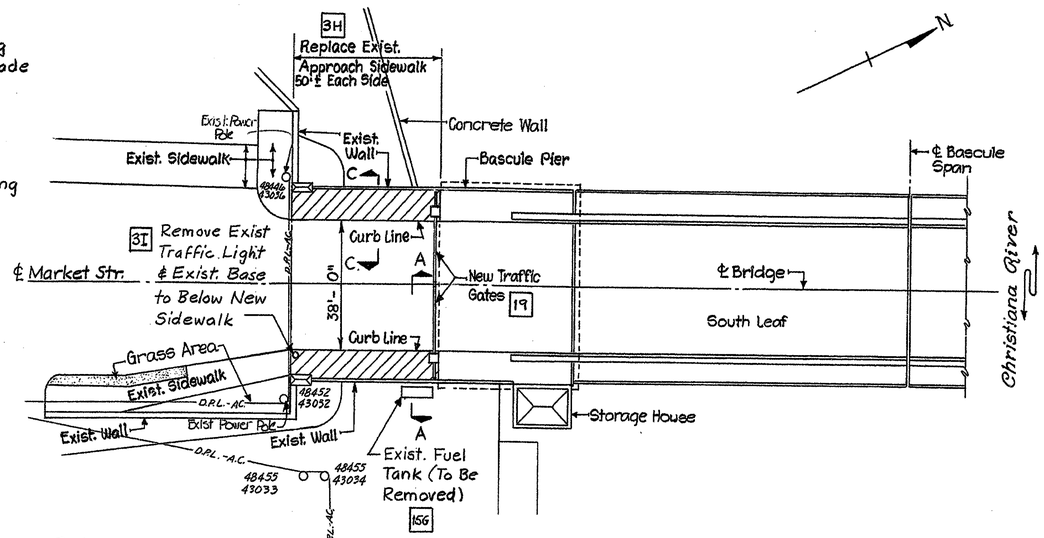
MOJSKI-MASTRIN CONSULTING ENGINEERS BRIDGE DESIGN



SECTION C-C

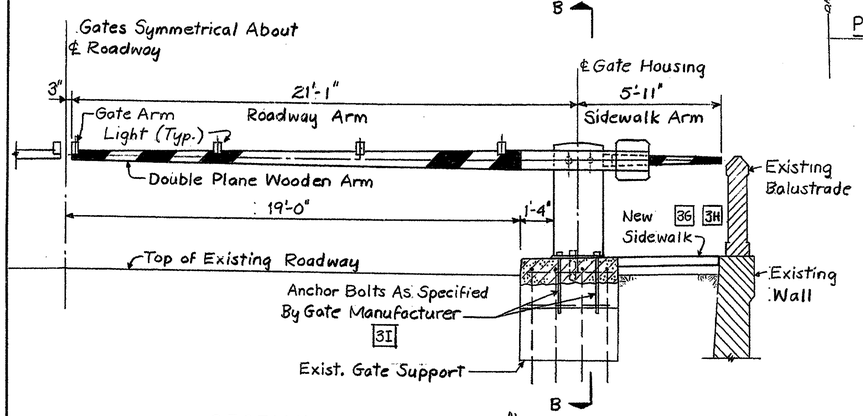
Typical Approach Sidewalk 3G 3H

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



PLAN—SOUTH APPROACH

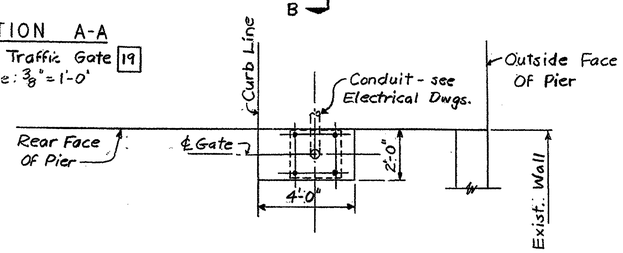
Scale: 1" = 20'



SECTION A-A

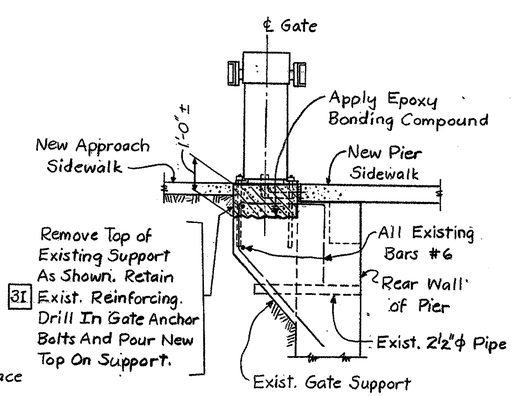
Typical Traffic Gate 19

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



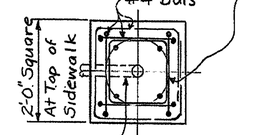
PLAN OF GATE SUPPORT

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



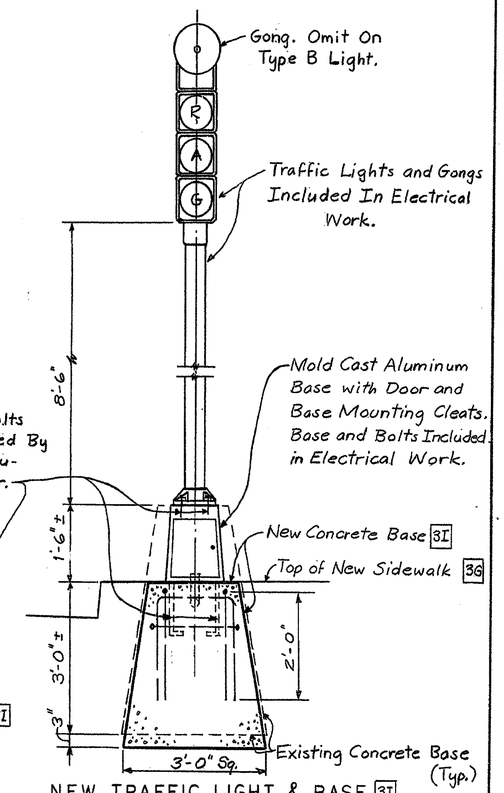
SECTION B-B

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



PLAN OF BASE 3I

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



NEW TRAFFIC LIGHT & BASE 3I

Type A Light As Shown. For Type B Light Omit Gong. Completely Remove Existing Base and Construct Completely New Base At North Light. 3I

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

R31

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

SOUTH APPROACH
TRAFFIC GATES & LIGHTS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. S.S. & M.C.S. T. C. M.C.S.	SCALE As Noted	APPROVED BY: BRIDGE ENGINEER

DRAWN BY:
CHECKED BY:
APPROVED BY:

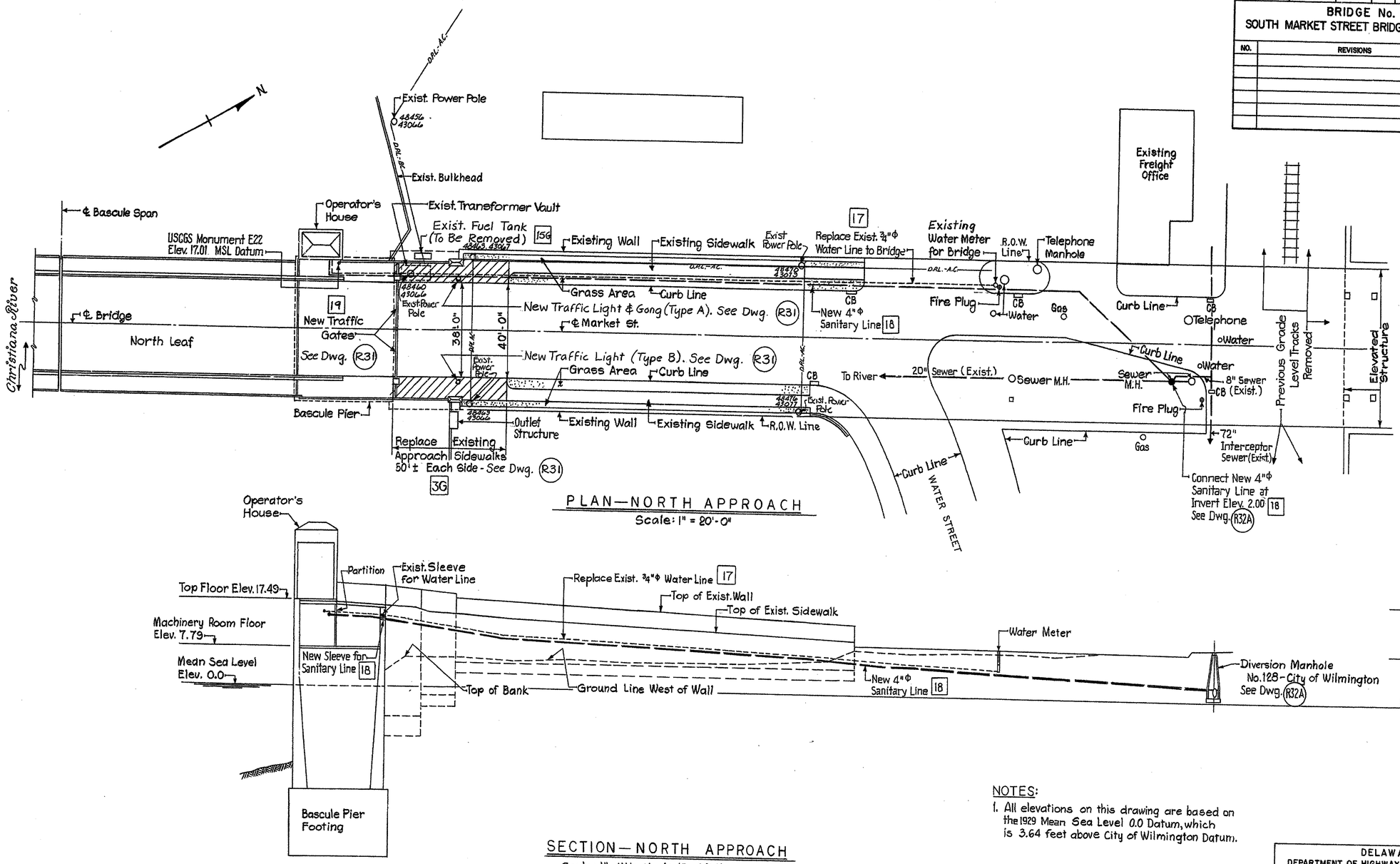
CD-0083

COUNTY	CONTRACT	F.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	32	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 129 of 169
MODJESKI and MASTERS
CONSULTING ENGINEERS
SINCE 1890



PLAN—NORTH APPROACH
Scale: 1" = 20'-0"

SECTION—NORTH APPROACH
Scale: 1" = 1' Vertical; 1" = 20' Horizontal

NOTES:
1. All elevations on this drawing are based on the 1929 Mean Sea Level 0.0 Datum, which is 3.64 feet above City of Wilmington Datum.

R32

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

NORTH APPROACH

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. S. S. T. C. M.C.S.	SCALE As Noted	APPROVED BY: BRIDGE ENGINEER

DRAWN BY:
CHECKED BY:
APPROVED BY:

CD-0024

COUNTY	CONTRACT	R.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177 (2)	53	54

BRIDGE No. 688

SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

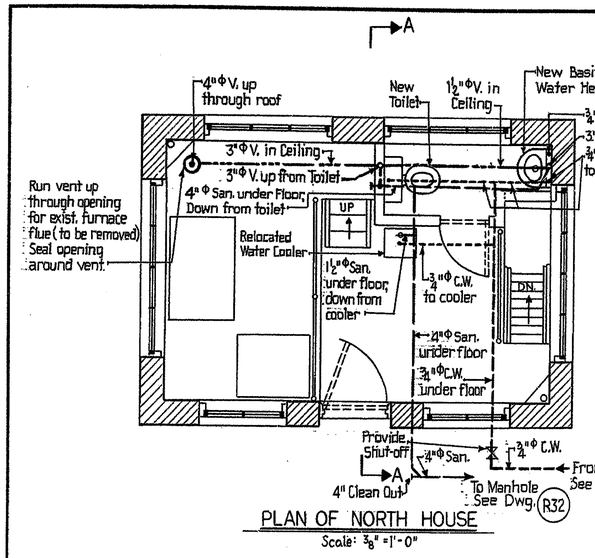
REPRODUCED

REVISED CONTRACT DRAWING

INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 130 of 189

MODJESKI and MASTERS CONSULTING ENGINEERS



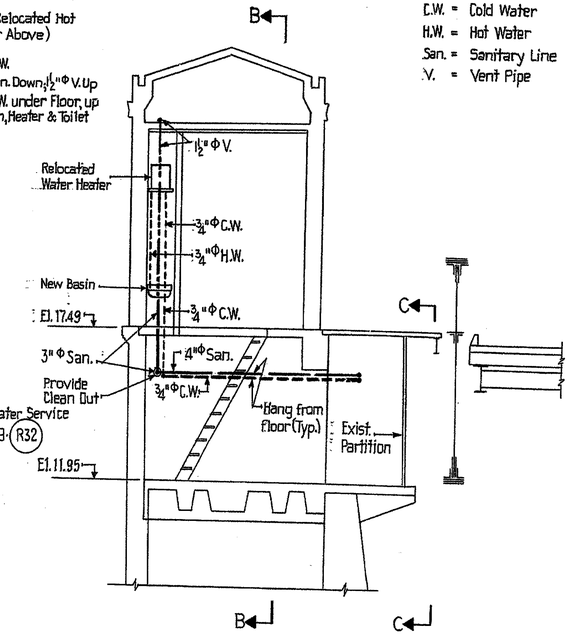
PLAN OF NORTH HOUSE

Scale: ⅜" = 1'-0"

Provide new toilet and basin with vents, relocate water cooler and heater - Repair 16B

Remove existing water line and provide new water line - 17

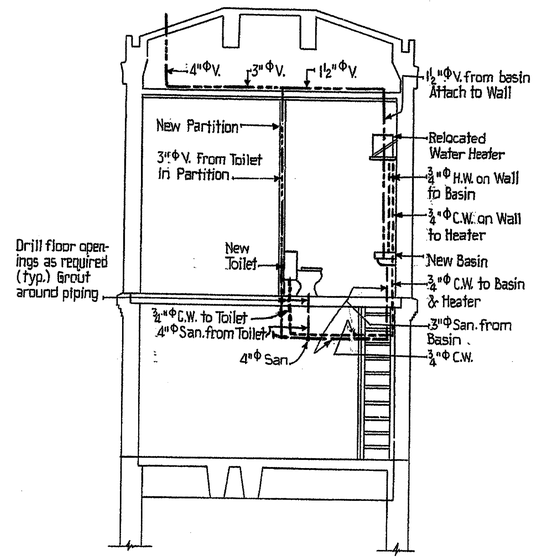
Provide sanitary line from basin, toilet and water cooler to City Sewer Manhole - Repair 18



C.W. = Cold Water
H.W. = Hot Water
San. = Sanitary Line
V. = Vent Pipe

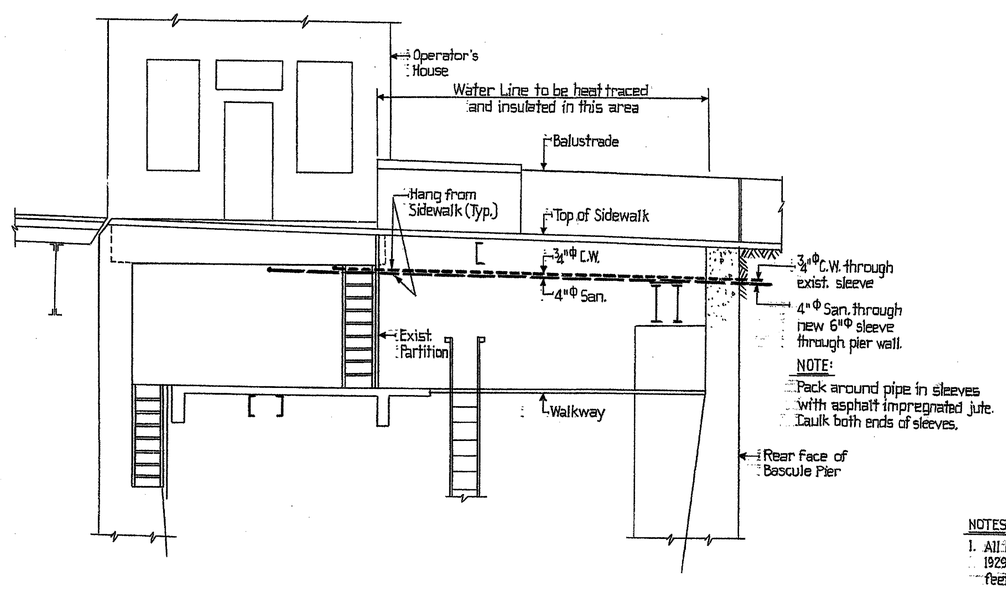
SECTION A-A

Scale: ¼" = 1'-0"



SECTION B-B

Scale: ¼" = 1'-0"

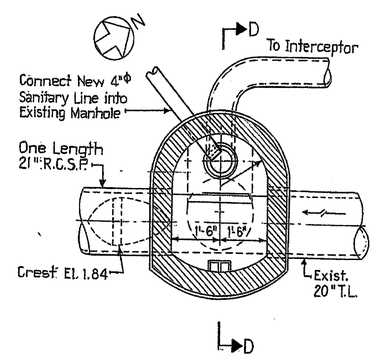


NOTE:

Pack around pipe in sleeves with asphalt impregnated jute. Caulk both ends of sleeves.

SECTION C-C

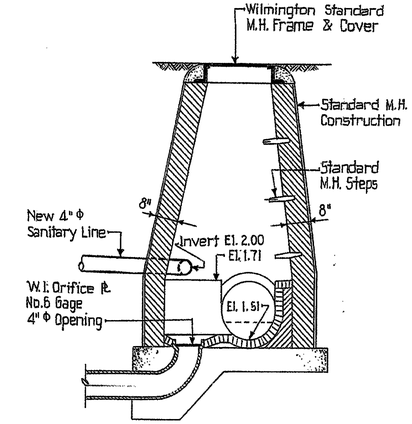
Scale: ¼" = 1'-0"



PLAN OF EXISTING MANHOLE

Diversion Manhole No. 128
City of Wilmington

Scale: ½" = 1'-0"



SECTION D-D

Scale: ½" = 1'-0"

R33

NOTES:

1. All Elevations on this drawing are based on the 1929 Mean Sea Level 0.0 Datum which is 3.64 feet above City of Wilmington Datum.
2. Provide traps in sanitary lines under the new wash basin and relocated water cooler.
3. Provide water line shut offs at new toilet, new wash basin, relocated water cooler and relocated water heater. Provide a main line shut-off as shown on the Plans.

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION

SANITARY & WATER LINE DETAILS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. S. S.	SCALE	APPROVED BY:
T.	As Noted	
C.M.C.S.		BRIDGE ENGINEER

CD-0025

COUNTY	CONTRACT	F.A.P.S. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	81-071-02	2	DEL.	BRM-1177(2)	54	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE

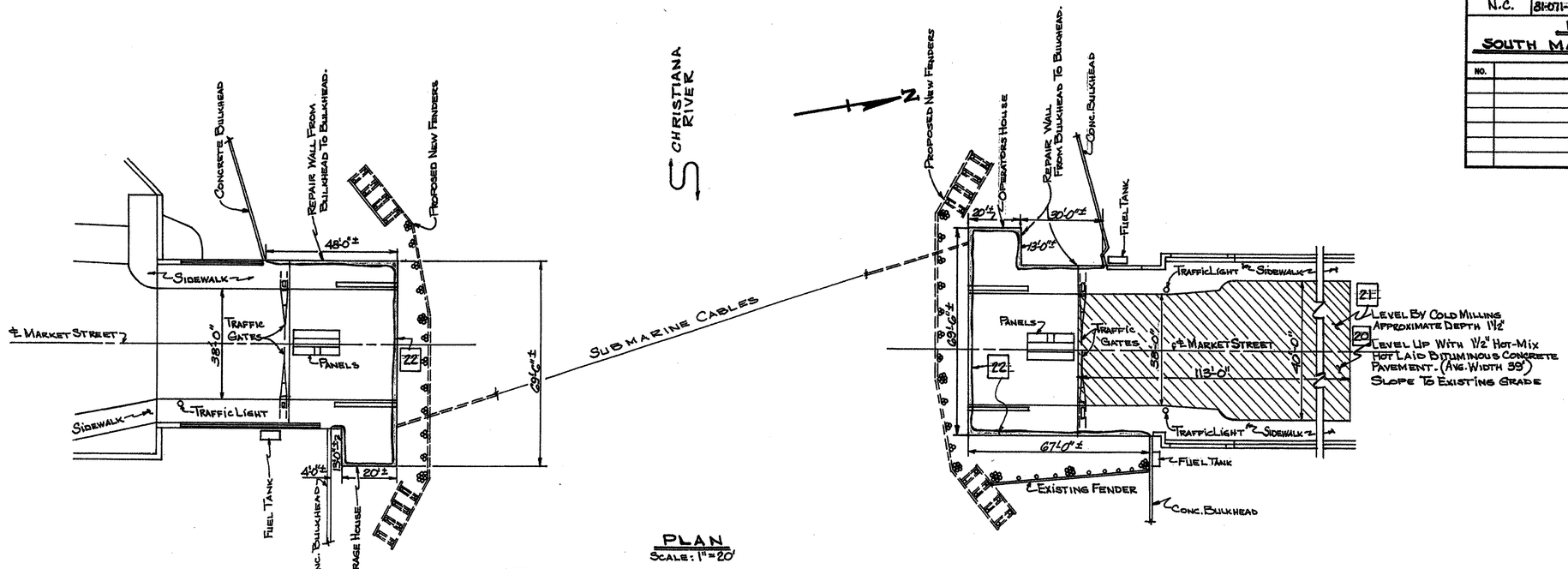
NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 131 of 169

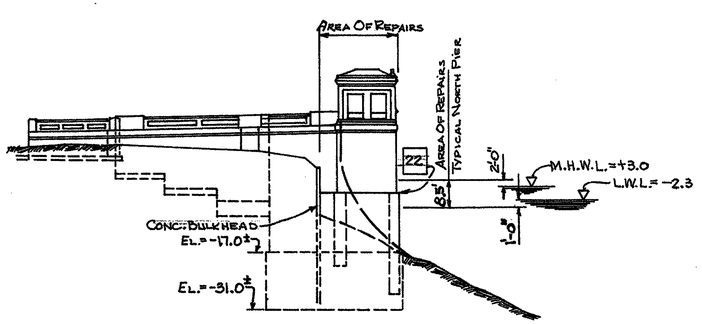
MOUSSE-HASTINGS CONSULTING ENGINEERS DELAWARE STATE BANK



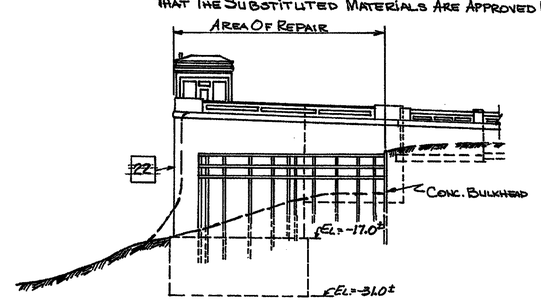
PLAN
SCALE: 1" = 20'

22 REPAIR PROCEDURE FOR NORTH AND SOUTH PIERS

1. THIS SHEET IS FOR THE NORTH AND SOUTH PIERS AND NORTH ROADWAY REPAIRS ONLY. ALL WORK ON THE PIERS WILL BE DONE AT LOW TIDE.
2. WORK TO BE PERFORMED ON THE PIERS IS 2'-0" ABOVE AND 1'-0" BELOW THE MEAN HIGH AND LOW WATER LEVEL ELEVATIONS AS SHOWN IN THE ELEVATION VIEW. WORK TO BE DONE IS FROM CONCRETE BULKHEAD TO CONCRETE BULKHEAD.
3. SURFACE PREPARATION IS TO BE DONE BY WATER JETTING. TAKE NOTE THAT WHEN DISTURBING THE SURFACE SUCH AS THAT IN PREPARATION FOR THE APPLICATION OF SIKADUR LO-MOD-GEL, YOU SHOULD ALLOW A MINIMUM OF 24 HOURS FOR A NEUTRALIZATION BEFORE APPLYING ANY MATERIALS TO THAT SURFACE. AFTER SURFACE PREPARATION PLACE AN AREA WITH A SKIN COAT OF APPROXIMATELY 1/8" OVER THE ENTIRE AREA WITH SIKADUR LO-MOD-GEL. WHERE ANY LARGE SPALDED SECTIONS OCCUR, USE THE SAME MATERIAL BUT WITH THE ADDITION OF ONE PART KILN DRIED QUARTZITE AGGREGATE. ON TOP OF THIS REPAIR COAT THE ENTIRE AREA WITH AGUA-TOP AND AQUA BASE, SIKA HI-BILD EPOXY COATING FOR SPLASH ZONE AND UNDERWATER SURFACES. THE BASE COAT WOULD BE APPROXIMATELY 7 TO 10 MILS, AND THE TOP COAT 5 TO 8 MILS IN TOTAL THICKNESS. SEE SPECIAL PROVISIONS.
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT FALL OF ANY FOREIGN MATERIAL INTO THE RIVER. HOWEVER, IF ANY MATERIAL DOES FALL, IT SHOULD BE REMOVED TO THE SATISFACTION OF THE ENGINEER.
5. ADMIXTURES SUPPLIED BY OTHER THAN THE ABOVE MANUFACTURER MAY BE SUBSTITUTED AFTER SUBMISSION TO THE BUREAU OF MATERIALS AND RESEARCH AND IT IS DETERMINED THAT THE SUBSTITUTED MATERIALS ARE APPROVED EQUAL OR BETTER.



SOUTH PIER



NORTH PIER

ELEVATION
SCALE: 1" = 20'

R34

ESTIMATED QUANTITIES				
	SECTION		UNIT	PROPOSAL
	No.	TITLE		
20	401	HOT MIX, HOT LAID BITUMINOUS CONCRETE PAV. (IV, 1½")	TON	365
21	S.P.	REMOVAL OF 1½" HOT MIX ROADWAY APPROACH	S.Y.	500
22	S.P.	REPAIRS TO NORTH AND SOUTH PIERS	S.F.	3018

DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN AND ELEVATION SHOWING REPAIRS TO PIER WALLS AND ROADWAY

D. A.C.S.J.	SCALE	APPROVED BY:
T. T.F.F.	AS SHOWN	
C.		BRIDGE ENGINEER

CD-0031

COUNTY	CONTRACT	F.E.A. REF. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	35	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

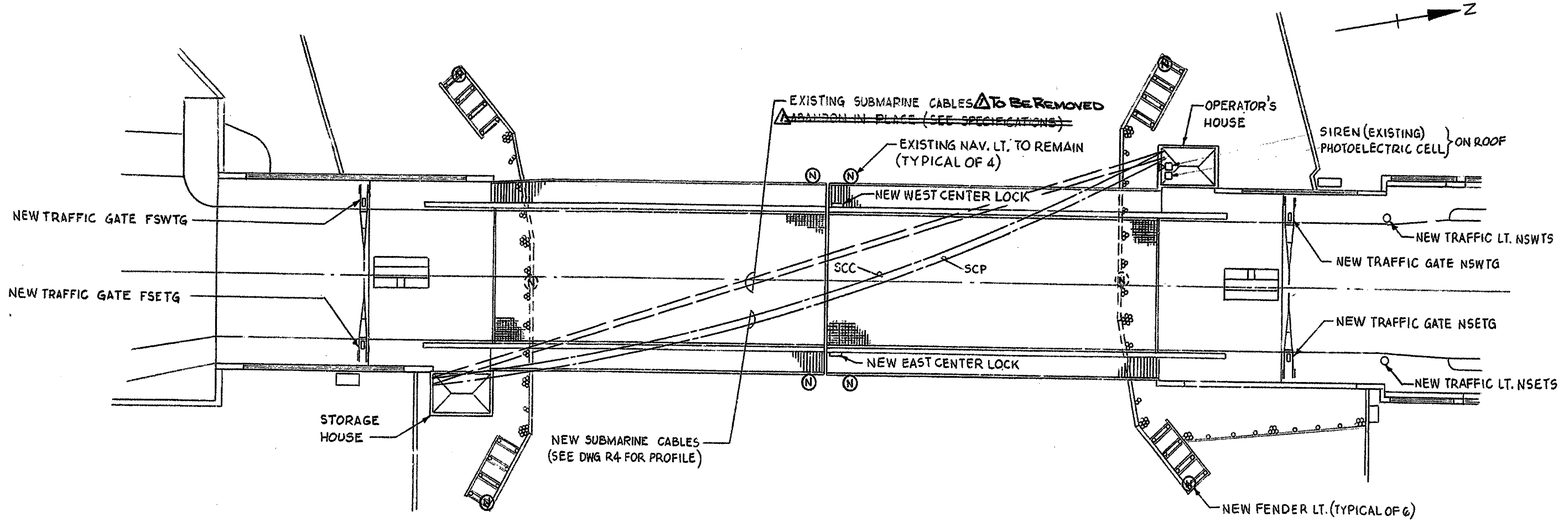
NO.	REVISIONS	BY	DATE
1	Note for Submarine Cable	CHH	3/11/81

CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 132 of 189

MOJONNIER & MASTERS CONSULTING ENGINEERS SINCE 1906



PLAN
SCALE: 1" = 20'

ELECTRICAL PLAN SYMBOLS

- OUTLET FOR CEILING INCANDESCENT LIGHTING FIXTURE.
- OUTLET FOR CEILING FLUORESCENT LIGHTING FIXTURE.

(UPPER CASE LETTER DENOTES FIXTURE TYPE, LOWER CASE LETTER DENOTES SWITCH CONTROLLING OUTLET.)

- DUPLEX CONVENIENCE RECEPTACLE OUTLET, GROUNDING TYPE MOUNTED 12" ABOVE FINISHED FLOOR.
- S_b SINGLE POLE SWITCH-'b' DENOTES OUTLETS CONTROLLED, MOUNTED 4'-0" ABOVE FINISHED FLOOR OR AS DIRECTED
- (N) NAVIGATION LIGHT
- (J) JUNCTION BOX
- [L] LIMIT SWITCH
- (T) THERMOSTAT
- DISCONNECT SWITCH
- MOTOR CONTROLLER
- LIGHTING PANEL
- SIREN
- UNIT HEATER
- SUBMARINE CABLE
- RIGID CONDUIT EXPOSED
- RIGID CONDUIT CONCEALED
- LP2-1,3,5 HOME RUN TO PANELS - PANEL IDENTIFICATION AND CIRCUIT NUMBERS AS INDICATED.
- HATCH MARKS ON BRANCH CIRCUIT DENOTES NUMBER OF #12 WIRES IN RACEWAY. ABSENCE OF HATCHMARKS DENOTE 2 #12 WIRES.
- CAPPED CONDUIT
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- CONDUIT COUPLING

⚠ Note: See sheet No. 4 for Elevation of Submarine Cable

E1

ABBREVIATIONS

ACB.	AIR CIRCUIT BREAKER
A.F.F.	ABOVE FINISHED FLOOR
AUX.	AUXILIARY
C. OR CND.	CONDUIT (RIGID GALVANIZED STEEL)
C.C.	CONTROL CENTER
COND.	CONDUCTOR
DPLC	DELMARVA POWER AND LIGHT CO.
DISTR.	DISTRIBUTION
DT.	DOUBLE THROW
DWG.	DRAWING
EC.	EMPTY CONDUIT
EL.	ELEVATION
ELEC.	ELECTRIC, ELECTRICAL
EMEG.	EMERGENCY
ENCL.	ENCLOSURE
EQUIP	EQUIPMENT
EXH.	EXHAUST
FVNR.	FULL VOLTAGE NON REVERSING
FVR.	FULL VOLTAGE REVERSING
GAC.	GALVANIZED ARMORED CABLE
HTR.	HEATER
HVAC.	HEATING, VENTILATING, AIR CONDITIONING.
HW	HOT WATER
IND. LTS.	INDICATING LIGHTS
JB.	JUNCTION BOX
LP.	LIGHTING PANEL
LT.	LIGHTS
LTG.	LIGHTING
L.S.	LIMIT SWITCH
MACH.	MACHINE, MACHINERY
MECH.	MECHANICAL
NAV.	NAVIGATION
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NOM.	NOMINAL
OL.	OVERLOAD
OPER.	OPERATED
P.	POLE
PB.	PULL BOX, PUSH BUTTON
PNL.	PANEL
PP.	POWER PANEL
PWR.	POWER
RECP.	RECEPTACLE
SEC.	SECONDARY
SPDT.	SINGLE POLE, DOUBLE THROW
SPST.	SINGLE POLE, SINGLE THROW
SUBM.	SUBMARINE
SW.	SWITCH
TRANS.	TRANSFORMER
VERT.	VERTICAL
U.H.	UNIT HEATER
W.R.	WOUND ROTOR
WT	WATERTIGHT

WIRING DIAGRAM SYMBOLS

- MOLDED CASE CIRCUIT BREAKER - 480V. MANUALLY OPERATED.
- (E) MOLDED CASE CIRCUIT BREAKER-480V. ELECTRICALLY OPERATED.
- MOLDED CASE CIRCUIT BREAKER WITH MAGNETIC, THERMAL OR THERMAL-MAGNETIC OVERLOAD RELAYS.
- (R) OPERATING COIL, LETTER IDENTIFIES TYPE. (R) RELAY, (PH) PHASE REVERSAL RELAY, (M) MAGNETIC STARTER, (C) CONTACTOR, (S) SWITCH, REMOTE CONTROL.
- GROUND CONNECTIONS.
- (W) METER INSTRUMENT (A) AMMETER, (V) VOLTMETER (W) WATT METER.
- (G) INDICATING LIGHT-(R) RED, (G) GREEN, (A) AMBER
- (A) TRAFFIC GATE, TRAFFIC SIGNAL OR NAVIGATION WARNING LIGHT, (R) RED, (A) AMBER, (G) GREEN
- TRAFFIC ALARM BELL
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- FUSE
- MOMENTARY CONTACT PUSHBUTTON, NORMALLY OPEN.
- MOMENTARY CONTACT PUSHBUTTON, NORMALLY CLOSED.
- DISCONNECT SWITCH.
- PLUNGER OR LEVER TYPE LIMIT SWITCH.
- NON-REVERSING MAGNETIC STARTER.
- REVERSING MAGNETIC STARTER.
- (3) SQUIRREL CAGE MOTOR, NUMBER DENOTES HORSEPOWER.
- (100) WOUND ROTOR MOTOR.
- [B] MOTOR BRAKE
- POWER TRANSFORMER
- CURRENT TRANSFORMER
- LIMIT SWITCH, NORMALLY OPEN
- LIMIT SWITCH, NORMALLY CLOSED
- BY-PASS SWITCH
- [H] HEATER
- [VS] VOLTMETER SWITCH
- (PR) PHASE REVERSAL RELAY
- [R] RESISTOR
- SIREN

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL
KEY PLAN, SYMBOLS AND ABBREVIATIONS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. J.L.
T.
C. M.A.M.

SCALE: AS SHOWN

APPROVED BY:
BRIDGE ENGINEER

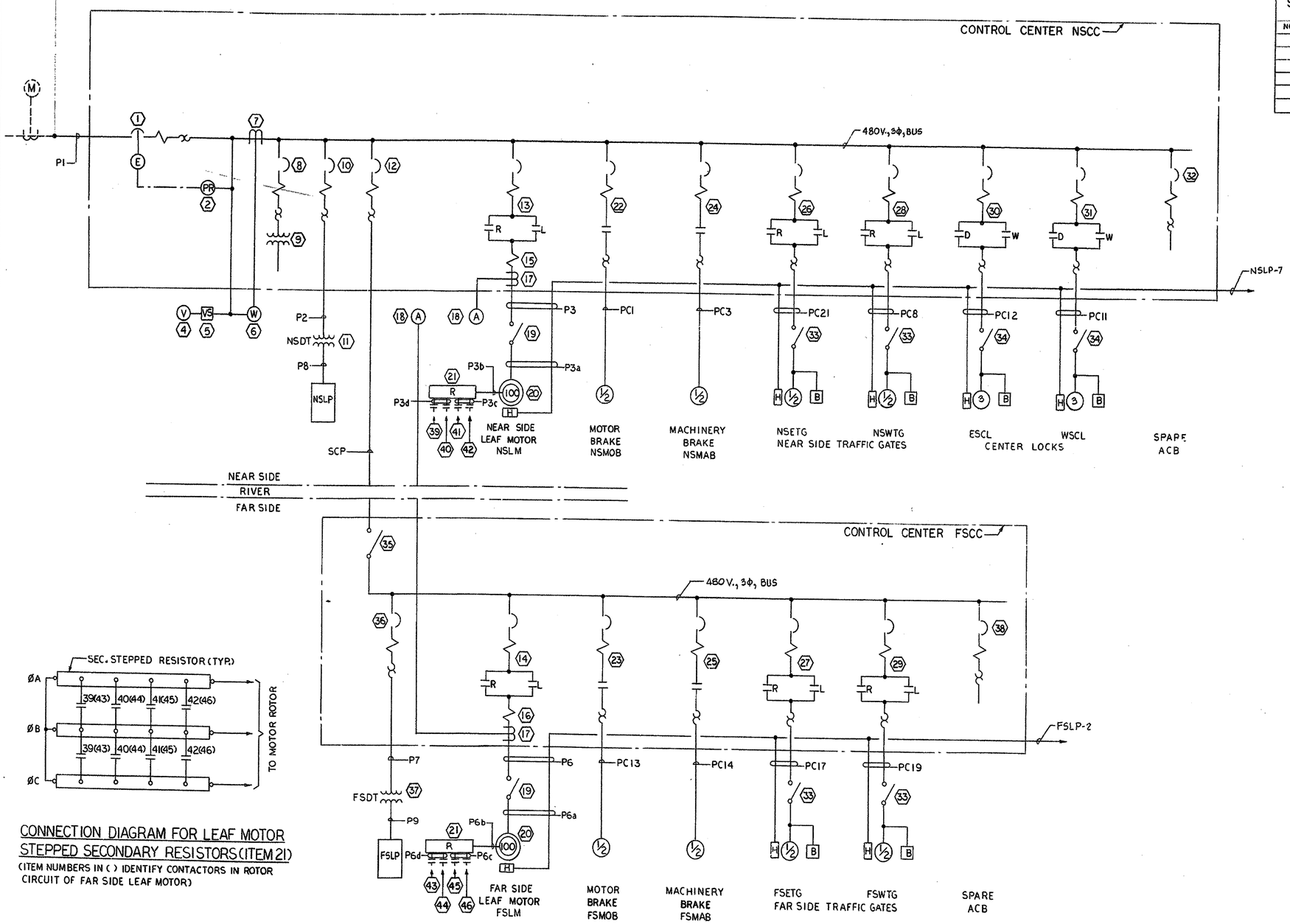
CD-0037

COUNTY	CONTRACT	P.R.A. FED. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	36	54

BRIDGE No 688
SOUTH MARKET STREET BRIDGE-WILMINGTON DEL.

NO	REVISIONS	BY	DATE

CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 133 of 187
MOD/DSLT-MASTERS CORPORATION REPRESENTATIVE



CONNECTION DIAGRAM FOR LEAF MOTOR STEPPED SECONDARY RESISTORS (ITEM 21)

(ITEM NUMBERS IN ( ) IDENTIFY CONTACTORS IN ROTOR CIRCUIT OF FAR SIDE LEAF MOTOR)

E2

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL

POWER DISTRIBUTION DIAGRAM

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. A.R. T. C. M.A.M.	SCALE NONE	APPROVED BY: BRIDGE ENGINEER

CD-0038

COUNTY	CONTRACT	P.B.A. REG.NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BPM-1177(2)	37	54

BRIDGE No 688
SOUTH MARKET STREET BRIDGE-WILMINGTON DEL.

NO	REVISIONS	BY	DATE

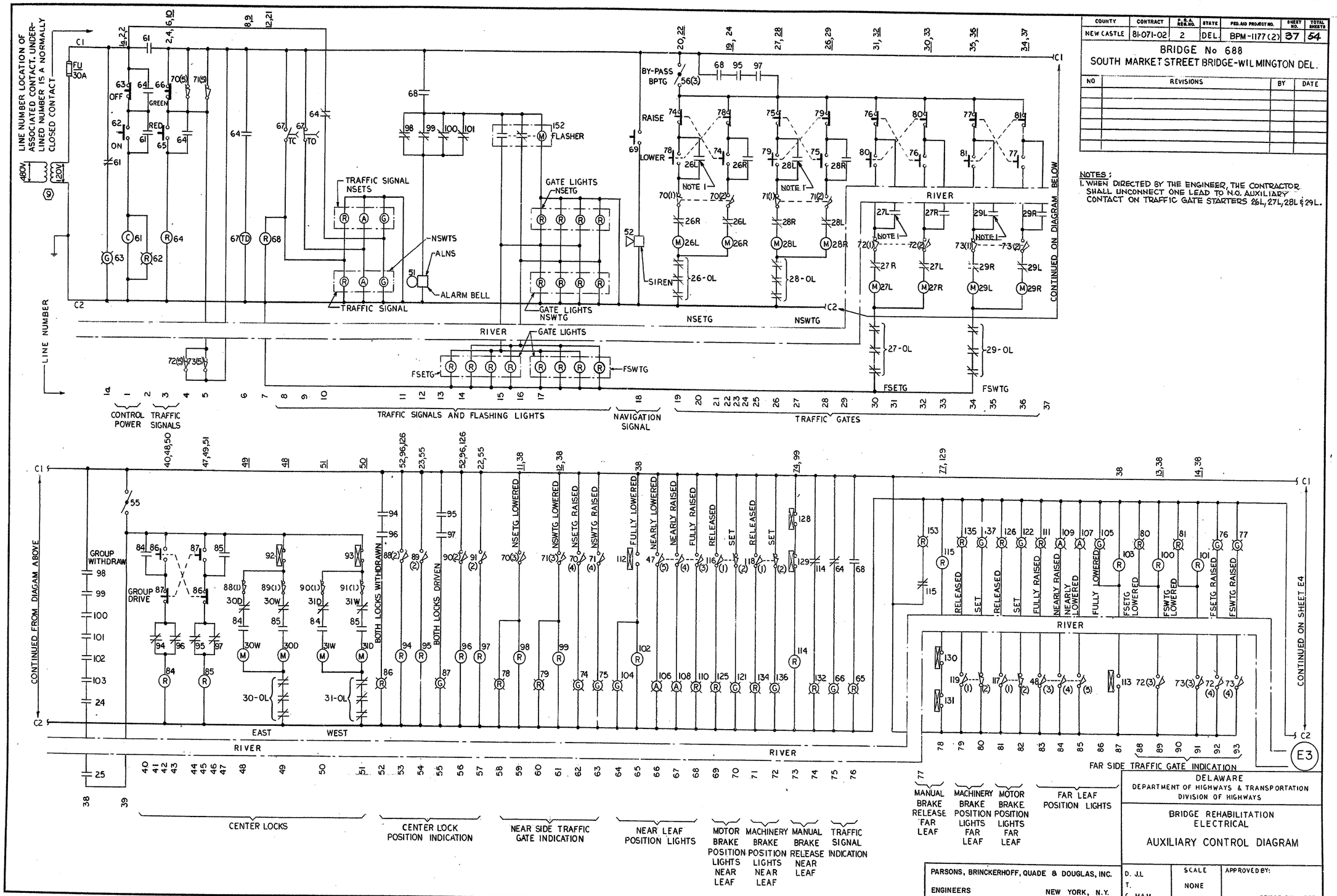
NOTES:
1. WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL UNCONNECT ONE LEAD TO N.O. AUXILIARY CONTACT ON TRAFFIC GATE STARTERS 26L, 27L, 28L & 29L.

CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 13 of 18

MODJESKI and MASTERS
CONSULTING ENGINEERS
BRIDGE & TUNNEL



DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL

AUXILIARY CONTROL DIAGRAM

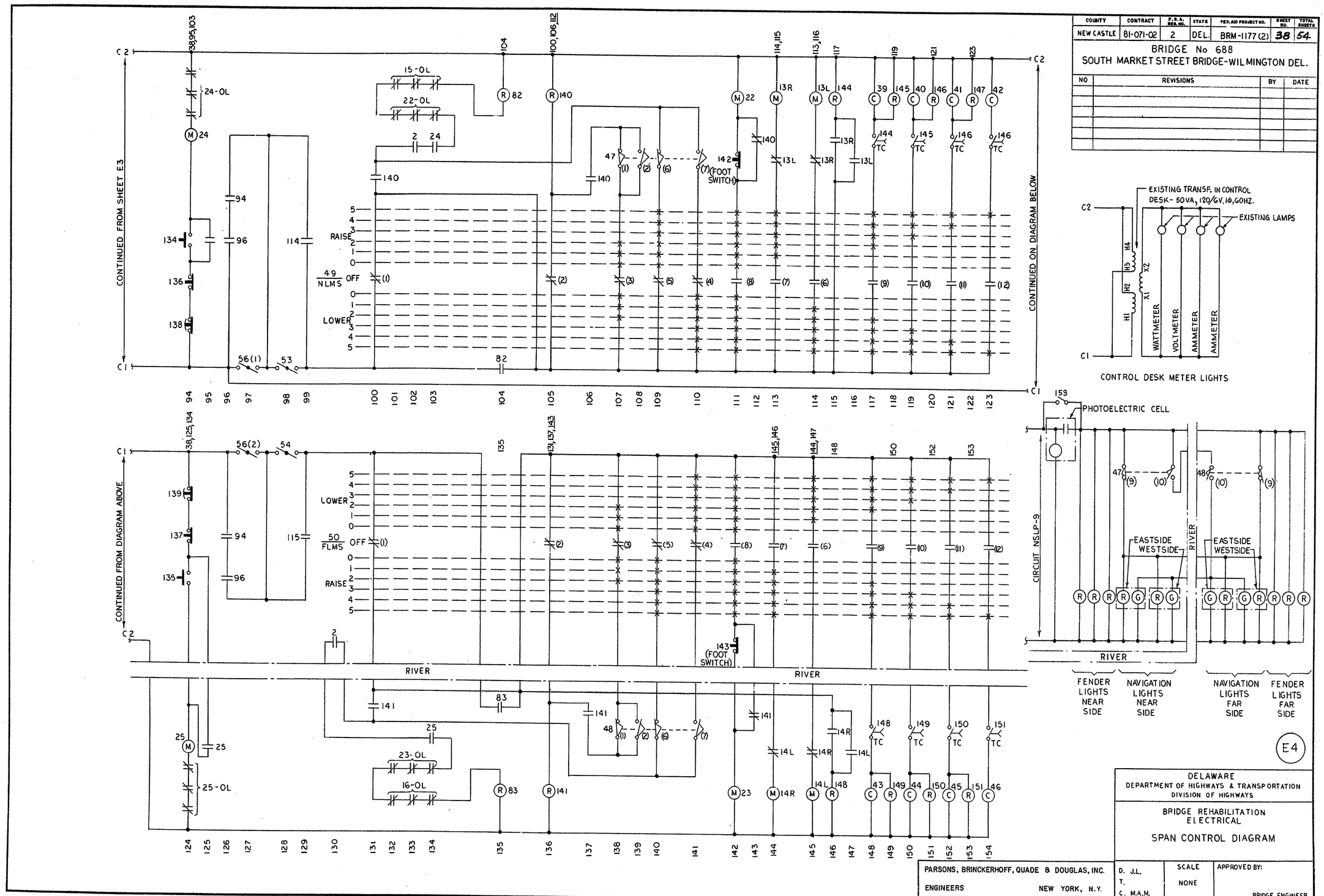
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. J.L
T.
C. M.A.M.

SCALE NONE

APPROVED BY:
BRIDGE ENGINEER

CD-0039



COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177 (2)	38	54

BRIDGE No 688
SOUTH MARKET STREET BRIDGE-WILMINGTON DEL.

NO	REVISIONS	BY	DATE

CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS Consulting Engineers SINCE 1903
DRAWING No. 135 of 169

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL

SPAN CONTROL DIAGRAM

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. J.L.
T.
C. M.A.M.

SCALE NONE

APPROVED BY:
BRIDGE ENGINEER

CD-0040

COUNTY	CONTRACT	F.R.A. REG.NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	39	54

BRIDGE No 688
SOUTH MARKET STREET BRIDGE-WILMINGTON DEL.

NO	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 136 of 169

MODJESKI-MASTERS

ITEM NO.	QUAN	DESCRIPTION	APPLICATION	LOCATION	N-NEW R-RELOCATED E-EXISTING
1	1	MAIN ACB, 600V., 3P, 600 A. FR., 400 A. THERMAL MAGNETIC TRIP, ELEG. OPERATOR	MAIN DISCONNECT	CONTROL CENTER N5CC	N
2	1	PHASE REVERSAL AND PHASE FAILURE RELAY, 2 N.O. CONTACTS	PROTECTION	CONTROL CENTER N5CC	N
3		SPARE NUMBER			
4	1	VOLTMETER, 0-600 VOLT SCALE	METERING	CONTROL DESK	R
5	1	VOLTMETER SWITCH	METERING	CONTROL DESK	R
6	1	WATTMETER, 0-300KW SCALE	METERING	CONTROL DESK	N
7	2	CURRENT TRANSFORMER, 400/5 A., 600 V.	METERING	CONTROL CENTER N5CC	N
8	1	FEEDER ACB, 600V., 2P, 100 A. FR., 15 A. TRIP	FEEDER PROTECTION	CONTROL CENTER N5CC	N
9	1	CONTROL POWER TRANSFORMER, 5KVA, 480/120V., 1φ, 60 HZ.	CONTROL VOLTAGE	CONTROL CENTER N5CC	N
10	1	FEEDER ACB, 600V., 3P, 100 A. FR., 60 A. TRIP	FEEDER PROTECTION	CONTROL CENTER N5CC	N
11	1	DISTRIBUTION TRANSFORMER, 30 KVA, 480/208Y120V., 3φ, 60HZ.	VOLTAGE TRANSFORMATION	NORTH SIDE MACHINERY ROOM	N
12	1	FEEDER ACB, 600V., 3P, 400 A. FR., 200 A. TRIP	FEEDER PROTECTION	CONTROL CENTER N5CC	N
13	1	COMB. ACB FVR STARTER, SIZE 4, 600V, 3P, WITHOUT OL RELAYS, 120V COIL (SEE NOTE 1)	MOTOR CONTROL	CONTROL CENTER N5CC	N
14	1	COMB. ACB FVR STARTER, SIZE 4, 600V, 3P, WITHOUT OL RELAYS, 120V COIL (SEE NOTE 1)	MOTOR CONTROL	CONTROL CENTER F5CC	N
15	3	MAGNETIC RELAYS FOR 100 HP WR MOTOR, 1 N.C. AUX. CONTACT	OVERLOAD PROTECTION	CONTROL CENTER N5CC	N
16	3	MAGNETIC RELAYS FOR 100 HP WR MOTOR, 1 N.C. AUX. CONTACT	OVERLOAD PROTECTION	CONTROL CENTER F5CC	N
17	2	CURRENT TRANSFORMER, 200/5 A., 600 V.	METERING	CONTROL CTRS. N5CC & F5CC	N
18	2	AMMETER, 0-200 A. SCALE	METERING	CONTROL DESK	R
19	2	200 A., 600V., 3P, UNFUSED SAFETY SWITCH, NEMA I ENCLOSURE	EQUIP. DISCONNECT	AT MACHINERY	N
20	2	LEAF DRIVE WOUND ROTOR MOTOR	LEAF MAIN DRIVE	NORTH AND SOUTH SIDE MACHINERY ROOMS	N
21	2	LEAF DRIVE MOTOR SECONDARY STEPPED RESISTOR ASSEMBLY	SPEED CONTROL	NORTH AND SOUTH SIDE MACHINERY ROOMS	N
22,24	2	COMB. ACB, FVNR STARTER, SIZE 0, 600V., 3P, 3 THERMAL RELAYS, 120V. COIL	BRAKE CONTROL	CONTROL CENTER, N5CC	N
23,25	2	COMB. ACB, FVNR STARTER, SIZE 0, 600V., 3P, 3 THERMAL RELAYS, 120V. COIL	BRAKE CONTROL	CONTROL CENTER, F5CC	N
26,28,30,31	4	COMB. ACB, FVR STARTER, SIZE 0, 600V., 3P, 3 THERMAL RELAYS, 120V. COIL	TRAFFIC GATE AND CENTER LOCK CONTROL	CONTROL CENTER . N5CC	N
27,29	2	COMB. ACB, FVR STARTER, SIZE 0, 600V., 3P, 3 THERMAL RELAYS, 120V. COIL	TRAFFIC GATE CONTROL	CONTROL CENTER F5CC	N
32	1	ACB, 600V., 3P, 100 A. FRAME, 90 A. THERMAL-MAGNETIC TRIP, MANUAL	SPARE	CONTROL CENTER N5CC	N
33	4	DISCONNECT SWITCH, 30A., 600V, 3P, - FURNISHED WITH TRAFFIC GATE	EQUIPMENT ISOLATION	AT TRAFFIC GATE	N
34	2	DISCONNECT SWITCH, 30A., 600V, 3P, NEMA IV ENCLOSURE	EQUIPMENT ISOLATION	AT CENTER LOCK	N
35	1	225 A., 600V., 3P MOLDED CASE SWITCH	EQUIPMENT ISOLATION	CONTROL CENTER F5CC	N
36	1	FEEDER ACB, 600V, 3P, 100 A. FR., 40 A. TRIP	FEEDER PROTECTION	CONTROL CENTER F5CC	N
37	1	DISTRIBUTION TRANSFORMER, 30 KVA, 480/208Y120V., 3φ, 60 HZ.	VOLTAGE TRANSFOMATION	SOUTH SIDE MACHINERY ROOM	N
38	1	ACB, 600V., 3P, 100 A. FRAME, 90 A. THERMAL-MAGNETIC TRIP, MANUAL	SPARE	CONTROL CENTER F5CC	N
39,40,41,42	4	SIZE 4, 600V., 2P., MAGNETIC CONTACTOR WITH 120 V. AC COIL	ACCELERATING	CONTROL CENTER N5CC	N
43,44,45,46	4	SIZE 4, 600V., 2P, MAGNETIC CONTACTOR WITH 120 V. AC COIL	ACCELERATING	CONTROL CENTER F5CC	N
47	1	10 CIRCUIT, CAM TYPE ROTARY LIMIT SWITCH	LEAF CONTROL AND INDICATION	NORTH HOUSE MACHINE ROOM	N
48	1	10 CIRCUIT, CAM TYPE ROTARY LIMIT SWITCH	LEAF CONTROL AND INDICATION	SOUTH HOUSE MACHINE ROOM	N
49,50	2	SPAN LEAF MASTER DRUM CONTROLLER-CAM TYPE, HORIZONTAL HANDLE	LEAF SPEED CONTROL	CONTROL DESK	R
51	2	10", 120 V., AC WEATHERPROOF ALARM BELL	TRAFFIC ALARM	ON TRAFFIC SIGNAL POST	N
52	1	SIREN	NAVIGATION ALARM	ROOF-CONTROL HOUSE	E
53	1	LOCKABLE PUSHBUTTON, 4 POLE	NEAR LEAF BRAKES HAND RELEASED BYPASS	CONTROL DESK	R
54	1	LOCKABLE PUSHBUTTON, 4 POLE	FAR LEAF BRAKES HAND RELEASED BYPASS	CONTROL DESK	R
55	1	LOCKABLE PUSHBUTTON, 4 POLE	TRAFFIC GATES INTER-LOCK BYPASS	CONTROL DESK	R
56	1	LOCKABLE PUSHBUTTON, 4 POLE	CENTER LOCK INTER-LOCK BYPASS	CONTROL DESK	R
57	2	WHITE INDICATING LIGHT	GROUND DETECTION	CONTROL DESK	R
58	2	LIGHTING PANELBOARD - SEE SCHEDULE THIS DRAWING	LTG & PWR DISTRIBUTION	NORTH & SOUTH HOUSE MACHINERY ROOMS	N
59		SPARE NUMBER			
60		SPARE NUMBER			
61	1	SIZE 2, 2P, MAGNETIC CONTACTOR, 120 V. AC COIL, 1 N.O. & 1 N.C. AUX CONTACT	CONTROL POWER	CONTROL CENTER N5CC	N
62	1	N.O. MOMENTARY CONTACT PUSHBUTTON WITH RED PILOT LIGHT	CONTROL POWER/ON	CONTROL DESK	N
63	1	N.C. MOMENTARY CONTACT PUSHBUTTON WITH GREEN PILOT LIGHT	CONTROL POWER OFF	CONTROL DESK	N
64	1	120 V., A.C. MAGNETIC RELAY, 3 N.O. & 1 N.C. CONTACTS	TRAFFIC LIGHT CONTROL	CONTROL CENTER N5CC	N
65	1	N.O. MOMENTARY CONTACT PUSHBUTTON WITH RED PILOT LIGHT	RED TRAFFIC LIGHTS	CONTROL DESK	N
66	1	N.C. MOMENTARY CONTACT PUSHBUTTON WITH GREEN PILOT LIGHT	GREEN TRAFFIC LIGHTS	CONTROL DESK	N
67	1	120 V., AC. TIMING RELAY, 1 N.O. & 1 N.C. CONTACTS	TRAFFIC LIGHT CONTROL	CONTROL CENTER N5CC	N
68	1	120 V., A.C. MAGNETIC RELAY, 2-N.O. CONTACTS	ALARM GONG & TRAFFIC GATE INTERLOCK	CONTROL CENTER N5CC	N
69	1	N.O. MOMENTARY CONTACT PUSH BUTTON	NAVIGATION SIGNAL	CONTROL DESK	R
70,71,72,73	4	TRAFFIC GATE CAM TYPE LIMIT SWITCH, 5 CONTACT	TRAFFIC GATE CONTROL	ONE AT EACH GATE	N
74,75,76,77	4	MOMENTARY CONTACT PUSHBUTTON WITH GREEN PILOT LIGHT, 1-N.O. & 1-N.C. CONTACTS	RAISE TRAFFIC GATE	CONTROL DESK	R
78,79,80,81	4	MOMENTARY CONTACT PUSHBUTTON WITH RED PILOT LIGHT, 1-N.O. & 1-N.C. CONTACTS	LOWER TRAFFIC GATE	CONTROL DESK	R
82	1	120 V., AC. UNDERVOLTAGE RELAY, 1 N.O. CONTACT	VOLTAGE MONITOR	CONTROL CENTER N5CC	N
83	1	120 V., A.C. UNDERVOLTAGE RELAY, 1 N.O. CONTACT	VOLTAGE MONITOR	CONTROL CENTER F5CC	N
84,85	2	120 V., A.C. MAGNETIC RELAY, 3-N.O. CONTACTS	CENTER LOCK CONTROL	CONTROL CENTER N5CC	N
86	1	MOMENTARY CONTACT PUSHBUTTON WITH RED PILOT LIGHT, 1-N.O. & 1-N.C. CONTACTS	CENTER LOCK WITHDRAWN	CONTROL DESK	R
87	1	MOMENTARY CONTACT PUSHBUTTON WITH GREEN PILOT LIGHT, 1-N.O. & 1-N.C. CONTACTS	CENTER LOCK DRIVEN	CONTROL DESK	R
88,89,90,91	4	LEVER TYPE LIMIT SWITCH, 2-N.O. & 2-N.C. CONTACTS	CENTER LOCK CONTROL	TWO AT EACH CENTER LOCK	N
92,93	2	1-N.C. AUXILIARY CONTACT ON CENTER LOCK MOTOR BRAKE HAND RELEASE	LOCK CONTROL INTERLOCK	ONE AT EACH CENTER LOCK	N
94,96	2	120V., A.C. MAGNETIC RELAY, 3-N.O. CONTACTS	CENTER LOCK CONTROL	CONTROL CENTER N5CC	N
95,97	2	120V., A.C. MAGNETIC RELAY, 2-N.O. CONTACTS	CENTER LOCK CONTROL	CONTROL CENTER N5CC	N
98,99,100,101	4	120V., A.C. MAGNETIC RELAY, 1-N.O. & 1-N.C. CONTACTS	PERMISSIVE INTERLOCK FOR CENTER LOCK	CONTROL CENTER N5CC	N
102,103	2	120V., A.C. MAGNETIC RELAY, 1-N.O. CONTACT	PERMISSIVE INTERLOCK FOR CENTER LOCK	CONTROL CENTER N5CC	N
104,105	2	GREEN INDICATING LIGHT	FULLY CLOSED INDICATION	CONTROL DESK	R
106,107,108,109	4	AMBER INDICATING LIGHT	NEARLY CLOSED & NEARLY OPEN INDICATION	CONTROL DESK	R

ITEM NO.	QUAN	DESCRIPTION	APPLICATION	LOCATION	N-NEW R-RELOCATED E-EXISTING
110,111	2	RED INDICATING LIGHT	FULLY OPEN INDICATION	CONTROL DESK	R
112,113	2	PLUNGER TYPE LIMIT SWITCH, 1-N.O. CONTACT	SPAN FULLY SEATED	NORTH & SOUTH PIERS	E
114,115	2	120V, A.C. MAGNETIC RELAY, 1-N.O. & 1-N.C. CONTACTS	BRAKE HAND RELEASE MONITOR	CONTROL CENTER N5CC	N
116,117,118,119	4	LEVER TYPE LIMIT SWITCH, 1-N.O & 1-N.C. CONTACTS	MOTOR AND MACHINERY BRAKE INDICATION	NORTH & SOUTH MACH. RMS	N
120,123,124,127	-	SPARE NUMBERS			
121,122		GREEN INDICATING LIGHT	BRAKE SET INDICATION	CONTROL DESK	R
125,126		RED INDICATING LIGHT	BRAKE RELEASE INDICATION	CONTROL DESK	R
128,129,130,131	4	AUXILIARY SWITCH ON MOTOR AND MACHINERY BRAKE, 1-N.C. CONTACT	BRAKE HAND RELEASE INTERLOCK	ONE ON EACH BRAKE	N
132	1	RED INDICATING LIGHT	NEAR SIDE BRAKES HAND RELEASED INDICATION	CONTROL DESK	R
133	1	RED INDICATING LIGHT	FAR SIDE BRAKES HAND RELEASED INDICATION	CONTROL DESK	N
134,135	2	MOMENTARY CONTACT WITH RED PILOT LIGHT, 1-N.O. CONTACT	MACHINERY BRAKES RELEASED	CONTROL DESK	N
136,137	2	MOMENTARY CONTACT WITH GREEN PILOT LIGHT, 1-N.C. CONTACT	MACHINERY BRAKES SET	CONTROL DESK	N
138,139	2	MOMENTARY CONTACT, 1-N.C. CONTACT, MUSHROOM HEAD	EMERGENCY STOP	CONTROL DESK	N
140	1	120V, A.C. MAGNETIC RELAY, 2-N.O. & 1-N.C. CONTACTS	NEAR LEAF MASTER SWITCH RELAY	CONTROL CENTER N5CC	N
141	1	120V, A.C. MAGNETIC RELAY, 2-N.O. & 1-N.C. CONTACTS	FAR LEAF MASTER SWITCH RELAY	CONTROL CENTER F5CC	N
142,143	2	MOMENTARY CONTACT FOOT SWITCH, 1-N.O. CONTACT	MOTOR BRAKE SET	CONTROL DESK	R
144,145,146,147	4	120V, A.C. MAGNETIC TIMING RELAY, 0.1-60 SEC. ON DELAY, 1-N.O. CONTACT	ACCELERATING	CONTROL CENTER N5CC	N
148,149,150,151	4	120V, A.C. MAGNETIC TIMING RELAY, 0.1-60 SEC. ON DELAY, 1-N.O. CONTACT	ACCELERATING	CONTROL CENTER F5CC	N
152	1	120V., A.C. MOTOR DRIVEN FLASHER, 2 CIRCUIT ALTERNATE CONTACT	TRAFFIC GATE WARNING LTS.	CONTROL CENTER N5CC	N
153	1	TWO POSITION SELECTOR SWITCH, SPST	NAVIGATION LIGHT BYPASS CONTROL	CONTROL DESK	N

NOTES
1. FOR ITEM 13 & 14 PROVIDE 1 N.O. & 1 N.C. AUXILIARY CONTACT ON EACH STARTER.

LIGHTING PANEL SCHEDULE

DESIG: N5LP SERVICE: 208/120 VOLTS. 3 PHASE, 4 WIRE. S. NEUTRAL
MAINS: 100A., ACB IN MAINS
MOUNTING: SURFACE

CIRCUIT NUMBER	BRANCH CKT. POLES	BRKR. FRAME	BRKR. TRIP	LOAD KVA.	SERVES
1	1	100	15	0.30	HOUSE LIGHTS
2	1	100	15	0.85	CANOPY LIGHTS
3	1	100	15	0.30	MOTOR ROOM LIGHTS
4	1	100	15	1.20	PIER LIGHTS
5	1	100	15	0.50	PUMP PLATFORM LIGHTS & ELECTRO WRAP
6	1	100	15	0.60	WATER COOLER
7	1	100	15	0.50	MOTOR HEATERS
8	1	100	15	1.20	BASEBOARD HEATER-CONTROL ROOM
9	1	100	15	1.00	NAVIGATION LIGHTS
10	1	100	15	1.20	BASEBOARD HEATER - CONTROL ROOM
11	1	100	15	0.60	BASEBOARD HEATER-CONTROL ROOM
12	1	100	15	1.50	HOT WATER HEATER.
13	1	100	15	1.20	SPARE
14	1	100	15	1.20	SPARE
15	2	100	15	2.60	UNIT HEATER-CONTROL ROOM
16	2	100	15	2.60	UNIT HEATER-MACHINERY ROOM.
17	2	100	15	2.60	UNIT HEATER-MACHINERY ROOM.
18	2	100	15	2.40	SPARE
19	3	100	15	2.06	DUPLEX SUMP PUMP.

LIGHTING PANEL SCHEDULE

DESIG: F5LP SERVICE: 208 VOLTS. 3 PHASE. 4 WIRE. S. NEUTRAL
MAINS: 100A., ACB IN MAINS
MOUNTING: SURFACE

CIRCUIT NUMBER	BRANCH CKT POLES	BRKR FRAME	BRKR TRIP	LOAD KVA.	SERVES
1	1	100	15	0.20	HOUSE LIGHTS
2	1	100	15	0.30	MOTOR HEATERS
3	1	100	15	0.30	MACHINERY ROOM LIGHTS
4	1	100	15	1.20	PIER LIGHTS
5	1	100	15	0.85	CANOPY LIGHTS
6	1	100	15	0.10	PUMP PLATFORM LIGHTS
7	1	100	15	1.20	SPARE
8	1	100	15	1.20	SPARE
9	2	100	15	2.60	UNIT HEATER STREET LEVEL
10	2	100	15	2.60	UNIT HEATER STREET LEVEL
11	2	100	15	2.60	UNIT HEATER MACHINERY ROOM
12	2	100	15	2.60	UNIT HEATER MACHINERY ROOM
13	3	100	15	2.06	DUPLEX SUMP PUMP

E5

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL

EQUIPMENT SCHEDULE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. J.L.
T.
C. M.A.M.

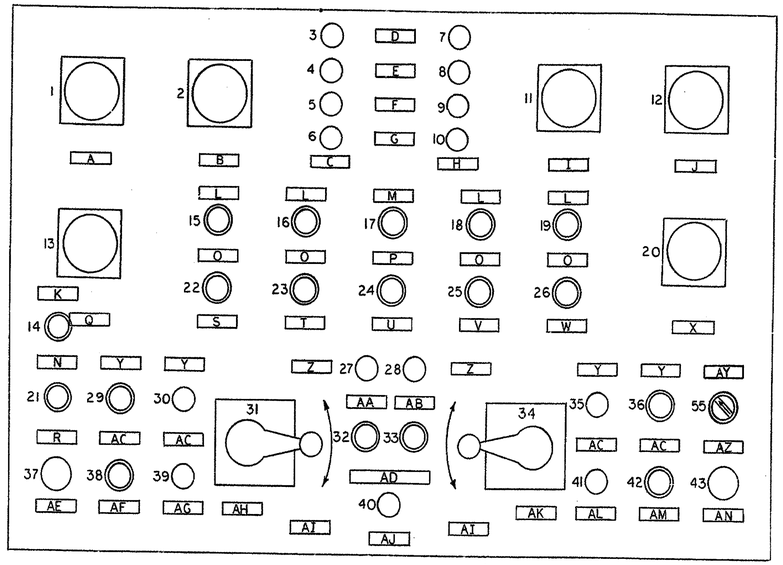
SCALE NONE

APPROVED BY:
BRIDGE ENGINEER

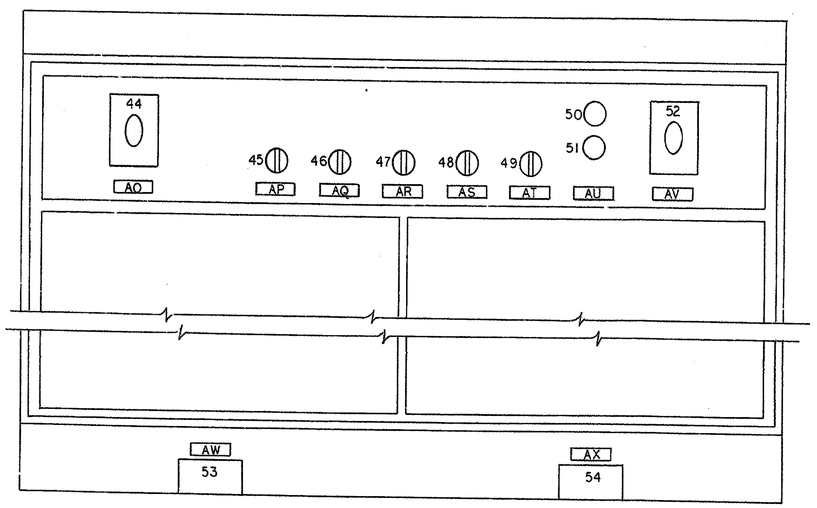
COUNTY	CONTRACT	P. R.A. REG.NO.	STATE	FED.AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	40	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON, DEL.

NO	REVISIONS	BY	DATE



CONTROL DESK
TOP VIEW



CONTROL DESK
FRONT VIEW

CONTROL DESK DEVICE IDENTIFICATION SCHEDULE

DEVICE NUMBER	EQUIP. NUMBER	DESCRIPTION	(1) *	(2) *	(3) *	(4) *	(5) *
1	18	AMMETER	X				
2	6	WATTMETER			X		
3	110	RED INDICATING LIGHT	X				
4	108	AMBER INDICATING LIGHT	X				
5	106	AMBER INDICATING LIGHT	X				
6	104	GREEN INDICATING LIGHT	X				
7	111	RED INDICATING LIGHT	X				
8	109	AMBER INDICATING LIGHT	X				
9	107	AMBER INDICATING LIGHT	X				
10	105	GREEN INDICATING LIGHT	X				
11	4	VOLTMETER	X				
12	18	AMMETER	X				
13	—	AMMETER		X			
14	62	PUSHBUTTON WITH RED PILOT LIGHT				X	
15	78	PUSHBUTTON WITH RED PILOT LIGHT	X				
16	79	PUSHBUTTON WITH RED PILOT LIGHT	X				
17	86	PUSHBUTTON WITH RED PILOT LIGHT	X				
18	80	PUSHBUTTON WITH RED PILOT LIGHT	X				
19	81	PUSHBUTTON WITH RED PILOT LIGHT	X				
20	—	AMMETER		X			
21	63	PUSHBUTTON WITH GREEN PILOT LIGHT				X	
22	74	PUSHBUTTON WITH GREEN PILOT LIGHT	X				
23	75	PUSHBUTTON WITH GREEN PILOT LIGHT	X				
24	87	PUSHBUTTON WITH GREEN PILOT LIGHT	X				
25	76	PUSHBUTTON WITH GREEN PILOT LIGHT	X				
26	77	PUSHBUTTON WITH GREEN PILOT LIGHT	X				
27	132	RED INDICATING LIGHT	X				
28 †	133	RED INDICATING LIGHT	X				
29	134	PUSHBUTTON WITH RED PILOT LIGHT			X		
30	125	RED INDICATING LIGHT	X				
31	49	NEAR LEAF MASTER CONTROLLER	X				
32	65	PUSHBUTTON WITH RED PILOT LIGHT			X		
33	66	PUSHBUTTON WITH GREEN PILOT LIGHT			X		
34	50	FAR LEAF MASTER CONTROLLER	X				
35	126	RED INDICATING LIGHT	X				
36	135	PUSHBUTTON WITH RED PILOT LIGHT			X		
37	138	PUSHBUTTON WITH MUSHROOM HEAD			X		
38	136	PUSHBUTTON WITH GREEN PILOT LIGHT			X		
39	121	GREEN INDICATING LIGHT	X				
40	69	PUSHBUTTON	X				
41	122	GREEN INDICATING LIGHT	X				
42	137	PUSHBUTTON WITH GREEN PILOT LIGHT			X		
43	139	PUSHBUTTON WITH MUSHROOM HEAD			X		
44	—	WATTMETER SWITCH		X			
45	53	LOCKABLE PUSHBUTTON	X				
46	55	LOCKABLE PUSHBUTTON	X				
47	—	LOCKABLE PUSHBUTTON					X
48	56	LOCKABLE PUSHBUTTON	X				
49	54	LOCKABLE PUSHBUTTON	X				
50	57	WHITE INDICATING LIGHT					X
51	67	WHITE INDICATING LIGHT					X
52	5	VOLTMETER SWITCH	X				
53	142	FOOT SWITCH-NEAR LEAF	X				
54	143	FOOT SWITCH-FAR LEAF	X				
55	153	SELECTOR SWITCH, MAINTAINED CONTACT				X	

* (1) LEAVE EXISTING DEVICE IN PLACE AND RECONNECT TO NEW CIRCUIT.
(2) LEAVE EXISTING DEVICE IN PLACE UNCONNECTED.
(3) REMOVE EXISTING DEVICE AND REPLACE WITH NEW DEVICE.
(4) INSTALL NEW DEVICE.
(5) REMOVE EXISTING DEVICE AND BLANK OFF OPENING.
(6) EXISTING LEGEND NAMEPLATE TO REMAIN IN PLACE.
(7) REPLACE EXISTING NAMEPLATE WITH NEW LEGEND NAMEPLATE.
(8) INSTALL NEW NAMEPLATE WITH LEGEND.
(9) REMOVE EXISTING NAMEPLATE.
† REPLACE GREEN LENS WITH RED LENS.

CONTROL DESK NAMEPLATE LEGEND SCHEDULE

LETTER	DESCRIPTION	(6) *	(7) *	(8) *	(9) *
A	AMMETER – NEAR SIDE DRIVE MOTOR		X		
B	WATTMETER	X			
C	NEAR LEAF	X			
D	LEAF FULLY OPEN	X			
E	LEAF NEARLY OPEN	X			
F	LEAF NEARLY CLOSED	X			
G	LEAF FULLY CLOSED	X			
H	FAR LEAF	X			
I	VOLTMETER	X			
J	AMMETER – FAR SIDE DRIVE MOTOR		X		
K	ON			X	
L	LOWERED	X			
M	DRAWN	X			
N	OFF			X	
O	RAISED	X			
P	DRIVEN	X			
Q	AMMETER-N.S. W. LEAF MOTOR				X
R	CONTROL POWER			X	
S	NEAR SIDE EAST TRAFFIC GATE		X		
T	NEAR SIDE WEST TRAFFIC GATE		X		
U	CENTER LOCKS		X		
V	FAR SIDE EAST TRAFFIC GATE		X		
W	FAR SIDE WEST TRAFFIC GATE		X		
X	AMMETER-F.S. W. LEAF MOTOR				X
Y	RELEASED	X			
Z	RAISE	X			
AA	NEAR SIDE BRAKE HAND RELEASED		X		
AB	FAR SIDE BRAKE HAND RELEASED		X		
AC	SET	X			
AD	RED-TRAFFIC SIGNAL-GREEN		X		
AE	EMERGENCY STOP-NEAR LEAF		X		
AF	NEAR LEAF MACHINERY BRAKE		X		
AG	NEAR LEAF MOTOR BRAKE		X		
AH	NEAR LEAF CONTROL	X			
AI	LOWER	X			
AJ	SIREN	X			
AK	FAR LEAF CONTROL	X			
AL	FAR LEAF MOTOR BRAKE		X		
AM	FAR LEAF MACHINERY BRAKE		X		
AN	EMERGENCY STOP-FAR LEAF		X		
AO	WATTMETER SWITCH				X
AP	NEAR LEAF BRAKES HAND RELIEF BYPASS	X			
AQ	ROADWAY GATES INTERLOCK BYPASS	X			
AR	FULLY CLOSED LIMITS INTERLOCK BYPASS				X
AS	CENTER LOCK INTERLOCK BYPASS		X		
AT	FAR LEAF BRAKES HAND RELEASE BYPASS	X			
AU	CONTROL TRANSFORMER GROUND				X
AV	VOLTMETER SWITCH	X			
AW	NEAR LEAF BRAKE SET		X		
AX	FAR LEAF BRAKE SET		X		
AY	MANUAL - AUTO			X	
AZ	NAVIGATION LIGHTS			X	

E6

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL
RELOCATED CONTROL BOARD
MODIFICATIONS

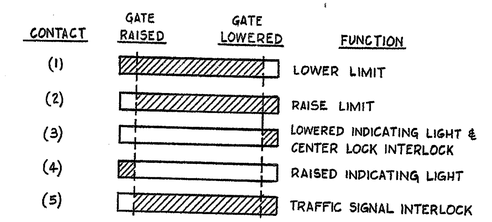
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. J.L. T. C. M.A.M.	SCALE NONE	APPROVED BY: BRIDGE ENGINEER

CONTRACT No. 21-074-07
REVISED CONTRACT DRAWING
REPRODUCED INCLUDED FOR INFORMATIONAL PURPOSES
MOUSLEY-HAYTHORN ASSOCIATES
DRAWING No. 137 of 187

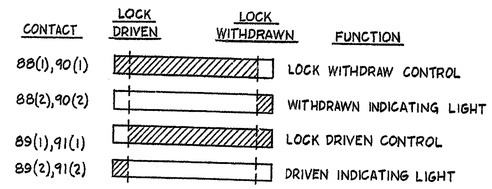
CD-0042

CK'T. NO.	FROM	VIA	TO	COND. QUANTITY & SIZE	C'ND. SIZE	REMARKS
P1	SERVICE POLE	—	CC-NSCC	3-300MCM	3"	INCOMING SERVICE
P2	CC-NSCC	—	DISTR. TRANSF. N5DT	3#6	1"	DISTRIBUTION TRANSF. FEEDER
P3	CC-NSCC	—	DISC. SW. FOR N5LM	3#2/0 2#10	2"	LEAF DRIVE MOTOR N5LM FEEDER
P3a	DISC. SW FOR N5LM	—	LEAF MOTOR N5LM	3#2/0 2#10	2"	MOTOR STATOR CONNECTION & HEATER
P3b	LEAF MOTOR N5LM	—	RESISTOR ASSEMBLY	3#2/0	1½"	MOTOR ROTOR CONNECTION
P3c	RESISTOR ASSEMBLY	—	CC-NSCC	6#2/0	2½"	RESISTOR CONTACTOR CONNECTIONS
P3d	RESISTOR ASSEMBLY	—	CC-NSCC	6#2/0	2½"	RESISTOR CONTACTOR CONNECTIONS
P4	CC-FSCC	—	J.B.11	3#10	¾"	POWER FEEDER TO MOTOR BRAKE FSMOB
P5	CC-FSCC	—	J.B.12	3#10	¾"	POWER FEEDER TO MACH. BRAKE FSMAB
P6	CC-FSCC	—	DISC. SW. FOR FSLM	3#2/0 2#10	2"	LEAF DRIVE MOTOR FSLM FEEDER
P6a	DISC. SW. FOR FSLM	—	LEAF MOTOR FSLM	3#2/0 2#10	2"	MOTOR STATOR CONNECTION & HEATER
P6b	LEAF MOTOR FSLM	—	RESISTOR ASSEMBLY	3#2/0	1½"	MOTOR ROTOR CONNECTION
P6c	RESISTOR ASSEMBLY	—	CC-FSCC	6#2/0	2½"	RESISTOR CONTACTOR CONNECTIONS
P6d	RESISTOR ASSEMBLY	—	CC-FSCC	6#2/0	2½"	RESISTOR CONTACTOR CONNECTIONS
P7	CC-FSCC	—	DISTR. TRANSF. F5DT	3#6	1"	DISTRIBUTION TRANSF. FEEDER
P8	DISTR. TRANS. N5DT	—	LTG. PANEL N5LP	4#2	1¼"	LIGHTING PANEL N5LP FEEDER
P9	DISTR. TRANS F5DT	—	LTG. PANEL F5LP	4#2	1¼"	LIGHTING PANEL F5LP FEEDER
SCP	CC-NSCC	SUBMARINE CABLE	CC-FSCC	3/C#4/0	—	FEEDER TO CC-FSCC
PC1	CC-NSCC	—	J.B.1	5#12	¾"	POWER & CONTROL TO MOTOR BRAKE N5MOB
PC2	J.B.1	—	MOTOR BRAKE N5MOB	8#12	¾"	POWER & CONTROL TO MOTOR BRAKE N5MOB
PC3	CC-NSCC	—	J.B.2	5#12	¾"	POWER & CONTROL TO MACH. BRAKE N5MAB
PC4	J.B.2	—	MACH. BRAKE N5MAB	8#12	¾"	POWER & CONTROL TO MACH. BRAKE N5MAB
PC5	CC-NSCC	—	J.B.3	28#10	2"	POWER & CONTROL TO TRAFFIC GATES N5WTG & N5ETG
PC6	J.B.3	—	J.B.4 *	31#10	2"	POWER & CONTROL TO TRAFFIC GATES N5WTG & N5ETG & TRAFFIC SIGNALS N5WTS & N5ETS
PC7	J.B.4 *	—	SIDEWALK PULLBOX(NW)	24#10	1½"	POWER & CONTROL TO TRAFFIC GATE N5WTG & TRAFFIC SIGNAL N5WTS
PC8	SIDEWALK PULLBOX(NW)	DISC. SW. FOR N5WTG	TRAFFIC GATE N5WTG	19#10	1¼"	POWER & CONTROL TO TRAFFIC GATE N5WTG.
PC9	CC-NSCC	—	J.B.5 *	21#10	1½"	POWER & CONTROL TO CENTER LOCKS W5CL & E5CL.
PC10	J.B.6 *	—	J.B.7	21#10	1½"	POWER & CONTROL TO CENTER LOCKS W5CL & E5CL.
PC11	J.B.7	DISC. SW. FOR W5CL	CENTER LOCK W5CL	12#10	1¼"	POWER & CONTROL TO CENTER LOCK W5CL
PC12	J.B.7	DISC. SW. FOR E5CL	CENTER LOCK E5CL	12#10	1¼"	POWER & CONTROL TO CENTER LOCK E5CL
PC13	J.B.11	—	MOTOR BRAKE F5MOB	8#10	1"	POWER & CONTROL TO MOTOR BRAKE F5MOB
PC14	J.B.12	—	MACH. BRAKE F5MAB	8#10	1"	POWER & CONTROL TO MACH. BRAKE F5MAB
PC15	CC-FSCC	—	J.B.13	18#10	1¼"	POWER & CONTROL TO TRAFFIC GATES F5ETG & F5WTG
PC16	J.B.13	—	SIDEWALK PULLBOX(SE)	24#10	1½"	POWER & CONTROL TO TRAFFIC GATE F5ETG
PC17	SIDEWALK PULLBOX(SE)	DISC. SW FOR F5ETG	TRAFFIC GATE F5ETG	19#10	1¼"	POWER & CONTROL TO TRAFFIC GATE F5ETG
PC18	J.B. 13	—	SIDEWALK PULLBOX(SW)	19#10	1½"	POWER & CONTROL TO TRAFFIC GATE F5WTG
PC19	SIDEWALK PULLBOX(SW)	DISC. SW. FOR F5WTG	TRAFFIC GATE F5WTG	19#10	1¼"	POWER & CONTROL TO TRAFFIC GATE F5WTG
PC20	J.B.4 *	—	SIDEWALK PULLBOX(NE)	25#10	1½"	POWER & CONTROL TO TRAFFIC GATE N5ETG & TRAFFIC SIGNAL N5ETS.
PC21	SIDEWALK PULLBOX(NE)	DISC. SW. FOR N5ETG	TRAFFIC GATE N5ETG	19#10	1¼"	POWER & CONTROL TO TRAFFIC GATE N5ETG.

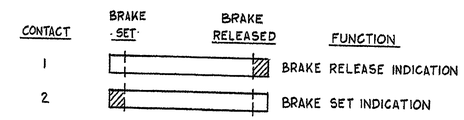
CK'T. NO.	FROM	VIA	TO	COND. QUANTITY & SIZE	C'ND. SIZE	REMARKS
C1	CC-NSCC	—	CONTROL DESK	34#12	2"	
C2	CC-NSCC	—	CONTROL DESK	34#12	2"	
C3	CC-NSCC	—	TERM. CAB'T. N5TC	26#10	1½"	
C4	CONTROL DESK	—	J.B.1	3#12	¾"	MOTOR BRAKE N5MOB POSITION LIGHTS
C5	CONTROL DESK	—	J.B.2	3#12	¾"	MACHINERY BRAKE N5MAB POSITION LIGHTS
C6	CONTROL DESK	—	J.B.3	2#10	¾"	GATE RAISED INDICATING LIGHTS
C7	TERM. CAB'T. N5TC	—	J.B.5 *	3#10	¾"	CONTROL-NAV. LIGHTS
C8	CC-NSCC	—	J.B.3	5#10	¾"	CONTROL-TRAFFIC SIGNALS N5WTS & N5ETS
C9	SIDEWALK PULLBOX(NW)	—	TRAFFIC SIG. N5WTS	5#10	¾"	CONTROL-TRAFFIC SIGNAL N5WTS & BELL
C10	SIDEWALK PULLBOX(NE)	—	TRAFFIC SIG. N5ETS	4#10	¾"	CONTROL-TRAFFIC SIGNAL N5ETS
C11	CONTROL DESK	—	TERM. CAB'T. N5TC	25#10	1½"	
C12	CONTROL DESK	—	TERM. CAB'T N5TC	25#10	1½"	
C13	TERM. CAB'T. N5TC	—	PLUNGER SW. ITEM 112	2#10	¾"	NEAR LEAF FULLY LOWERED INDICATION
C14	TERM. CAB'T. N5TC	—	CAM LIM. SW. ITEM 47	13#12	1"	
C15	TERM. CAB'T. F5TC	—	CC-FSCC	34#10	2"	
C16	TERM. CAB'T. F5TC	—	J.B.11	5#10	¾"	CONTROL-MOTOR BRAKE F5MOB
C17	TERM. CAB'T. F5TC	—	J.B.12	5#10	¾"	CONTROL-MACHINERY BRAKE F5MAB
C18	TERM. CAB'T. F5TC	—	J.B.13	17#10	1¼"	CONTROL-TRAFFIC GATES F5ETG & F5WTG
C19	J.B.9	—	CONTROL DESK	2#10	¾"	NAVIGATION LIGHT PHOTOCELL BYPASS
C20	TERM. CAB'T. F5TC	—	PLUNGER SW. ITEM 113	2#10	¾"	FAR LEAF FULLY LOWERED INDICATION
C21	TERM. CAB'T. F5TC	—	CAM LIM. SW. ITEM 48	14#10	1¼"	
C22	J.B.6	—	J.B.8	3#10	¾"	NEAR LEAF NAVIGATION LIGHTS
C23	J.B.8	—	NAV. LIGHT	3#10	¾"	NEAR LEAF WEST SIDE NAV. LIGHT
C24	J.B.8	—	NAV. LIGHT	3#10	¾"	NEAR LEAF EAST SIDE NAV. LIGHT
C25	PHOTO ELECTRIC CELL	—	J.B.9	3#10	¾"	NAVIGATION LIGHT CONTROL
C26	J.B.9	—	TERM. CAB'T N5TC	2#10	¾"	NAVIGATION LIGHT CONTROL
C27	TERM. CAB'T. F5TC	—	J.B.15 *	3#10	¾"	FAR LEAF NAVIGATION LIGHTS
C28	J.B.16 *	—	J.B.17	3#10	¾"	FAR LEAF NAVIGATION LIGHTS
C29	J.B.17	—	NAV. LIGHT	3#10	¾"	FAR LEAF EAST SIDE NAV. LIGHT
C30	J.B.17	—	NAV. LIGHT	3#10	¾"	FAR LEAF WEST SIDE NAV. LIGHT
C31	J.B.5 *	—	J.B.6 *	26/C#10	—	EXTRA FLEXIBLE CONTROL CABLE
C32	J.B.15 *	—	J.B.16 *	3/C#10	—	EXTRA FLEXIBLE CONTROL CABLE
C33	CONTROL DESK	—	SIREN	2#10	¾"	NAVIGATION ALARM
C34	J.B.9	—	FENDER LIGHTS	2#10	1"	NORTH PIER FENDER NAV. LIGHTS
C35	TERM. CABT F5TC	—	FENDER LIGHTS	2#10	1"	SOUTH PIER FENDER NAV. LIGHTS
SCC	TERM. CABT N5TC	SUBMARINE CABLE	TERM. CABT F5TC	72/C#10	—	



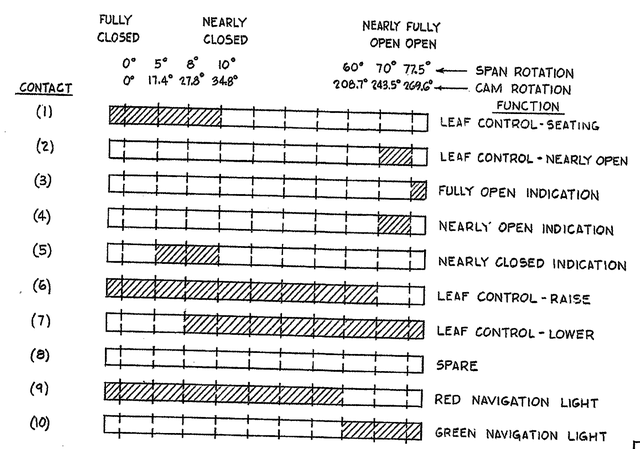
SETTING OF GATE LIMIT SWITCHES
ITEMS 70, 71, 72 & 73



SETTING OF CENTER LOCK LIMIT SWITCHES
ITEMS 88 89 90 & 91



SETTING OF BRAKE LIMIT SWITCHES
ITEMS 116, 117, 118 & 119



SETTING OF SPAN LIMIT SWITCHES
ITEMS 47 & 48

= CONTACT CLOSED

*EXISTING

COUNTY	CONTRACT	P.B.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177 (2)	41	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE - WILMINGTON, DEL.

NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 138 of 168
MORRISON-MASTRONI

E7

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL

CONDUIT AND CABLE SCHEDULE

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC.
ENGINEERS NEW YORK, N.Y.

D. J.L.
T.
C. M.A.M.

SCALE NONE

APPROVED BY:
BRIDGE ENGINEER

CD-0042

COUNTY	CONTRACT	P.R.A. REG.NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	42	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON DEL.

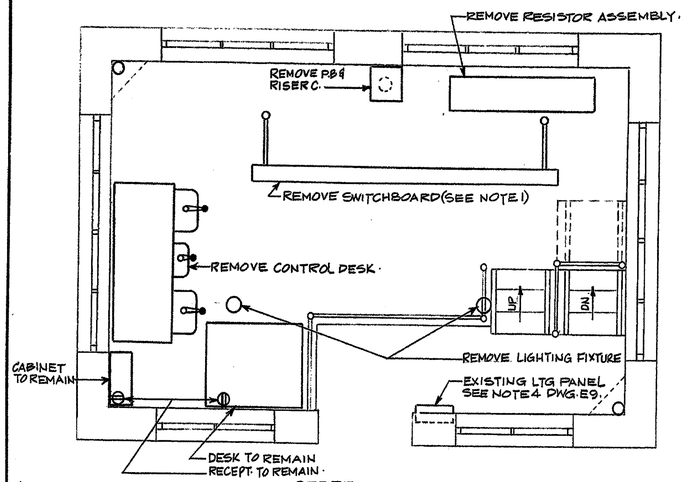
NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

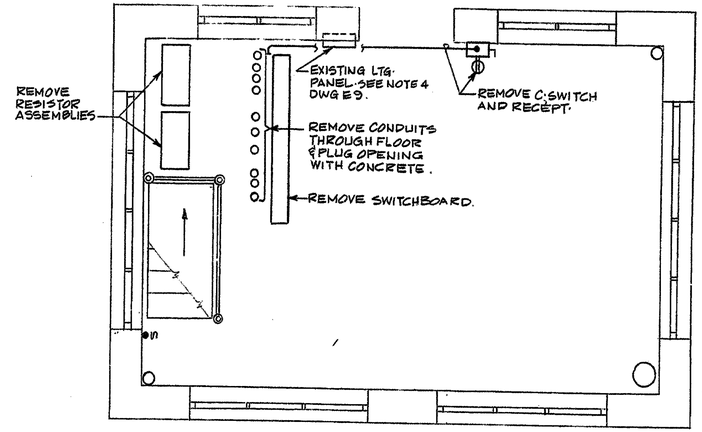
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 138 of 182

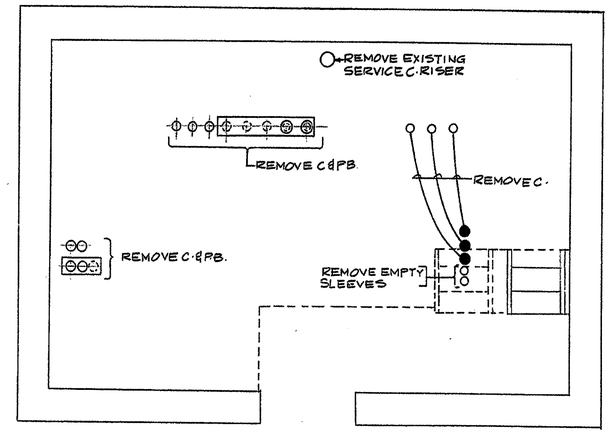
MODJESKI and MASTERS
CONSULTING ENGINEERS
BRIDGE BUILDERS



STREET LEVEL



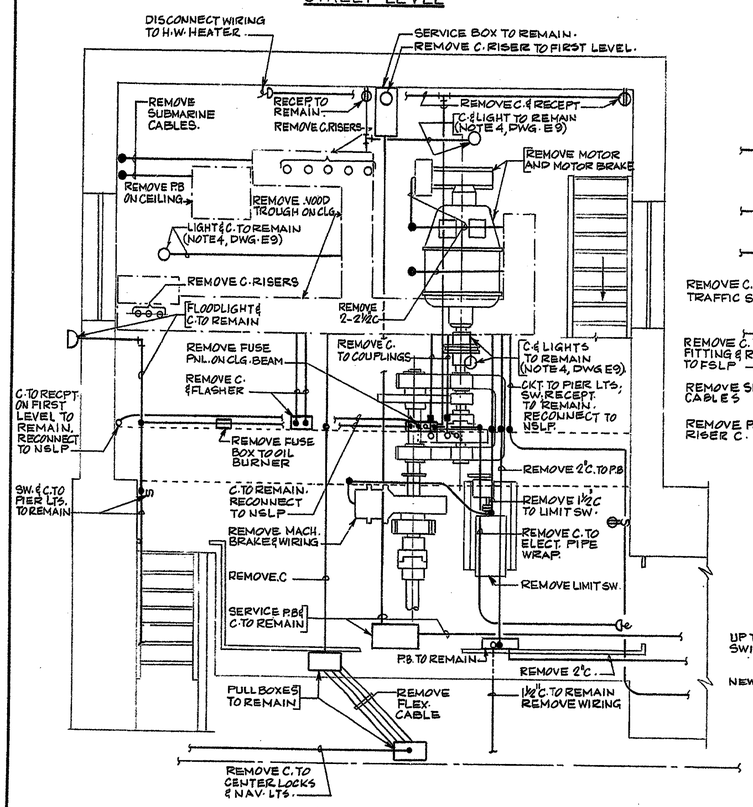
STREET LEVEL



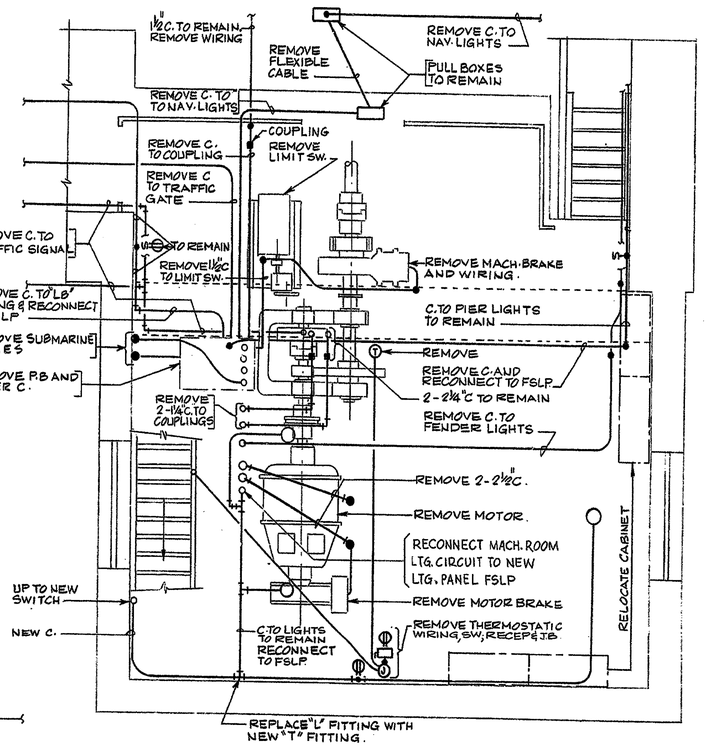
UNDER ELEVATED PLATFORM
PLAN-NORTH HOUSE
SCALE: 1/2"=1'-0"

NOTES:

1. THE EXISTING SWITCHBOARD HAS PRESENTLY ATTACHED TO IT A METER AND METERING TRANSFORMERS WHICH ARE THE PROPERTY OF DPLC. THE CONTRACTOR SHALL SALVAGE ALL DPLC EQUIPMENT IN ACCORDANCE WITH THEIR REGULATIONS AND RETURN IT TO THEM AS REQUIRED.
2. ALL HOLES IN FLOOR SLABS, WALLS AND CEILINGS RESULTING FROM EQUIPMENT REMOVAL SHALL BE PATCHED WITH MATERIALS IN KIND



MACHINERY LEVEL
PLAN-NORTH HOUSE
SCALE: 1/2"=1'-0"



MACHINERY LEVEL
PLAN-SOUTH HOUSE
SCALE: 1/2"=1'-0"

E8

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL
PLANS
NORTH AND SOUTH HOUSES
MODIFICATIONS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. D.D. T. C. M.A.M.	SCALE AS SHOWN	APPROVED BY: BRIDGE ENGINEER

CD-004-1

D C B A

COUNTY	CONTRACT	P. R. A. REF. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	43	54

BRIDGE No. 688
SOUTH MARKET STREET BRIDGE-WILMINGTON DEL.

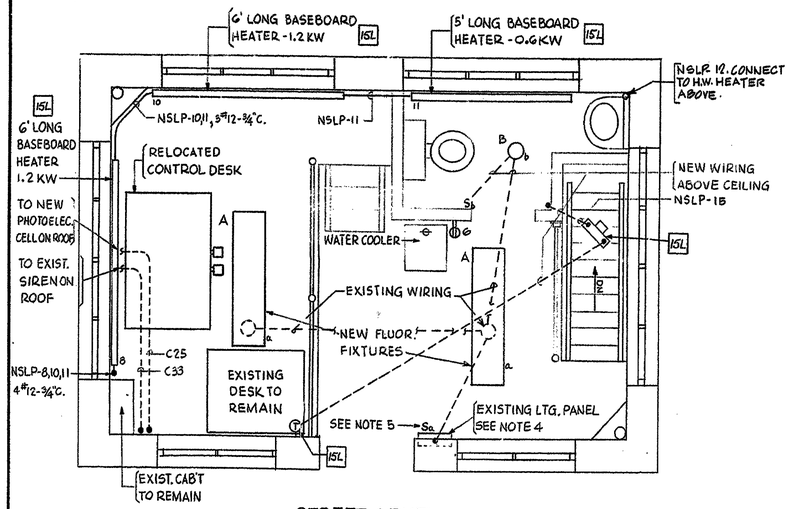
NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

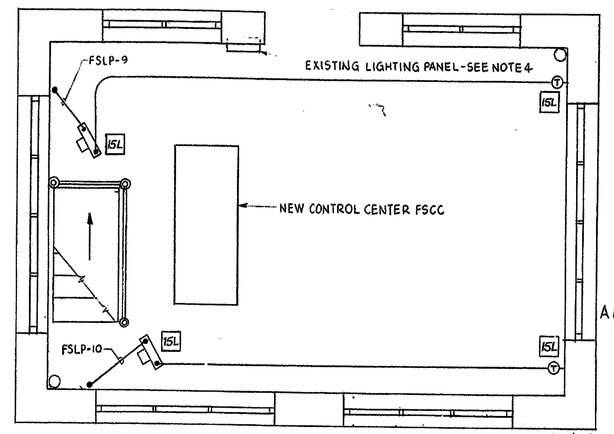
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 140 of 168

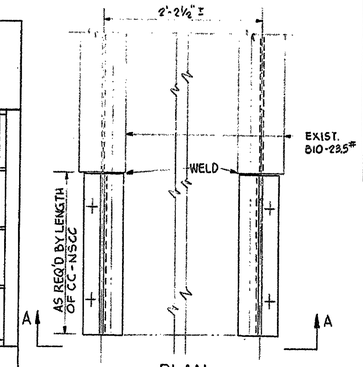
MOUSLEY-MASTERS CONSULTING ENGINEERS SINCE 1898



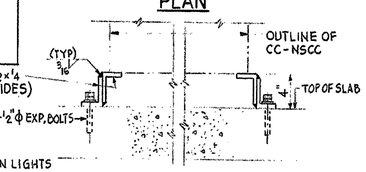
STREET LEVEL



STREET LEVEL



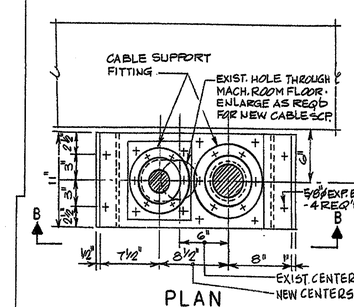
PLAN



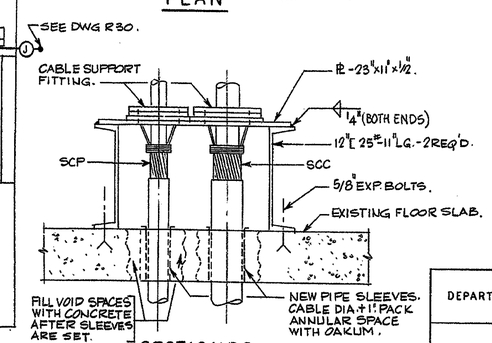
SECTION A-A
DETAIL-1
SCALE 1 1/2"=1'-0"

NOTES

1. EXISTING SERVICE CONDUIT SHALL REMAIN IN PLACE FROM SERVICE POLE TO EAST WALL OF MACHINERY ROOM OF NORTH OPERATOR'S HOUSE. REPLACE EXISTING SERVICE CONDUCTORS WITH NEW SERVICE CONDUCTORS.
2. EXISTING IMBEDDED B10-23.5# STRUCTURAL BEAM SHALL BE BURNED OFF FLUSH WITH TOP OF SLAB FOR LENGTH SHOWN.
3. NEW CONTROL CENTER NSCC SHALL BE SUPPORTED BY EXISTING PARTIALLY IMBEDDED B10-23.5# BEAMS MODIFIED ON ONE END AS SHOWN IN DETAIL 1.
4. 12"×12"×6" CEILING MOUNTED JUNCTION BOX SHALL CONNECT TO 2 EXISTING 1 1/4" IMBEDDED CONDUITS WHICH CONNECT TO AN EXISTING LIGHTING PANEL ON THE STREET LEVEL. A LATERAL CONDUIT SHALL CONNECT FROM THE JUNCTION BOX TO NEW LIGHTING PANEL NSLP OR FSLP AS SHOWN. ONLY EXISTING CIRCUITS SHOWN ON PANEL SCHEDULES WHICH ARE PRESENTLY CONNECTED TO THE STREET LEVEL LIGHTING PANEL SHALL BE RECONNECTED TO DESIGNATED BRANCH CIRCUIT BREAKERS ON NEW PANEL. NECESSARY WIRING TO ACCOMPLISH THIS SHALL BE PROVIDED AND NEW LATERAL CONDUIT SHALL BE ACCORDINGLY SIZED. ANY BRANCH CIRCUIT WIRING INTERRUPTED BY THE REMOVAL OF CEILING MOUNTED WOOD TROUGH AS SHOWN ON DRAWING E8 SHALL BE REESTABLISHED WITH MATERIALS IN KIND. FUSE PANEL SHALL BE REMOVED FROM CABINET AND TRIM AND DOOR SHALL BE REPLACED WITH A NEW ONE PIECE COVER.
5. PROVIDE NEW LOCAL SWITCH TO CONTROL NEW FLUORESCENT FIXTURES AND CONNECT TO EXISTING WIRING AS REQUIRED.
6. SUFFICIENT DRIPLOOP SLACK SHALL BE PROVIDED BETWEEN J.B. ON FIXED STRUCTURE AND J.B. ON ROTATING SPAN TO PERMIT FULL SPAN ROTATION WITHOUT ANY PULL ON THE CABLE IN THE MOST EXTREME SPAN POSITION. CABLE SHALL BE CLEAR OF THE STRUCTURE IN ALL POSITIONS OF SPAN OPERATION.

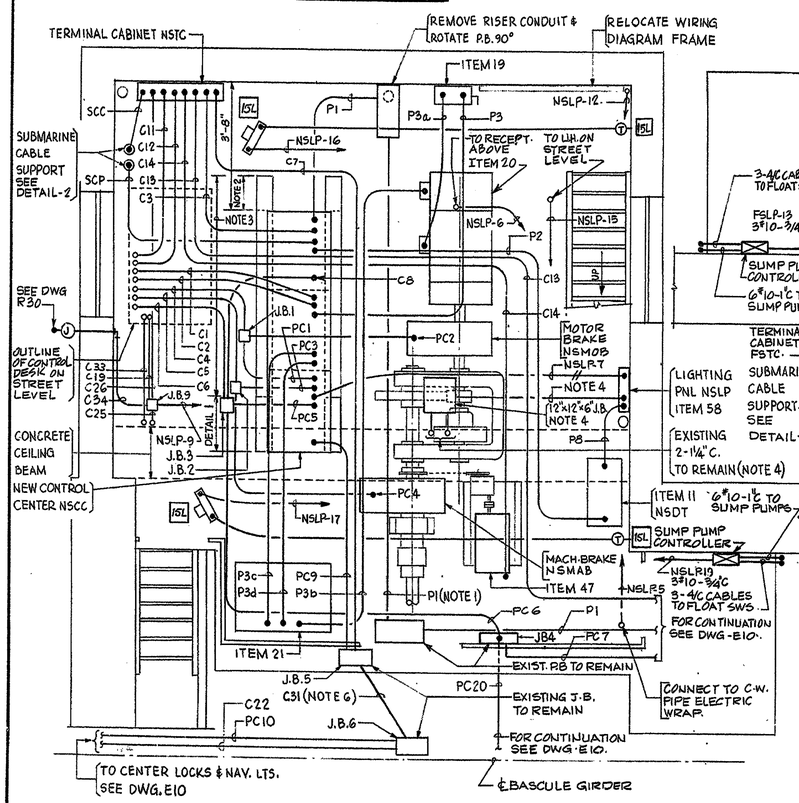


PLAN

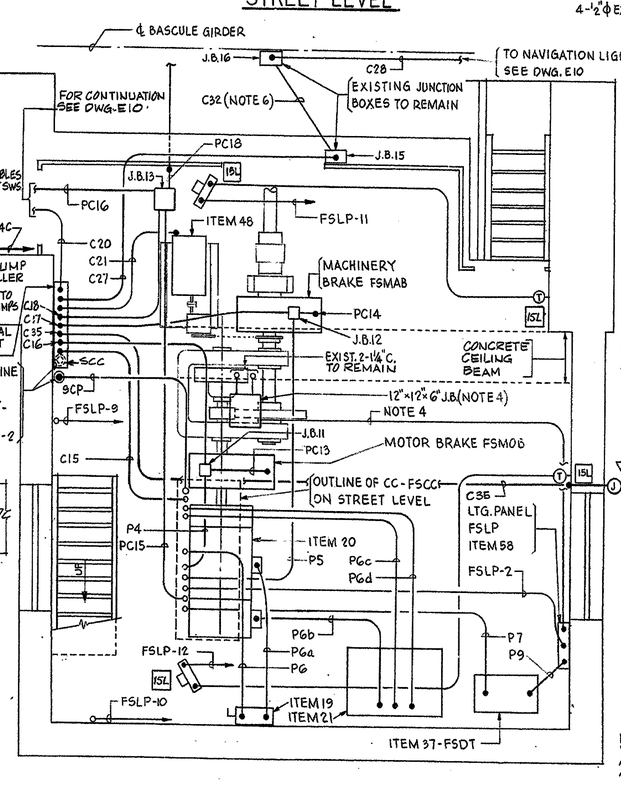


SECTION B-B
DETAIL-2
SCALE: 1 1/2"=1'-0"

E9



MACHINERY LEVEL
PLAN-NORTH HOUSE
SCALE 1/2"=1'-0"



MACHINERY LEVEL
PLAN-SOUTH HOUSE
SCALE 1/2"=1'-0"

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. D.D. T. C. M.A.M.	SCALE AS SHOWN	APPROVED BY: BRIDGE ENGINEER

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL
PLANS
NORTH AND SOUTH HOUSES
NEW WORK

CD-0045

COUNTY	CONTRACT	P. R. A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	81-071-02	2	DEL.	BRM-1177(2)	44	54

BRIDGE No 688
SOUTH MARKET STREET BRIDGE WILMINGTON DEL.

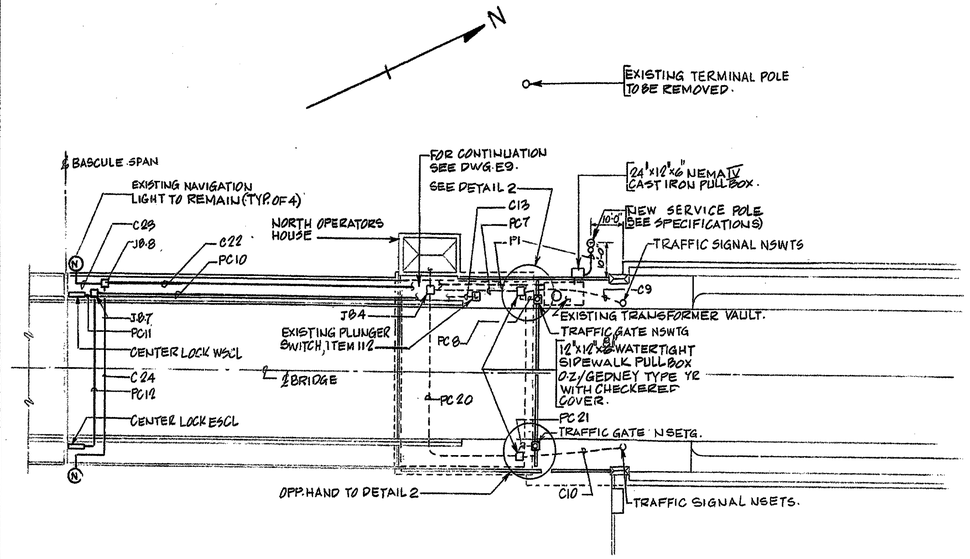
NO.	REVISIONS	BY	DATE

CONTRACT No. 21-074-07

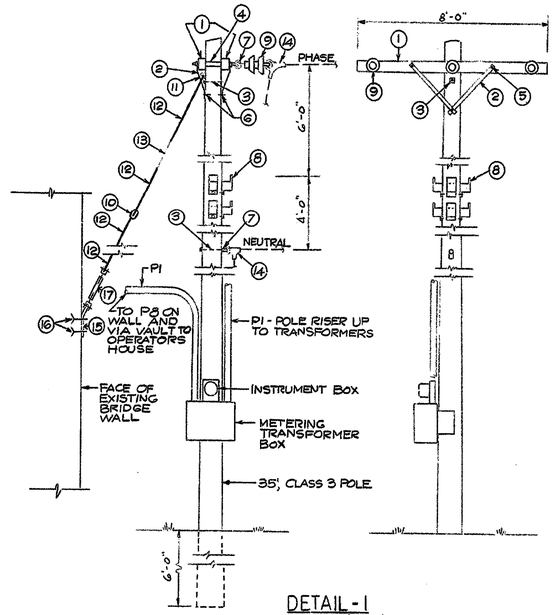
REPRODUCED
REVISED CONTRACT DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 111 of 162

MOUSSE-HALSTEAD CONSULTING ENGINEERS BRIDGE & HIGHWAY



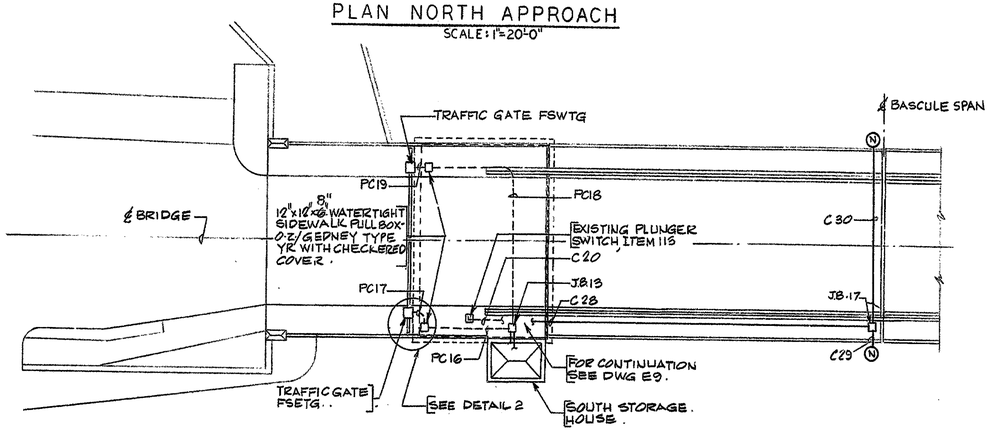
PLAN NORTH APPROACH
SCALE: 1"=20'-0"



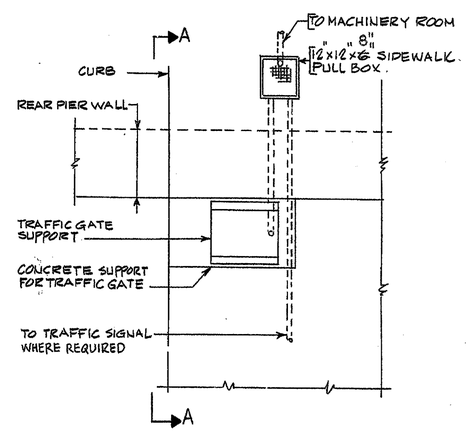
DETAIL - 1
SCALE: 3/8"=1'-0"

LIST OF POLE LINE MATERIALS

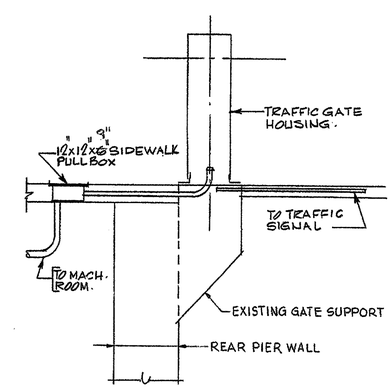
1. CROSSARM, 3¾"×4½"×8'-0" OREGON FIR.
2. CROSSARM BRACE, 1½"×¼"× 28" STEEL.
3. THRU BOLTS, ⅝"× 2½" WITH SQUARE WASHERS.
4. THRU BOLTS, ⅝"×2½" WITH SQUARE WASHERS & ¾" GALV. PIPE.
5. CARRIAGE BOLTS ⅜"×4½".
6. BRACE BOLTS (LAG), ½"×4".
7. EYE BOLT, DEAD END.
8. CLUSTER MOUNT BRACKET (UNIVERSAL CLAMP TYPE).
9. SUSPENSION INSULATORS, 6". 15000 VOLTS.
10. STRAIN INSULATOR, 12000 LBS.
11. GUY HOOK, M.I.F. P133A.
12. GUY GRIP, PREFERRED ⅜" (LENGTH 35").
13. GUY WIRE, ⅜" GALVANIZED.
14. STRAIN CLAMP.
15. ⅜"× 3" BENT PLATE, STEEL.
16. ⅜"× EXPANSION BOLTS.
17. TURNBUCKLE, ⅝"×12", JAW-JAW.



PLAN - SOUTH APPROACH
SCALE: 1"=20'-0"



PLAN



SECTION A-A

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

E10

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

BRIDGE REHABILITATION
ELECTRICAL
PLANS
NORTH AND SOUTH APPROACHES

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, INC. ENGINEERS NEW YORK, N.Y.	D. D.D. T. C. M.A.M.	SCALE AS SHOWN	APPROVED BY BRIDGE ENGINEER

CD-0048

~ SOUTH MARKET STREET BRIDGE ~
REPAIRS TO ELECTRICAL WIRING
~ WIRING DIAGRAM ~

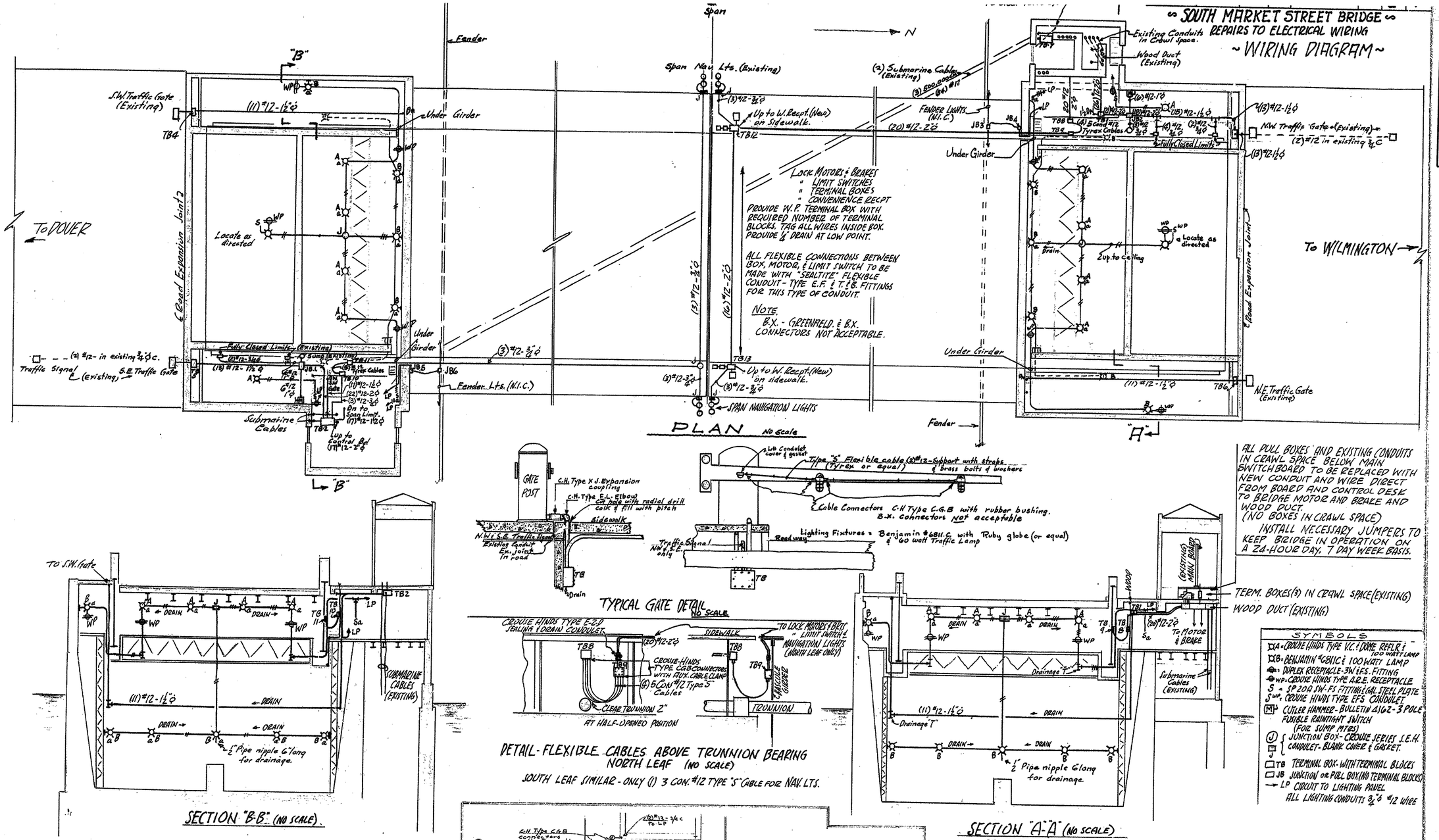
CONTRACT No. 21-074-07

REVISED CONTRACT DRAWING

REPRODUCED INCLUDED FOR INFORMATIONAL PURPOSES

MOUSLEY-HASTAS CONSULTING ENGINEERS WILMINGTON, DELAWARE

DRAWING No. 1/2 of 1/2



PLAN No Scale

LOCK MOTORS & BRAKES
" LIMIT SWITCHES
" TERMINAL BOXES
" CONVENIENCE RECPT

PROVIDE W.P. TERMINAL BOX WITH REQUIRED NUMBER OF TERMINAL BLOCKS. TAG ALL WIRES INSIDE BOX. PROVIDE ¼" DRAIN AT LOW POINT.

ALL FLEXIBLE CONNECTIONS BETWEEN BOX, MOTOR, & LIMIT SWITCH TO BE MADE WITH "SEALTITE" FLEXIBLE CONDUIT - TYPE E.F. & T.&B. FITTINGS FOR THIS TYPE OF CONDUIT.

NOTE.
B.X. - GREENFIELD. & B.X. CONNECTORS NOT ACCEPTABLE.

ALL PULL BOXES AND EXISTING CONDUITS IN CRAWL SPACE BELOW MAIN SWITCHBOARD TO BE REPLACED WITH NEW CONDUIT AND WIRE DIRECT FROM BOARD AND CONTROL DESK TO BRIDGE MOTOR AND BRAKE AND WOOD DUCT.
(NO BOXES IN CRAWL SPACE)
INSTALL NECESSARY JUMPERS TO KEEP BRIDGE IN OPERATION ON A 24-HOUR DAY, 7 DAY WEEK BASIS.

TYPICAL GATE DETAIL No SCALE

SECTION "B-B" (NO SCALE)

DETAIL - FLEXIBLE CABLES ABOVE TRUNNION BEARING
NORTH LEAF (NO SCALE)

SOUTH LEAF SIMILAR - ONLY (1) 3 CON. #12 TYPE "S" CABLE FOR NAV. LTS.

TERM. BOXES(2) IN CRAWL SPACE (EXISTING)
WOOD DUCT (EXISTING)

SECTION "A-A" (NO SCALE)

SYMBOLS

- CROUSE HINDS TYPE V.C. DOME REFLR & 100 WATT LAMP
- BENJAMIN #6811C & 100 WATT LAMP
- DUPLEX RECEPTACLE - 3W EFS. FITTING
- WP - CROUSE HINDS TYPE A.R.E. RECEPTACLE
- S - SP 20A SW-FS FITTING & GAL. STEEL PLATE
- S^WP - CROUSE HINDS TYPE EFS CONDULET
- M - CUTLER HAMMER - BULLETIN 4162 - 3 POLE FUSIBLE RAINTIGHT SWITCH (FOR SUMP MTRS)
- J - JUNCTION BOX - CROUSE SERIES S.E.H. CONDULET - BLANK COVER & GASKET.
- TB - TERMINAL BOX - WITH TERMINAL BLOCKS
- JB - JUNCTION OR PULL BOX (NO TERMINAL BLOCKS)
- LP - CIRCUIT TO LIGHTING PANEL

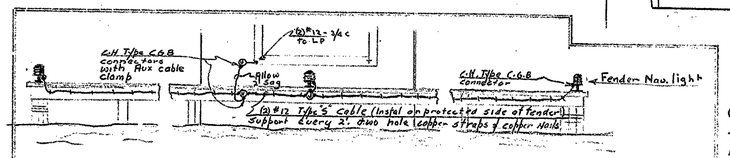
ALL LIGHTING CONDUITS ¾" & #12 WIRE

DRAWINGS FOR REFERENCE ONLY

SHEET		Last Revision
No. 17 -	WIRING DIAGRAM	6-11-27
DWG. E7 -	CONDUIT & WIRE	3-16-27
" E8 -	" " " NorthHouse	3-22-27
" W1 -	WIRING DIAGRAM	12-16-27
" W2 -	CONTROL BOARD	2-25-28

NOTE. These drawings define construction under the original contract, and are included in the plans for this contract for information purposes only.

TRACED BY:
Victor A. Jost Oct. 1961



DETAIL - FENDER LIGHTS - No Scale

Fixtures are existing - replace all conduit, wire & cable with new conduit, cable & boxes
Fill boxes @ with Duct Seal after splices have been made

NOT IN THIS CONTRACT
THIS WORK TO BE DONE UNDER CONTRACT 2046

GENERAL NOTES

THE BRIDGE CARRIES SOUTH MARKET STREET (US13), ACROSS THE CHRISTINA RIVER, IN WILMINGTON, DELAWARE.
ADDITIONAL PLANS AND SPECIFICATIONS FOR THE ORIGINAL BRIDGE CONSTRUCTION, ARE AVAILABLE FOR EXAMINATION BY PROSPECTIVE BIDDERS.
REFER TO THE TITLE SHEET FOR A LISTING OF CONTRACT PAY ITEMS AND OTHER INFORMATION.
REFER ALSO TO THE STANDARD SPECIFICATIONS OF THE DELAWARE STATE HIGHWAY DEPARTMENT, DATED JULY 1, 1960, AND THE SPECIAL PROVISIONS FOR THIS CONTRACT.

APPROVED _____ BRIDGE ENGINEER

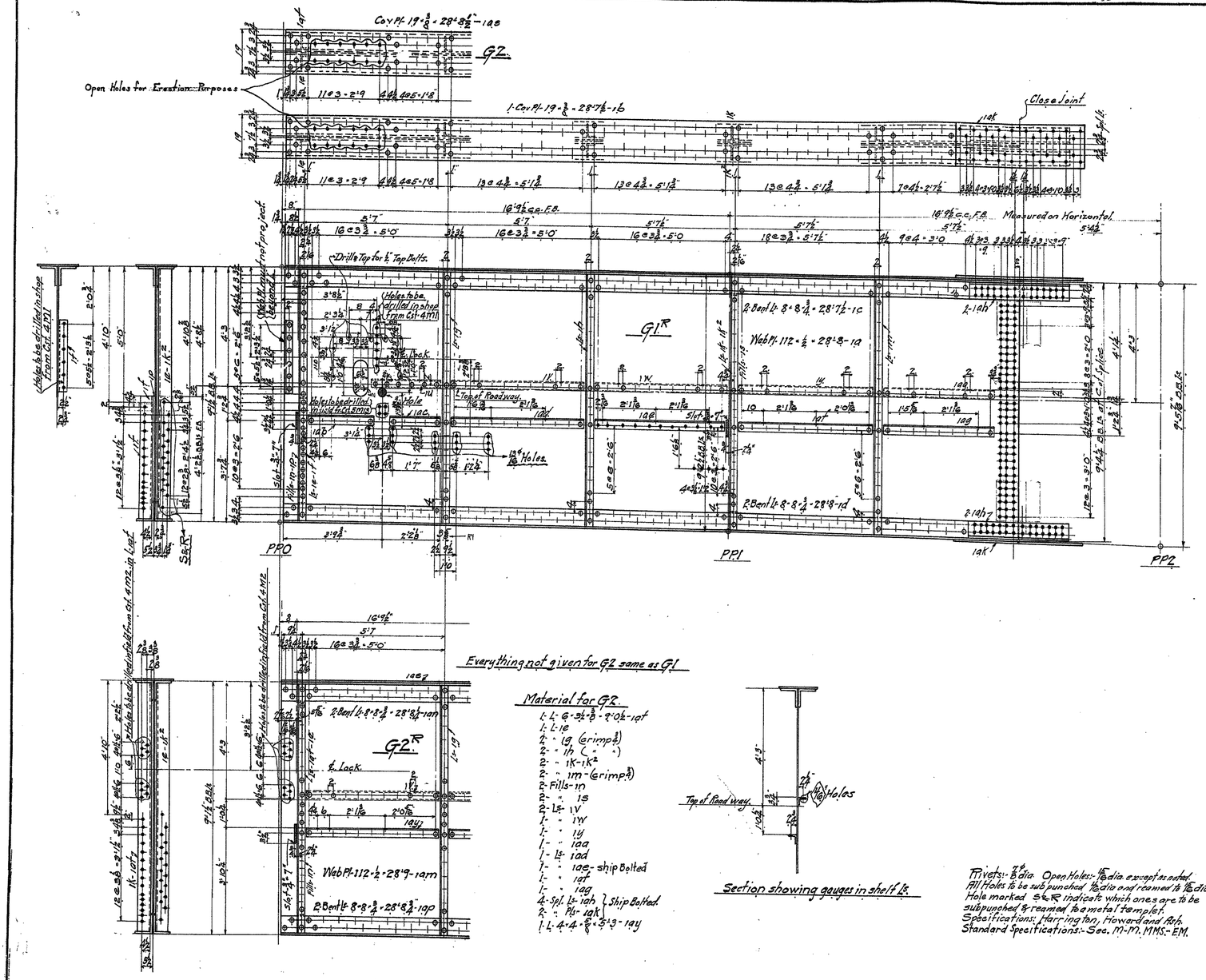
DELAWARE STATE HIGHWAY DEPARTMENT

SOUTH MARKET STREET BRIDGE
OVER CHRISTINA RIVER
WILMINGTON DELAWARE

WIRING DIAGRAM

DRAWN BY - R.J.S - OCT-11-61
CHECKED BY
D.WG - E-1-R

(D-002)



Everything not given for G2 same as G1

Material for G2.

1- L- 6-3½-3/8-9'0½-1af
1- L-1e
2- " 1g (crimp 3/4)
2- " 1h (" ")
2- " 1K-1K²
2- " 1m-(crimp 3/4)
2- Fills-1n
2- " 1s
2- Ls- 1V
1- " 1W
1- " 1y
1- " 1aa
1- Ls- 1ad
1- " 1ae- ship Bolted
1- " 1af
1- " 1ag
4- Spl. Ls- 1ah } Ship Bolted.
2- " Pls- 1ak
1- L- 4-4-5/8-5'3-1ay

Section showing gauges in shelf Ls.

Material for G1.

1- L- 6-3½-3/8-9'0½-1e
1- " 6-3½-3/8-4'5¼-1f
2- " 6-3½-3/8-9'2¼-1g (crimp 3/4)
2- " 6-3½-3/8-9'2½-1h (")
2- " 6-3½-3/8-9'1½-1K-1K²
2- " 6-3½-3/8-9'4-1m (crimp 3/4)
1- Fill- 3½-3/4-7'10-1n
1- " 3½-3/4-3'10-1p
2- " 3½-3/4-7'11-1s
1- L- 4-3½-3/8-2'6½-1f
1- " 3½-3½-3/8-2'9-1u
1- " 3½-3½-3/8-5'3-1v
1- " 3½-3½-3/8-5'3½-1w
1- " 3½-3½-3/8-5'3½-1y
1- " 3½-3½-3/8-4'4-1aa
1- " 4-4-3/8-2'8-1ab
1- " 4-4-3/8-2'0-1ac
1- " 4-4-3/8-5'3-1ad
1- " 4-4-3/8-5'2½-1ae (ship Bolted)
1- " 4-4-3/8-5'3½-1af
1- " 4-4-3/8-4'4-1ag
4- Spl. Ls- 7¼-7¼-3/4-3'11-1ah (cutt-8-8) } Ship Bolted
2- Spl. Pls- 19-3/8-5'0-1ak

Required List.

One- Girder- G1R
One- " G1L
One- " G2R
One- " G2L

Spacing in shelf Angles to be about 6".
For General Dimensions of Girder see Sh. #2

Rivets:- 7/8 dia. Open Holes:- 15/16 dia. except as noted.
All Holes to be subpunched 1/16 dia and reamed to 15/16 dia.
Hole marked S&R indicate which ones are to be subpunched & reamed to a metal templet.
Specifications: Harrington, Howard and Ash.
Standard Specifications:- Sec. M-M. MMS.-EM.

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Main Girders. (Centre End)
STRUCTURE South Market Street Bridge over Christiana River Wilmington, Del.
CUSTOMER State of Delaware.
SHOP PAINT One coat of Dupont Kromate Metal Primer. Same for assembling
RIVETS OPEN HOLE UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
T.C.M.	1-7-27	E.D.S.	1-23-26	[illegible]

No.	DATE	BY	DESCRIPTION
R1	3-3-27	T.C.M.	Phone.

REVISIONS

FILE-F5579 CONT.-EB4013 DWG. 1

BS10-11

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
SINCE 1893
DRAWING No. 143 of 169

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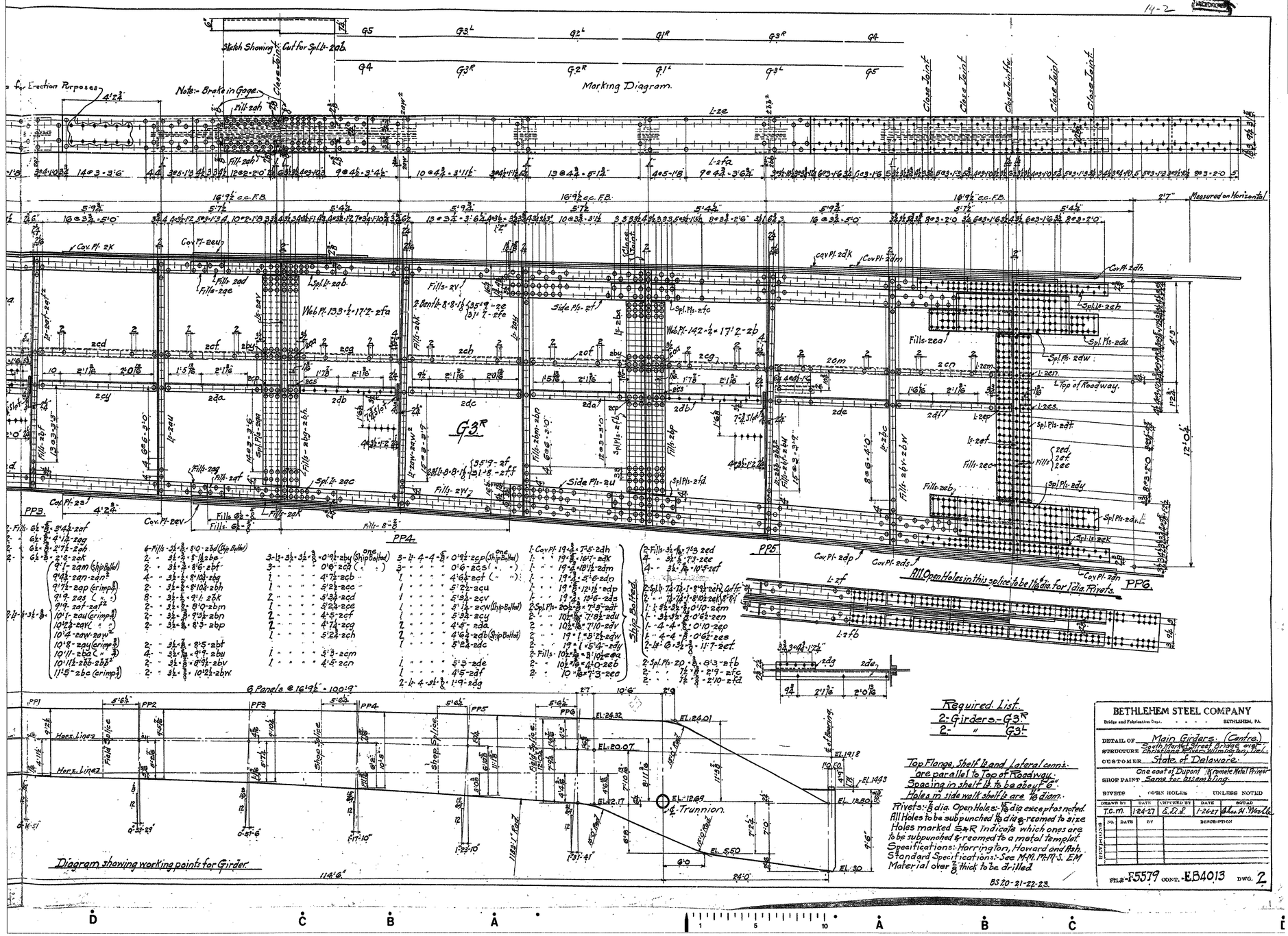

CONTRACT No. 21-074-07

REPRODUCED
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MODJESKI and MASTERS
CONSULTING ENGINEERS
NEW YORK

DRAWING No. 14 of 181

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CONTRACT No. 21-074-07
REPRODUCED
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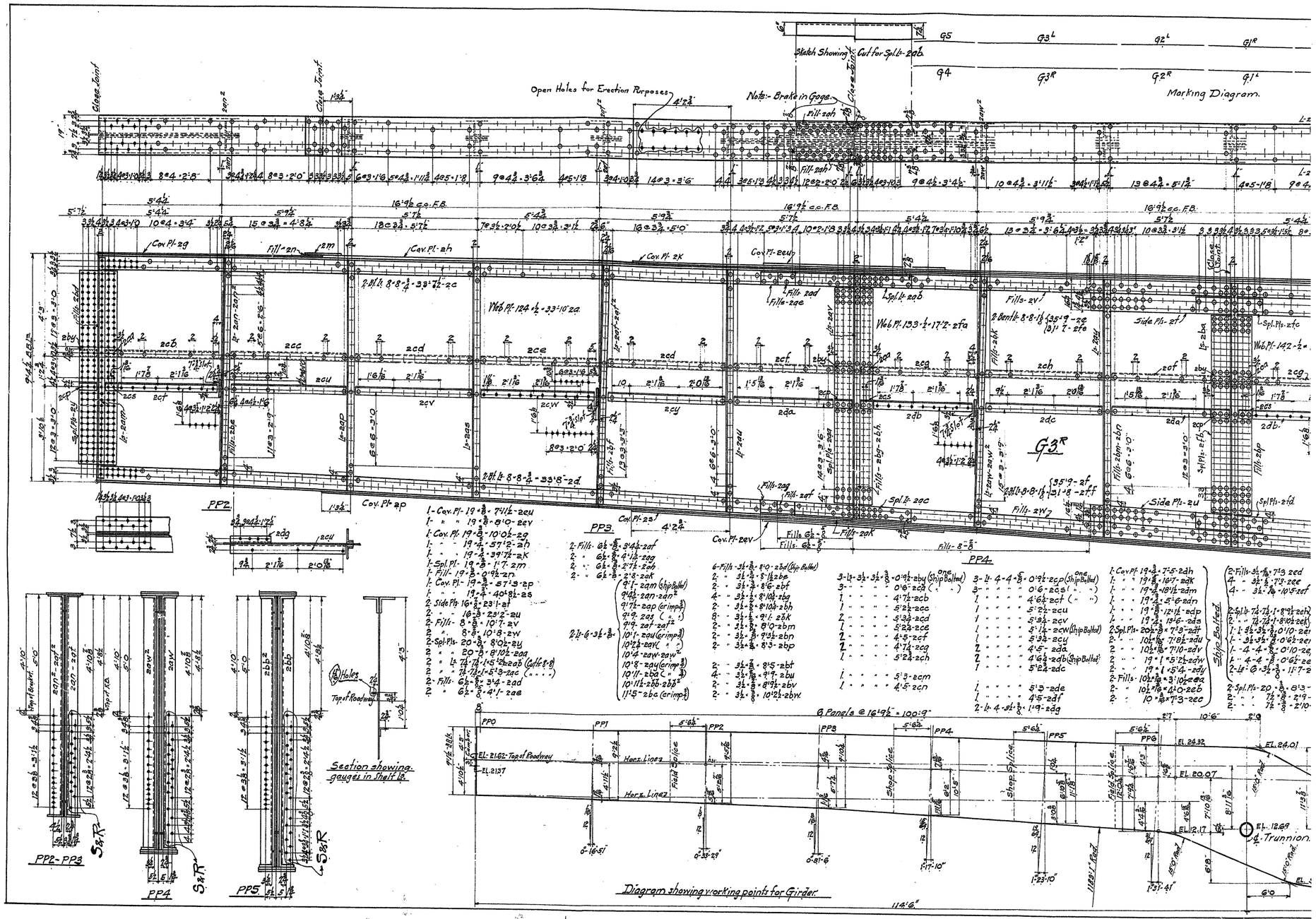
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
DRAWING No.
145 of 182



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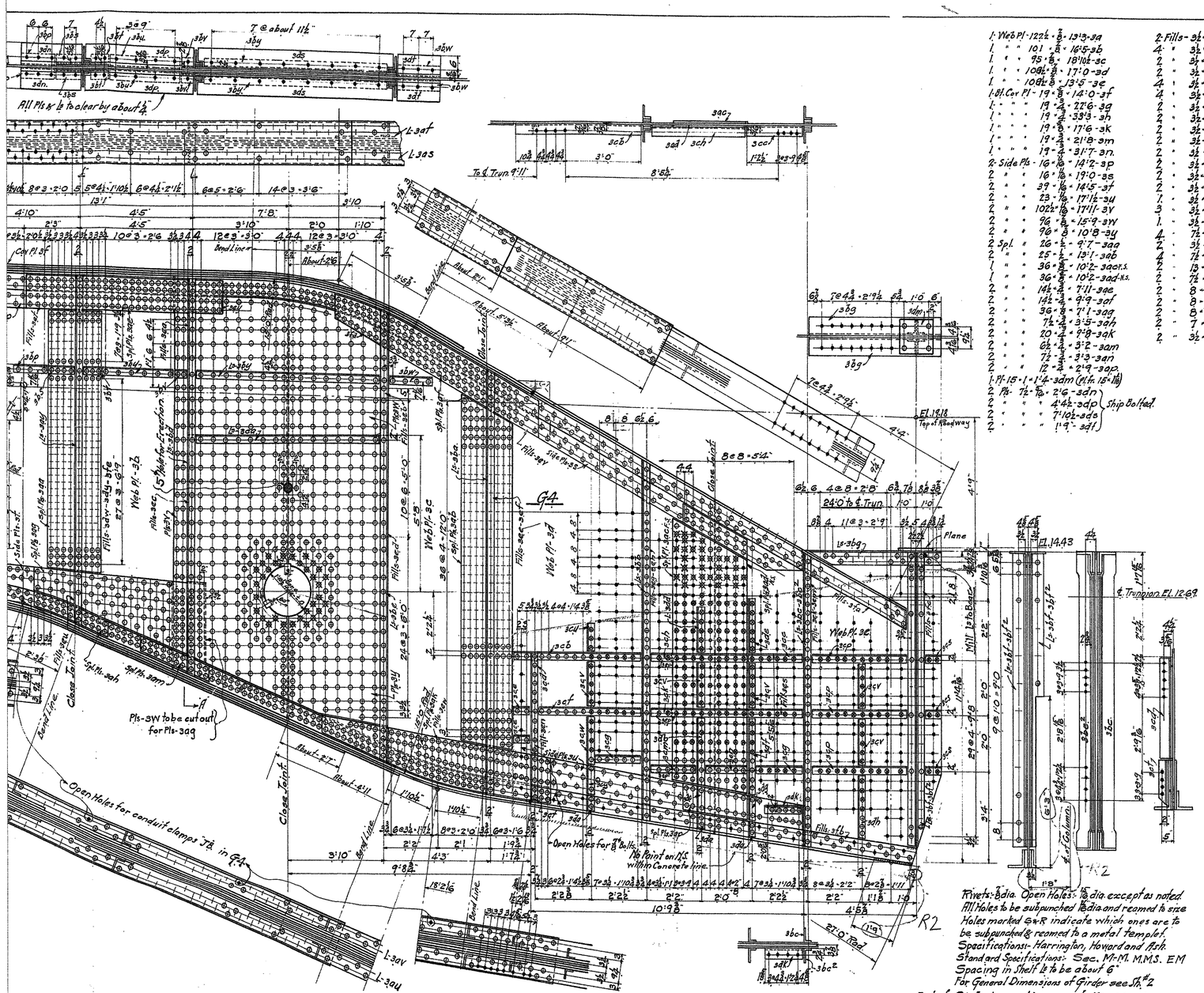

1-Web Pl-122½ × 3/8 × 13'3-3a
1 " " 101 × 3/8 × 16'5-3b
1 " " 95 × 3/8 × 18'10½-3c
1 " " 108½ × 3/8 × 17'0-3d
1 " " 108½ × 3/8 × 13'5-3e
1-Bf. Cov Pl - 19 × 3/8 × 14'0-3f
1 " " " 19 × 3/4 × 22'6-3g
1 " " " 19 × 3/4 × 33'3-3h
1 " " " 19 × 3/4 × 17'6-3k
1 " " " 19 × 3/4 × 21'8-3m
1 " " " 19 × 3/4 × 31'7-3n.
2-Side Pls - 16 × 1/16 × 14'2-3p
2 " " 16 × 1/16 × 19'0-3s
2 " " 39 × 1/16 × 14'5-3t
2 " " 23 × 1/16 × 17'1½-3u
2 " " 10½ × 1/16 × 17'11-3v
2 " " 96 × 3/8 × 15'9-3w
2 " " 96 × 3/8 × 10'8-3y
2 Spl. " 26 × ½ × 9'7-3aa
2 " " 25 × ½ × 19'1-3ab
1 " " 36 × 3/8 × 10'2-3ac t.s.
1 " " 36 × 3/8 × 10'2-3ad b.s.
2 " " 14½ × ½ × 7'11-3ae
2 " " 14½ × ½ × 9'9-3af
2 " " 36 × 3/8 × 7'1-3ag
2 " " 7½ × ½ × 3'5-3ah
2 " " 20 × ½ × 9'8-3ak
2 " " 6½ × ½ × 3'2-3am
2 " " 7½ × ½ × 3'3-3an
2 " " 12 × ½ × 2'9-3ap
1-Pl-15 × 1 × 1'4-3dm (el. fr. 15 × 1/16)
2 Pls- 7½ × 5/16 × 2'6-3dn } Ship Bolted.
2 " " " 4'4½-3dp
2 " " " 7'10½-3de
2 " " " 1'9"-3df

2-Fills- 3½ × 1/16 × 9'4"-3du.
4 " 3½ × 1/16 × 10'8-3dv
2 " 3½ × 3/16 × 9'6-3dw
2 " 3½ × 1/16 × 9'6-3dy
4 " 3½ × ½ × 4'5-3ea
4 " 3½ × ½ × 3'4-3eb
2 " 3½ × 3/8 × 8'3-3ec
2 " 3½ × 3/8 × 10'8-3ed
2 " 3½ × 3/8 × 12'4-3ee
2 " 3½ × 1/16 × 12'4-3ef
2 " 3½ × 1/16 × 10'11½-3eg
2 " 3½ × 3/8 × 11'10-3eh
2 " 3½ × 1/16 × 9'5-3ek
2 " 3½ × 3/8 × 9'5-3em
1 " 3½ × ½ × 3'5-3en
3 " 3½ × 3/8 × 0'10-3ep
1 " 3½ × 3/8 × 2'2-3es
4 " 7½ × 1/16 × 6'6-3et
2 " 3½ × ½ × 1'5-3eu
4 " 7½ × 1/16 × 7'10-3ev
2 " 13 × 1/8 × 9'6-3ew
2 " 7½ × ½ × 1'4½-3ey
2 " 8 × 1/16 × 4'10-3fa
2 " 8 × 1/16 × 4'11-3fb
2 " 8 × 5/16 × 10'3-3fc
2 " 7 × ½ × 2'6-3fd
2 " 3½ × ¾ × 11'0-3fe

1-Bent L - 8 × 8 × 1/8 × 48'8-3as
1 " " " 8 × 8 × 1/8 × 44'6-3af
1 " " " 8 × 8 × 1/8 × 47'10-3au.
1 " " " 8 × 8 × 1/8 × 43'8-3av
2-Ls - 6 × 3½ × 5/16 × 11'10½-3aw-3aw^2
2 " 6 × 3½ × 5/16 × 13'1-3ay
2 " 6 × 3½ × 5/16 × 15'9-3az (Crimp 3/8)
2 " 6 × 3½ × 5/16 × 13'5-3bb (" ")
2 " 6 × 3½ × 5/16 × 11'0-3bc-3bc^2 (" ")
2 " 6 × 3½ × ½ × 14'7"-3bd
2 " 6 × 3½ × ½ × 16'7-3be.
4 " 6 × 4 × 3/8 × 10'10-3bf-3bf^2
2 " 8 × 6 × 5/8 × 5'6-3bg.
1 " 3½ × 3½ × 3/8 × 4'6-3bh.
1 " 3½ × 3½ × 3/8 × 1'9½-3bk
1 " 4 × 4 × 3/8 × 4'5-3bm.
1 " 4 × 4 × 3/8 × 1'5-3bn
2-Ls 5 × 3½ × 7/16 × 1'5-3bp.
2 " " " " × 1'0½-3bs
2 " " " " × 0'9½-3bt
2 " " " " × 2'9½-3bu
2 " " " " × 0'6-3bv
2 " " " " × 1'9-3bw.
2-Ls 3½ × 3½ × 7/16 × 7'5"-3by
2 " 4 × 3½ × 3/8 × 7'4"-3ca
1 " 5 × 3½ × ½ × 5'1"-3cb
1 " 5 × 3½ × ½ × 2'2½-3cc
1 " 5 × 3½ × ½ × 3'9"-3cd
2-Ls 3½ × 3½ × ½ × 0'8½-3ce
1 " " " " × 4'0½-3cf
2 " " " " × 1'10½-3cg
1 " " " " × 3'10"-3ch
1 " " " " × 0'0"-3ck
1 " " " " × 1'10½-3cm
1 " " " " × 1'7½-3cn
3 " " " " × 3'9½-3cp
3 " " " " × 0'7"-3cs
1 " " " " × 1'8½-3ct
1 " " " " × 1'0"-3cu
5 " " " " × 1'8"-3cv
1 " " " " × 1'9"-3cw
1 " " " " × 1'1½-3cy
3 " " " " × 0'7"-3da
1 " " " " × 2'6"-3db
1 " " " " × 1'0"-3dc
1 " " " " × 1'8"-3dd
1 " " " " × 2'0"-3de
1 " " " " × 2'10"-3df
1 " " " " × 0'11½-3dg
1 " " " " × 2'4"-3dh
1 " 4 × 3½ × ½ × 1'6½-3dk.

Required List.
2-Girders-G4.
2- " G5 Opp. hand of shown.

Rivets: 3/4" dia. Open Holes: 15/16" dia. except as noted.
All Holes to be subpunched 1/16" dia. and reamed to size
Holes marked O & R indicate which ones are to be subpunched & reamed to a metal templet.
Specifications: - Harrington, Howard and Ash.
Standard Specifications: Sec. M-M. M.M.S. EM
Spacing in Shelf is to be about 6"
For General Dimensions of Girder see Sh. #2
Part of Girder incased in concrete, this side only, not to be painted nor oiled
All Material over 3/8" thk to be drilled.

B330-31-32-33.

PENNSYLVANIA STEEL COMPANY
Philadelphia Pa. Scranton Pa.
DETAIL OF Main Girders. (Trunnion End)
South Market Street Bridge
STRUCTURE over Christiana River Wilmington, Del.
STATE State of Delaware.

One coat of Dupont Kromate Metal Primer
Same for assembling except for part in contact with Concrete as shown.

T.C.M. 2-5-27 E.D.S. 2-10-27 John J. Mullen

R1 3-11-27 T.C.M. Holes 4½ changed to 5" Field Rivets.
R2 6-17-27 " Due to interference of Cols.

5579 B4013 3

6-17-27

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
DRAWING No.
142 of 189

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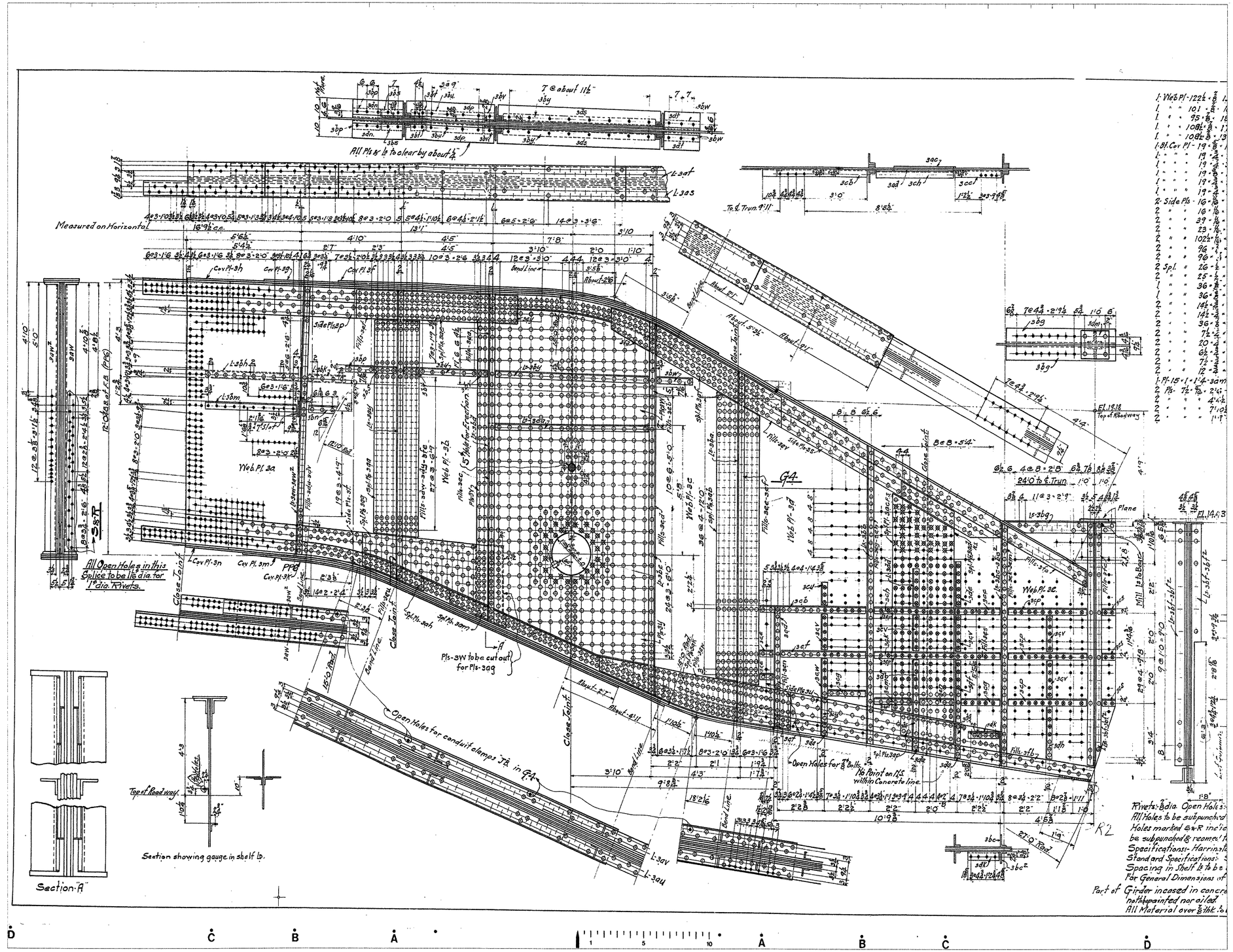

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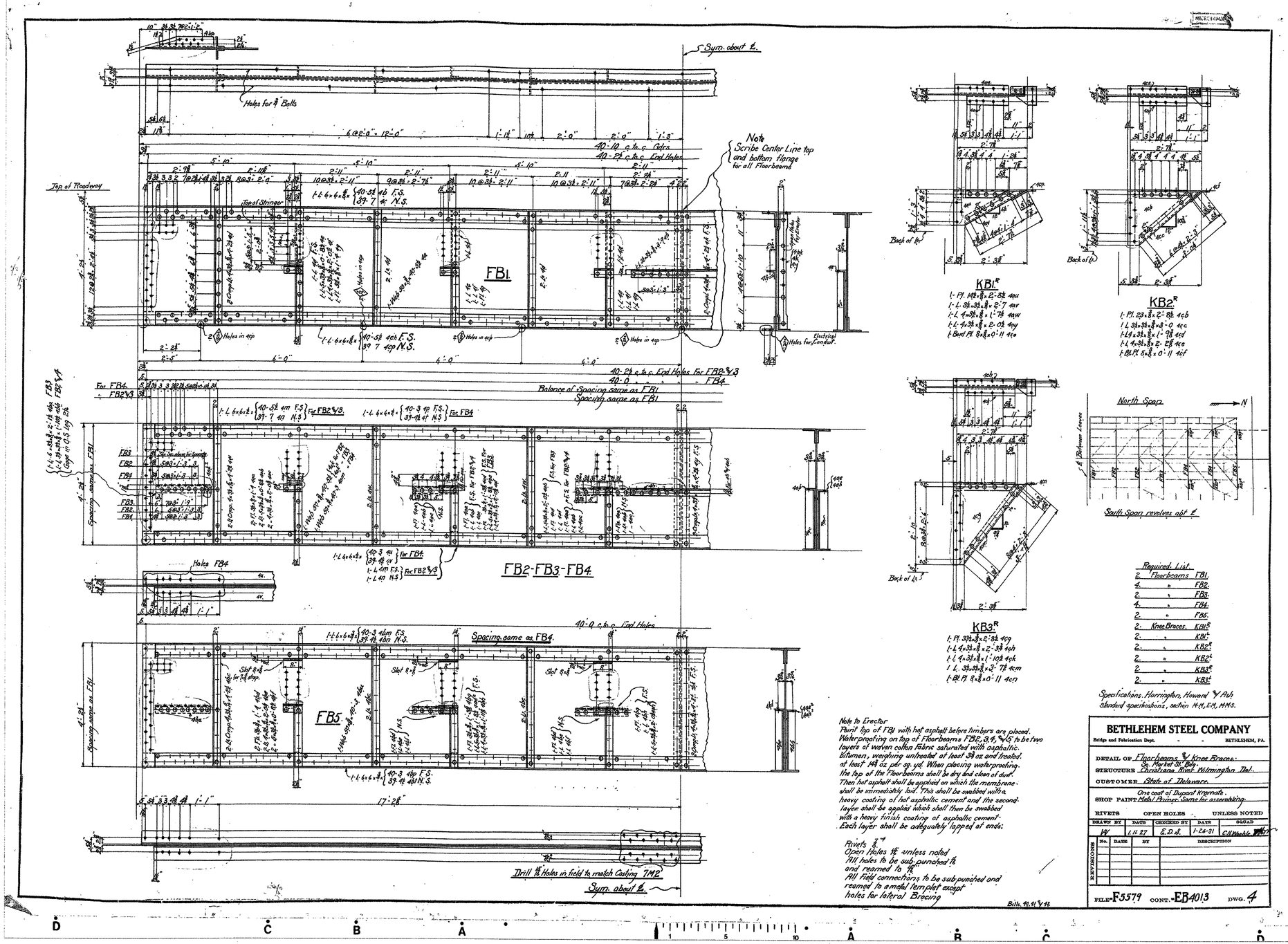

CONTRACT No. 21-074-07

REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

MODJESKI and MASTERS
Consulting Engineers
SINCE 1905

DRAWING No. 148 of 169

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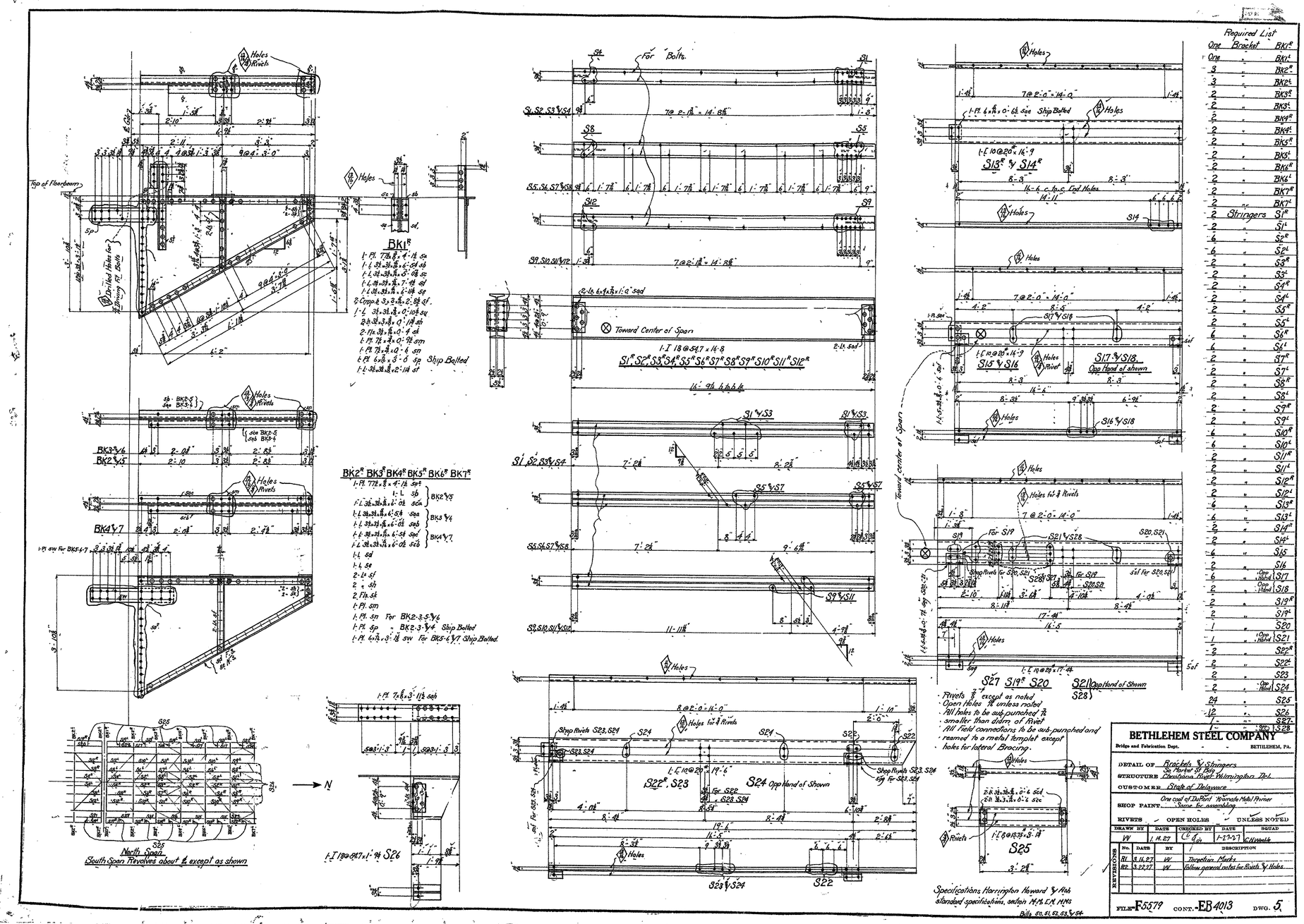

Required List

One	Bracket	BK1R
One	"	BK1L
3	"	BK2R
3	"	BK2L
2	"	BK3R
2	"	BK3L
2	"	BK4R
2	"	BK4L
2	"	BK5R
2	"	BK5L
2	"	BK6R
2	"	BK6L
2	"	BK7R
2	"	BK7L
2	Stringers	S1R
2	"	S1L
6	"	S2R
6	"	S2L
2	"	S3R
2	"	S3L
2	"	S4R
2	"	S4L
2	"	S5R
2	"	S5L
6	"	S6R
6	"	S6L
2	"	S7R
2	"	S7L
2	"	S8R
2	"	S8L
2	"	S9R
2	"	S9L
6	"	S10R
6	"	S10L
2	"	S11R
2	"	S11L
2	"	S12R
2	"	S12L
6	"	S13R
6	"	S13L
2	"	S14R
2	"	S14L
6	"	S15
2	"	S16
6	" Opp Hand	S17
2	" Opp Hand	S18
2	"	S19R
2	"	S19L
1	"	S20
1	" Opp Hand	S21
2	"	S22R
2	"	S22L
2	"	S23
2	" Opp Hand	S24
24	"	S25
12	"	S26
1	"	S27
1	" Opp Hand	S28

- Rivets 3/4" except as noted
- Open Holes 13/16" unless noted
- All holes to be sub-punched 3/4" smaller than diam. of Rivet
- All field connections to be sub-punched and reamed to a metal templet except holes for lateral Bracing.

BETHLEHEM STEEL COMPANY

Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Brackets & Stringers
STRUCTURE Christiana River Wilmington Del.
CUSTOMER State of Delaware
SHOP PAINT One coat of DuPont Normale Metal Primer. Leave for assembling.
RIVETS ✓ OPEN HOLES ✓ UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
W	1.11.27	CE	1-12-27	C.H. Kessler

REVISIONS No.	DATE	BY	DESCRIPTION
R1	3.14.27	W	Impetus Marks
R2	3.22.27	W	Follow general notes for Rivets & Holes.

FILE F5579 CONT. EB4013 DWG. 5

CONTRACT No. 21-074-07

REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

MODJESKI and MASTERS
CONSULTING ENGINEERS
NEW YORK

DRAWING No. 149 of 149

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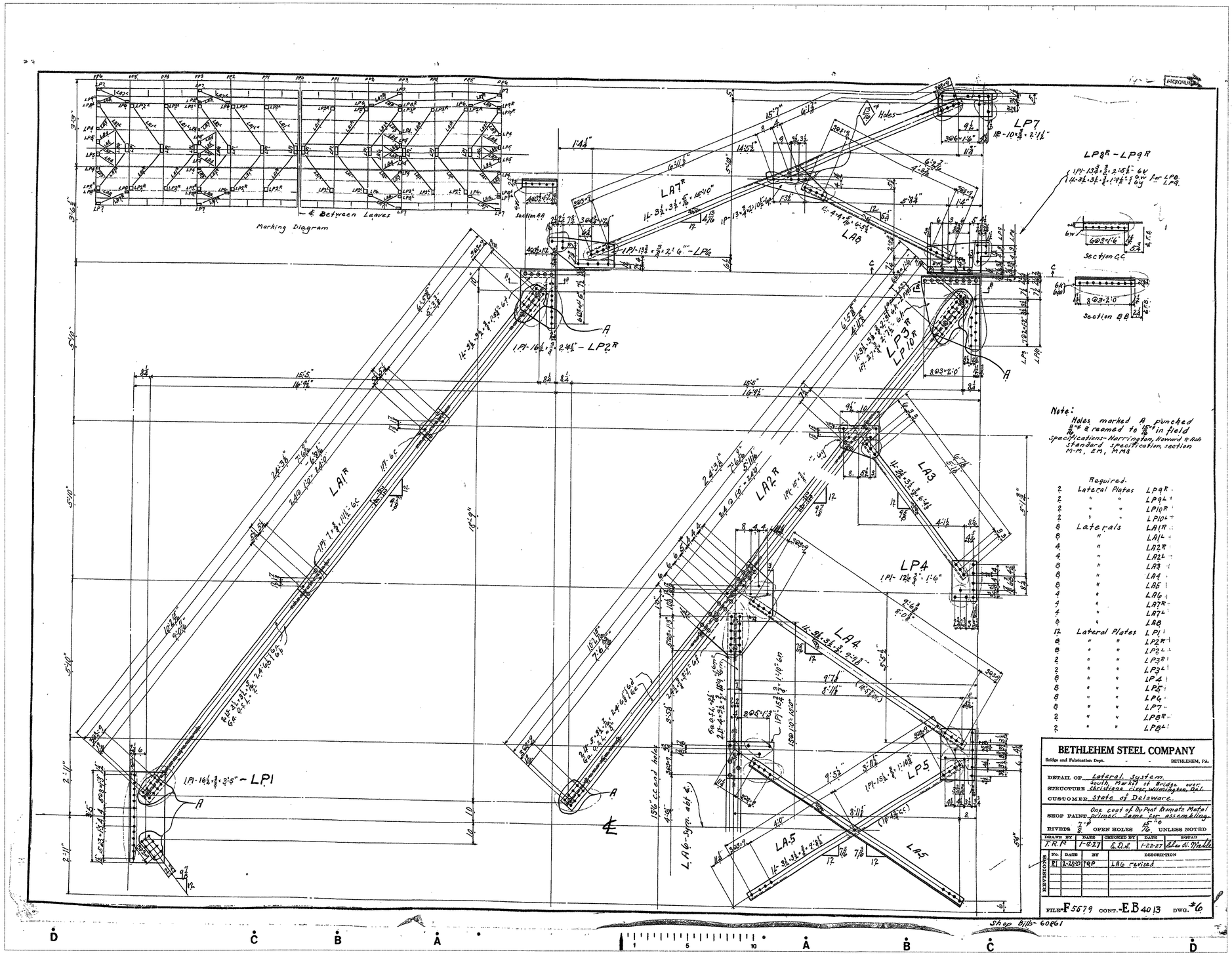

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
DRAWING No. 150 of 169

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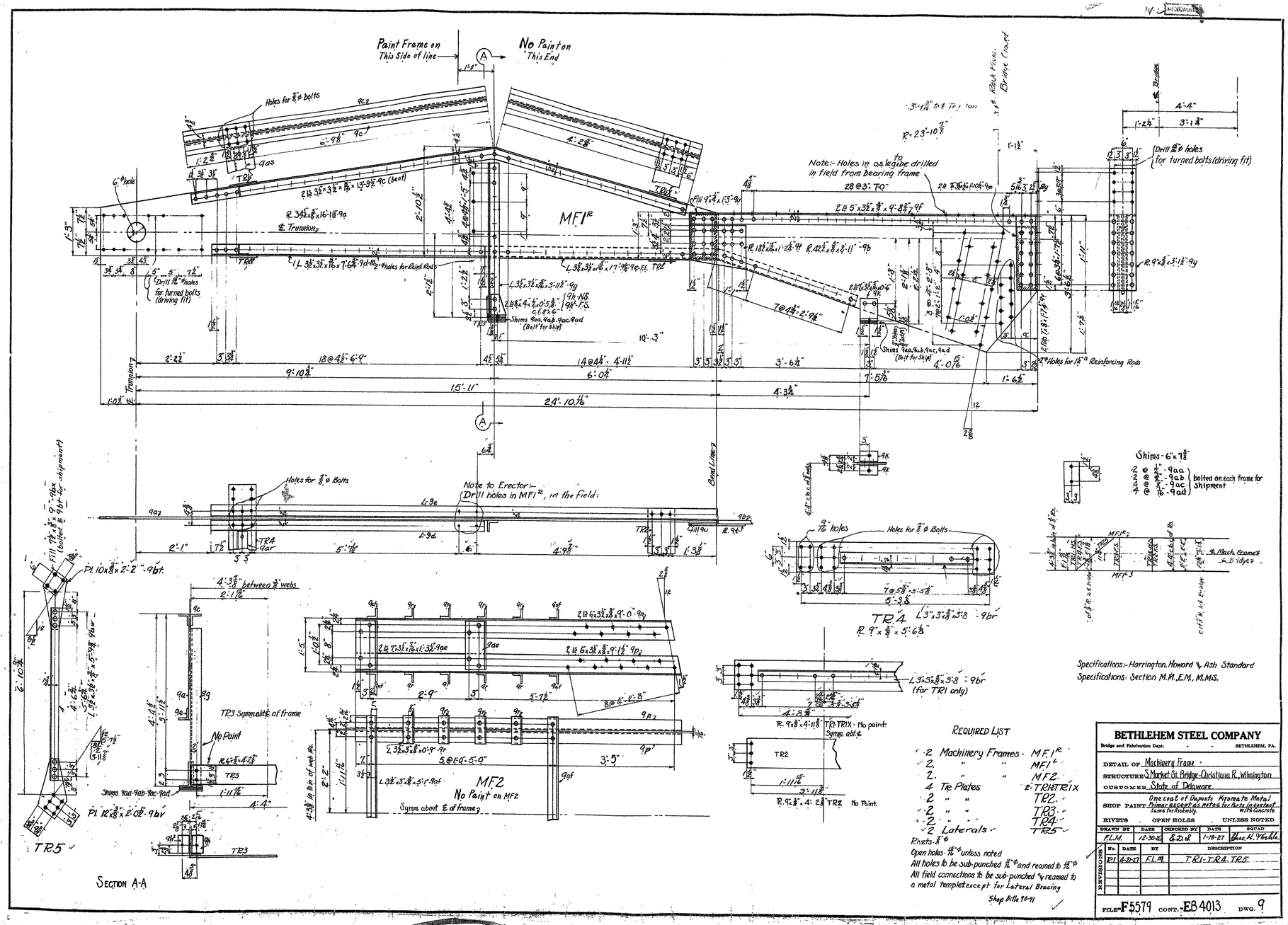


REQUIRED LIST

2 Machinery Frames	MF1R
2 " "	MF1L
2 " "	MF2
4 Tie Plates	2-TR1 TRIX
2 " "	TR2
2 " "	TR3
2 " "	TR4
2 Laterals	TR5

Rivets - 7/8" ϕ
Open holes - 13/16" ϕ unless noted
All holes to be sub-punched 11/16" ϕ and reamed to 13/16" ϕ
All field connections to be sub-punched & reamed to a metal templet except for Lateral Bracing

Shop Bills 90-91

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Machinery Frame
STRUCTURE S. Market St. Bridge - Christiana R., Wilmington
CUSTOMER State of Delaware

SHOP PAINT One coat of Dupont Kromate Metal Primer except as noted for parts in contact with concrete. Same for assembly.
RIVETS - OPEN HOLES - UNLESS NOTED

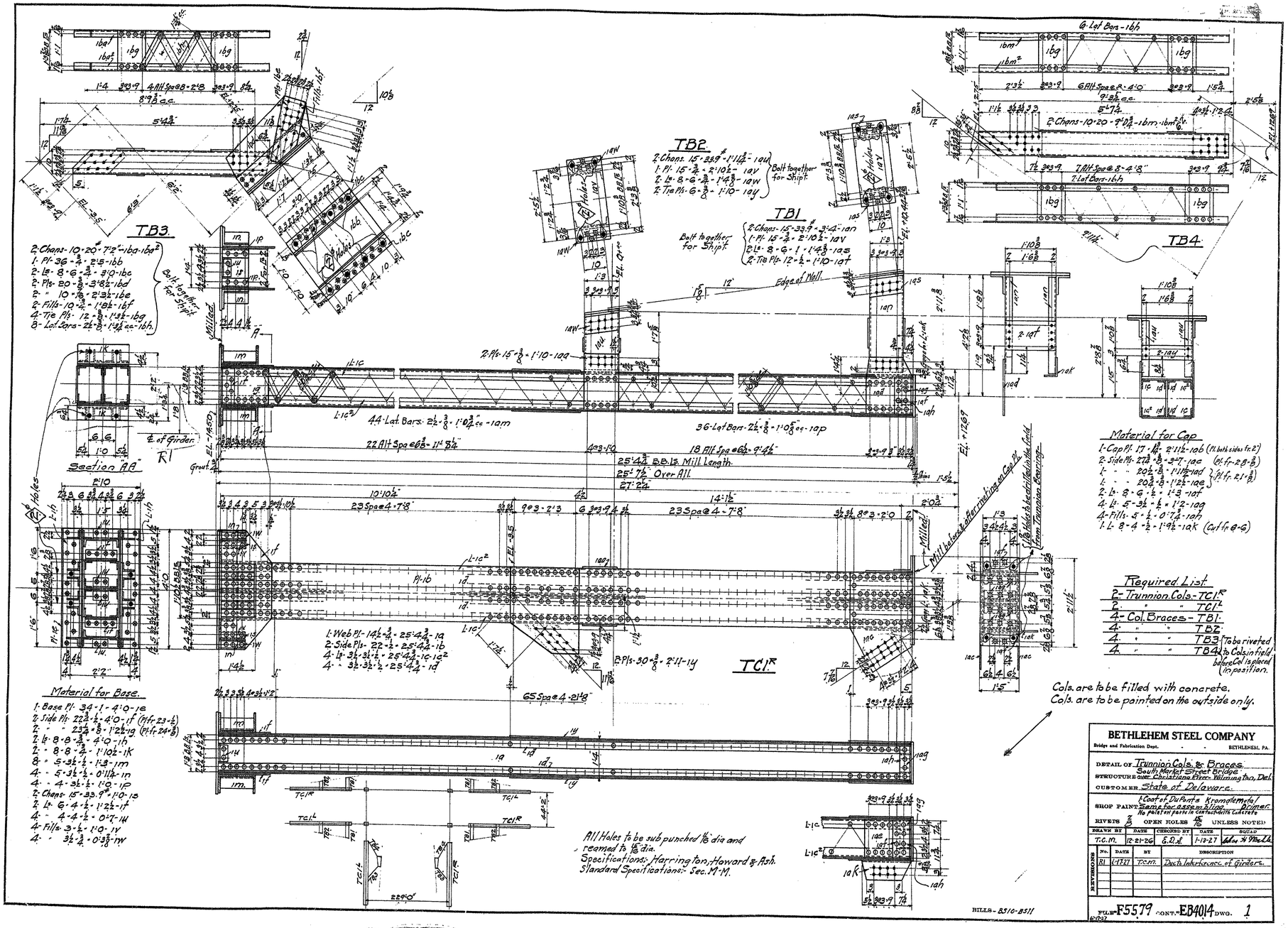
DRAWN BY	DATE	CHECKED BY	DATE	SHIPPED
F.L.M.	12-30-26	6-21-27	1-18-27	Wm. H. Webb

REVISIONS No.	DATE	BY	DESCRIPTION
21	6-21-27	F.L.M.	TR1-TR4-TR5

FILE F5579 CONT. EB 4013 DWG. 9

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 151 of 162
MODJESKI & MASTERS CONSULTING ENGINEERS

Name: Cd_056.CAL
Dimensions: 8800 x 6784 pixels



BETHLEHEM STEEL COMPANY

Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Trunnion Cols. & Braces.

STRUCTURE South Market Street Bridge over Christiana River - Wilmington, Del.

CUSTOMER State of Delaware.

SHOP PAINT 1 Coat of DuPont's Kromoplate Metal Primer. Same for assembling. No paint on parts in contact with concrete

RIVETS 7/8 OPEN HOLES 15/16 UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
T.C.M.	12-21-26	E.D.S.	1-13-27	John H. Mahle

REVISIONS No.	DATE	BY	DESCRIPTION
R1	1-17-27	T.C.M.	Ducts Interference of Girders.

FILE-F5579 CONT.-EB4014 DWG. 1

CONTRACT No. 21-074-07

REPRODUCED

ORIGINAL SHOP DRAWING

INCLUDED FOR INFORMATIONAL PURPOSES

MODJESKI and MASTERS Consulting Engineers SINCE 1890

DRAWING No. 152 of 1109

Name: Cd_058.CAL
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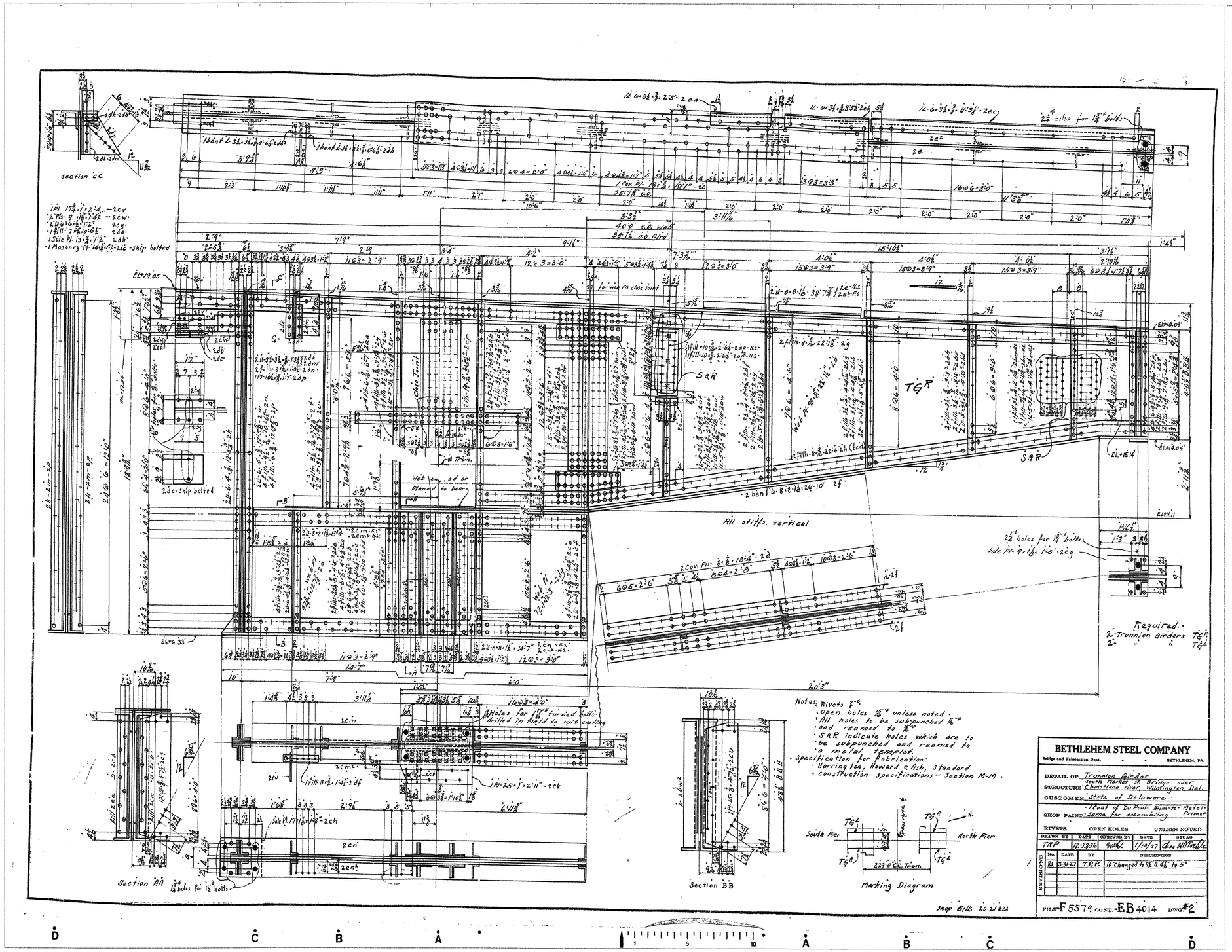


CONTRACT No. 21-074-07

REPRODUCED

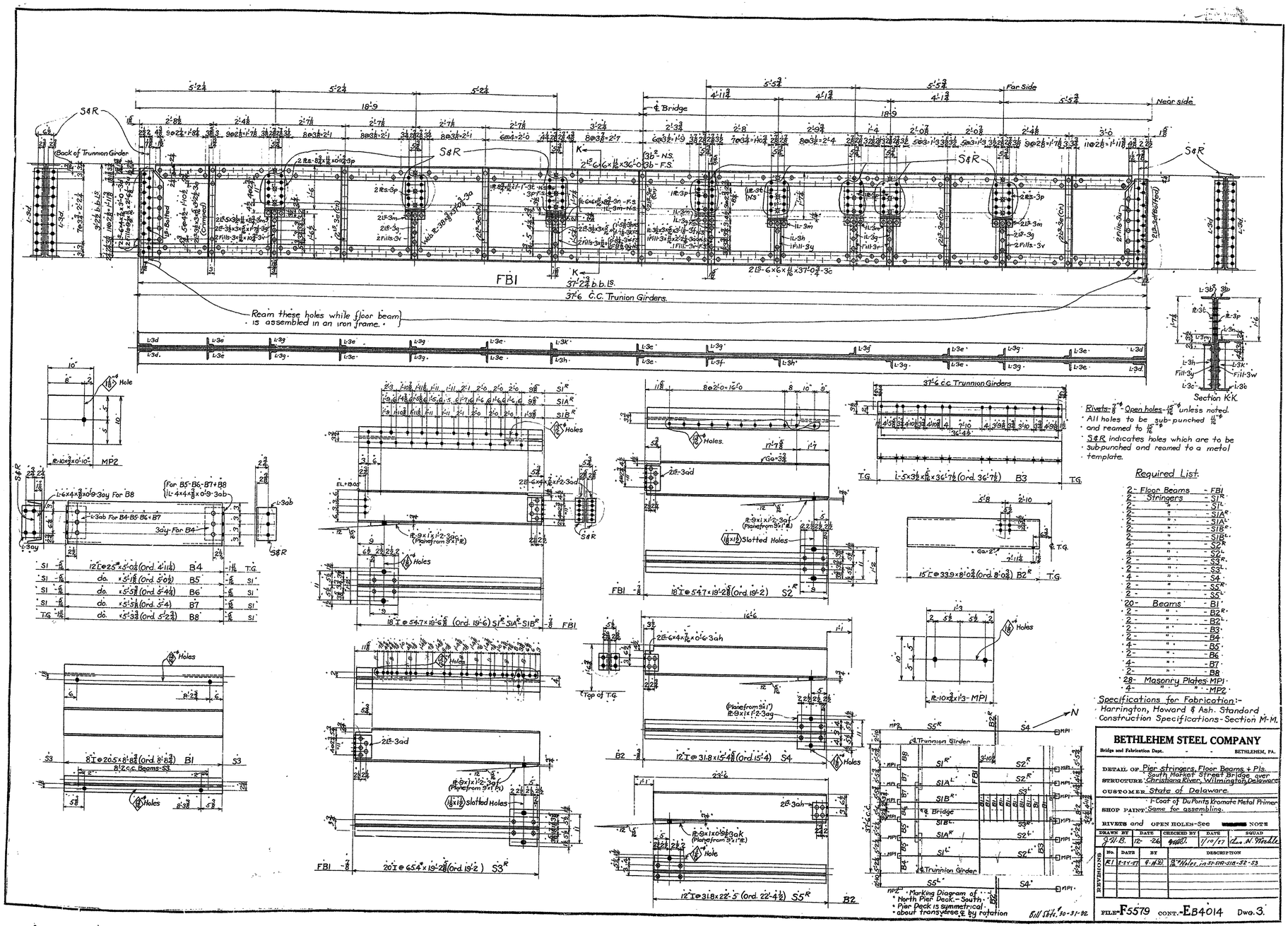
ORIGINAL SHOP DRAWING

INCLUDED FOR INFORMATIONAL PURPOSES

MODJESKI and MASTERS CONSULTING ENGINEERS SINCE 1898

DRAWING No. 153 of 169

Name: Cd_059.CAL
Dimensions: 8800 x 6784 pixels



Rivets - 7/8" - Open holes - 15/16" unless noted.
All holes to be sub-punched 11/16" and reamed to 15/16"
S&R indicates holes which are to be sub-punched and reamed to a metal template.

Required List:

2	Floor Beams	FBI
2	Stringers	S1R
2	"	S1L
2	"	S1AR
2	"	S1AL
2	"	S1BR
2	"	S1BL
4	"	S2R
4	"	S2L
2	"	S3R
2	"	S3L
4	"	S4
2	"	S5R
2	"	S5L
20	Beams	B1
2	"	B2R
2	"	B2L
2	"	B3
2	"	B4
4	"	B5
2	"	B6
4	"	B7
2	"	B8
28	Masonry Plates	MP1
4	" "	MP2

Specifications for Fabrication:-
Harrington, Howard & Ash. Standard Construction Specifications - Section M-M.

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Pier Stringers, Floor Beams + Pls.
STRUCTURE South Market Street Bridge over Christiana River, Wilmington, Delaware
CUSTOMER State of Delaware.
SHOP PAINT 1-Coat of DuPonts Kromate Metal Primer Same for assembling.
RIVETS and OPEN HOLES - See [redacted] NOTE

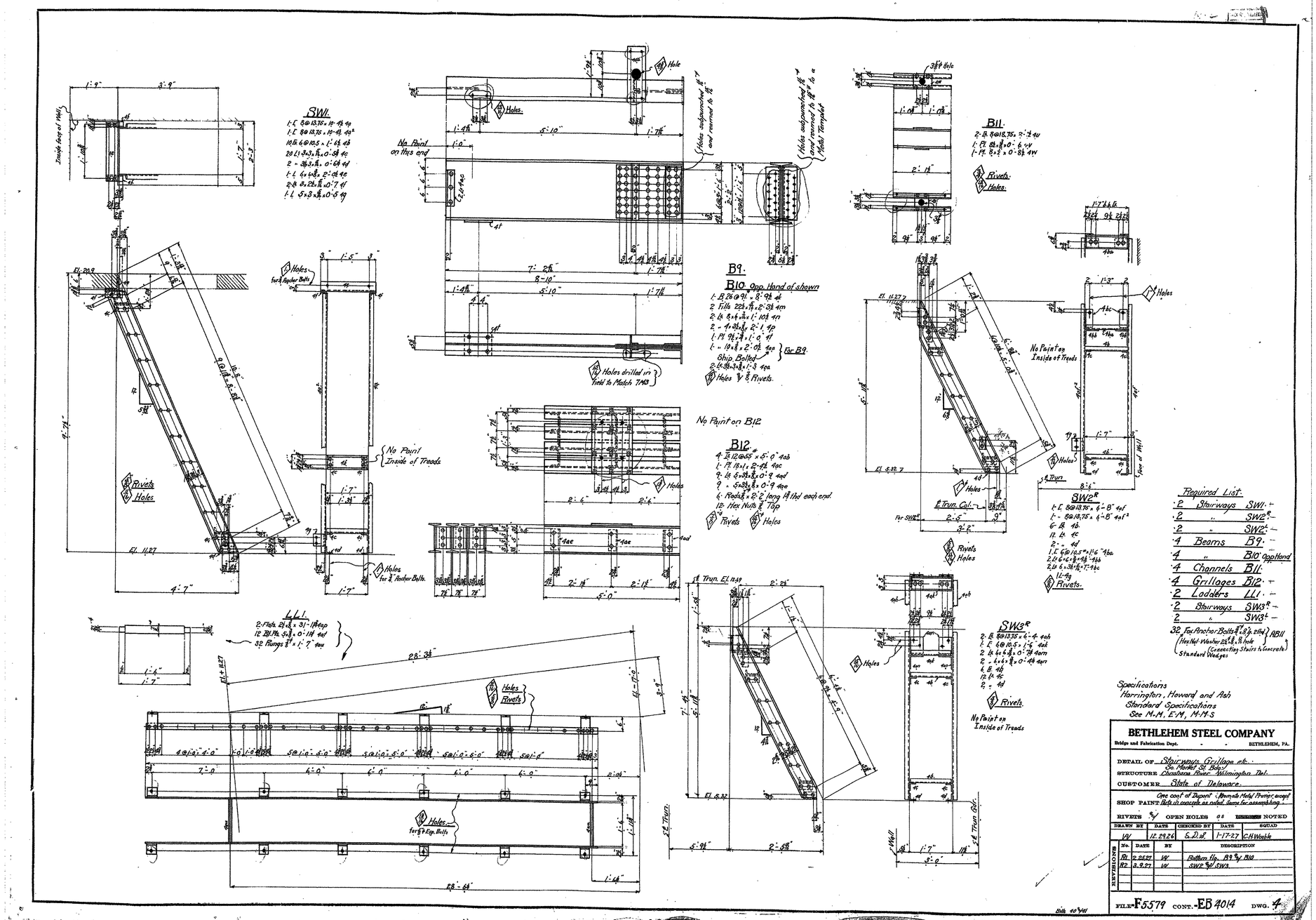
DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
J.H.B.	12-26	[illegible]	1/10/27	[illegible]

REVISIONS No.	DATE	BY	DESCRIPTION
R1	2-24-27	[illegible]	13/16" Holes in S1-S1A-S1B-S2-S3

FILE-F5579 CONT.-EB4014 Dwg. 3.

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI & MASTERS CONSULTING ENGINEERS
DRAWING No. 154 of 169

Name: Cd_060.CAL
Dimensions: 8800 x 6784 pixels



CONTRACT No. 21-074-07

REPRODUCED

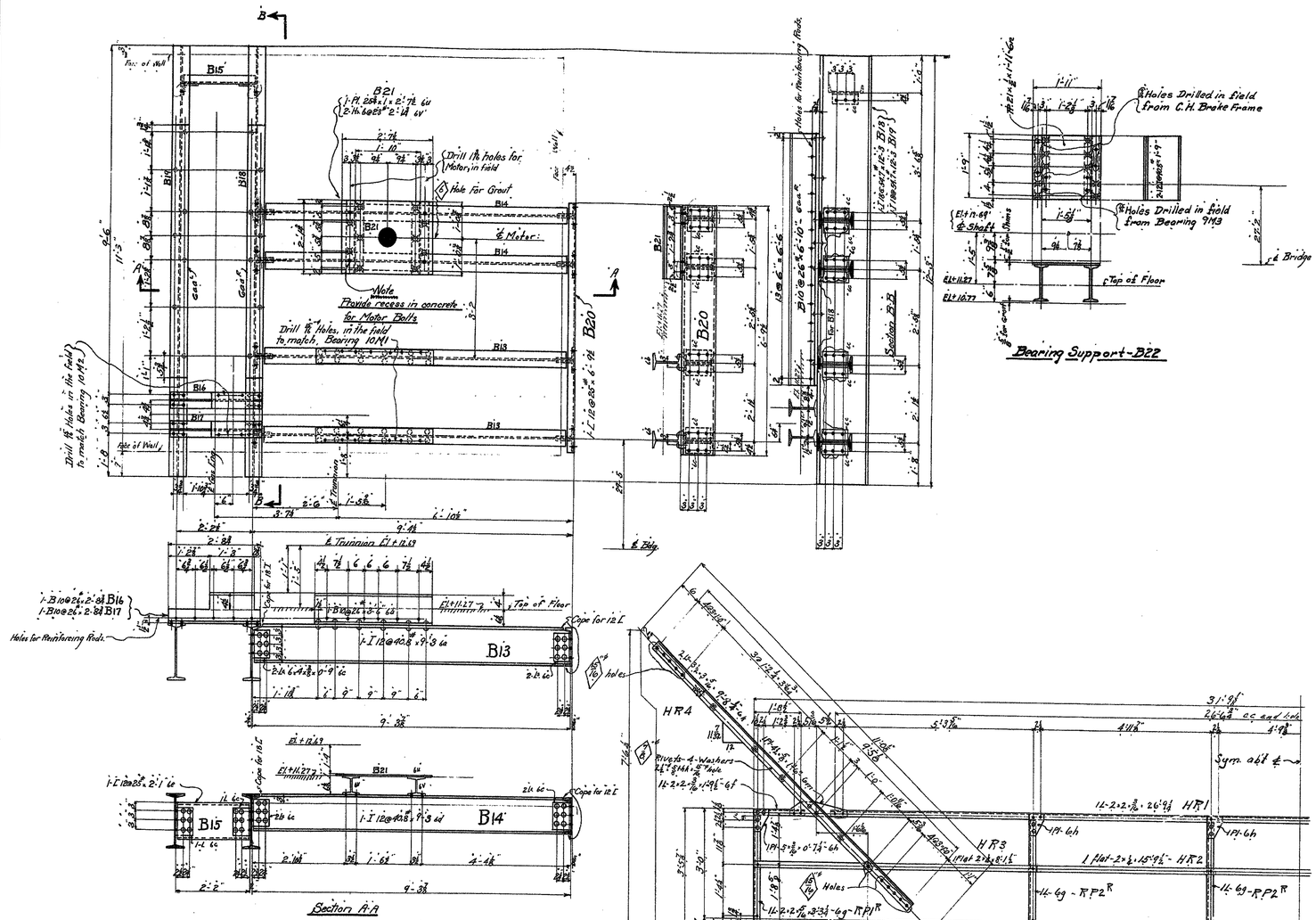
ORIGINAL SHOP DRAWING

INCLUDED FOR INFORMATIONAL PURPOSES

MODJESKI and MASTERS Consulting Engineers SINCE 1893

DRAWING No. 155 of 1409

Name: Cd_061.CAL
Dimensions: 8800 x 6784 pixels



Required List

4	Beams B18
4	" B19
2	Channels B15
2	Beams B16
2	" B17
2	" B18
2	" B19
2	" B20
2	" B21
2	Hand Railing HR1
2	" HR2
1	" HR3
4	Strut HR4
4	Railing Post RP1
8	" RP2
2	Bearing Supports B22

BETHLEHEM STEEL COMPANY

Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Machinery Supports & Railing
STRUCTURE Chesapeake Bridge St. Bridge Chesapeake River Wilmington Del.
CUSTOMER State of Delaware
SHOP PAINT One coat of DuPont Krongate Metal Primer. Same for assembling. Except as shown for paint in contact with concrete.
RIVETS ⅞ OPEN HOLES ⅞ UNLESS NOTED

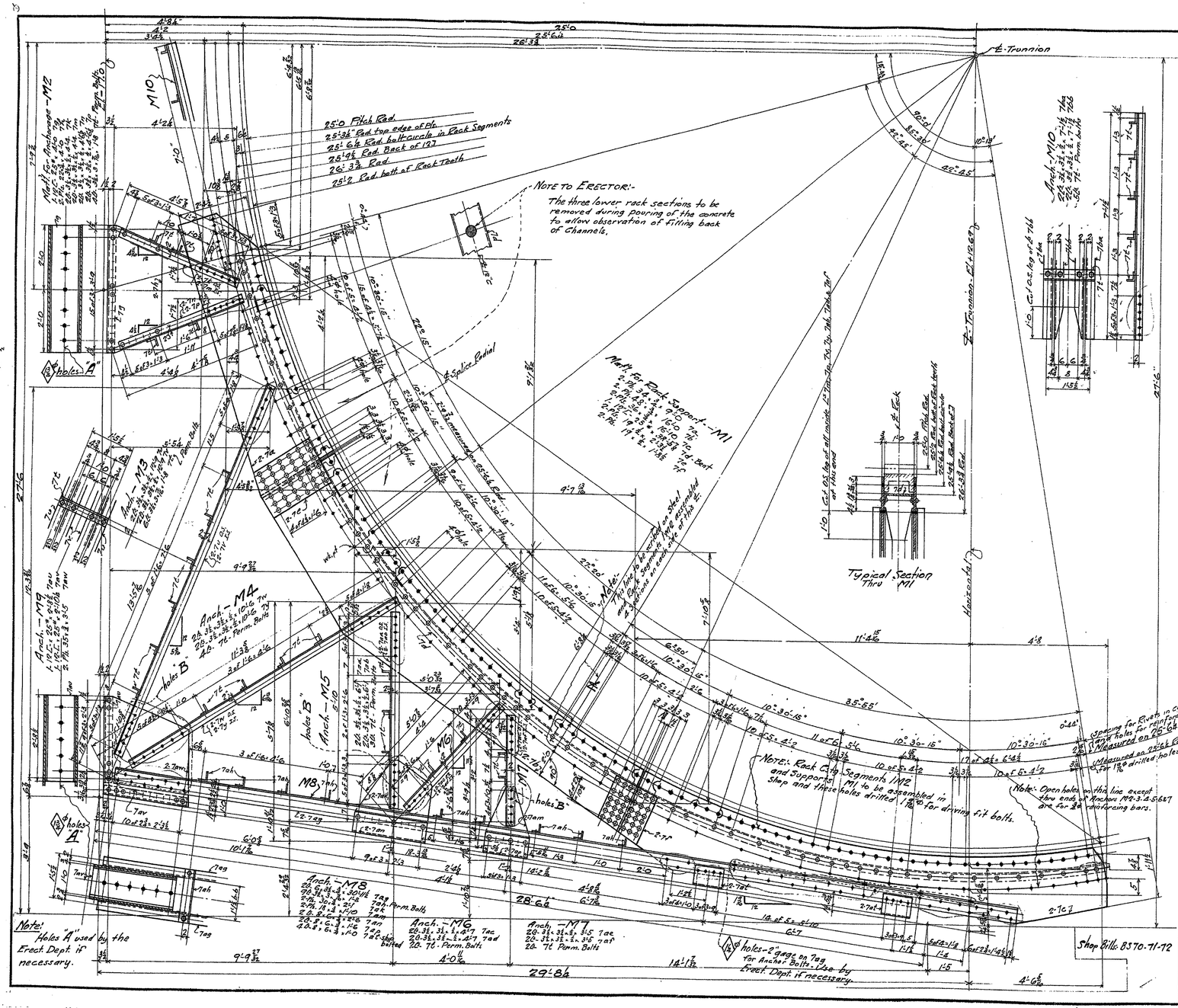
DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
W	1.9.27	Railing by E.R.L. & H.J.	2-18-27	C.H. Weekle

REVISIONS No.	DATE	BY	DESCRIPTION

FILE F5579 CONT. EB4014 DWG. 6

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS CONSULTING ENGINEERS ESTABLISHED 1893
DRAWING No. 15 of 1149

Name: Cd_063.CAL
Dimensions: 8800 x 6784 pixels



Note: Field connections "B" to be bolted. All other Field connections Riveted.

REQUIRED LIST

2	Rack Supports	M1
2	Anchorages	M2
2	"	M3
2	"	M4
2	"	M5
2	"	M6
2	"	M7
2	"	M8
2	"	M9
2	"	M10

NOTES:-
Rivets - ¾"ø
Open holes subpunched 1 1/16"ø and reamed to 1 1/16"ø except where noted.

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - BETHLEHEM, PA.

DETAIL OF: Support for Rack Segments
STRUCTURE: South Market St. Br. over Christiana River - Wilmington, Del.
CUSTOMER: State of Delaware
SHOP PAINT: None
RIVETS OPEN HOLES UNLESS NOTED

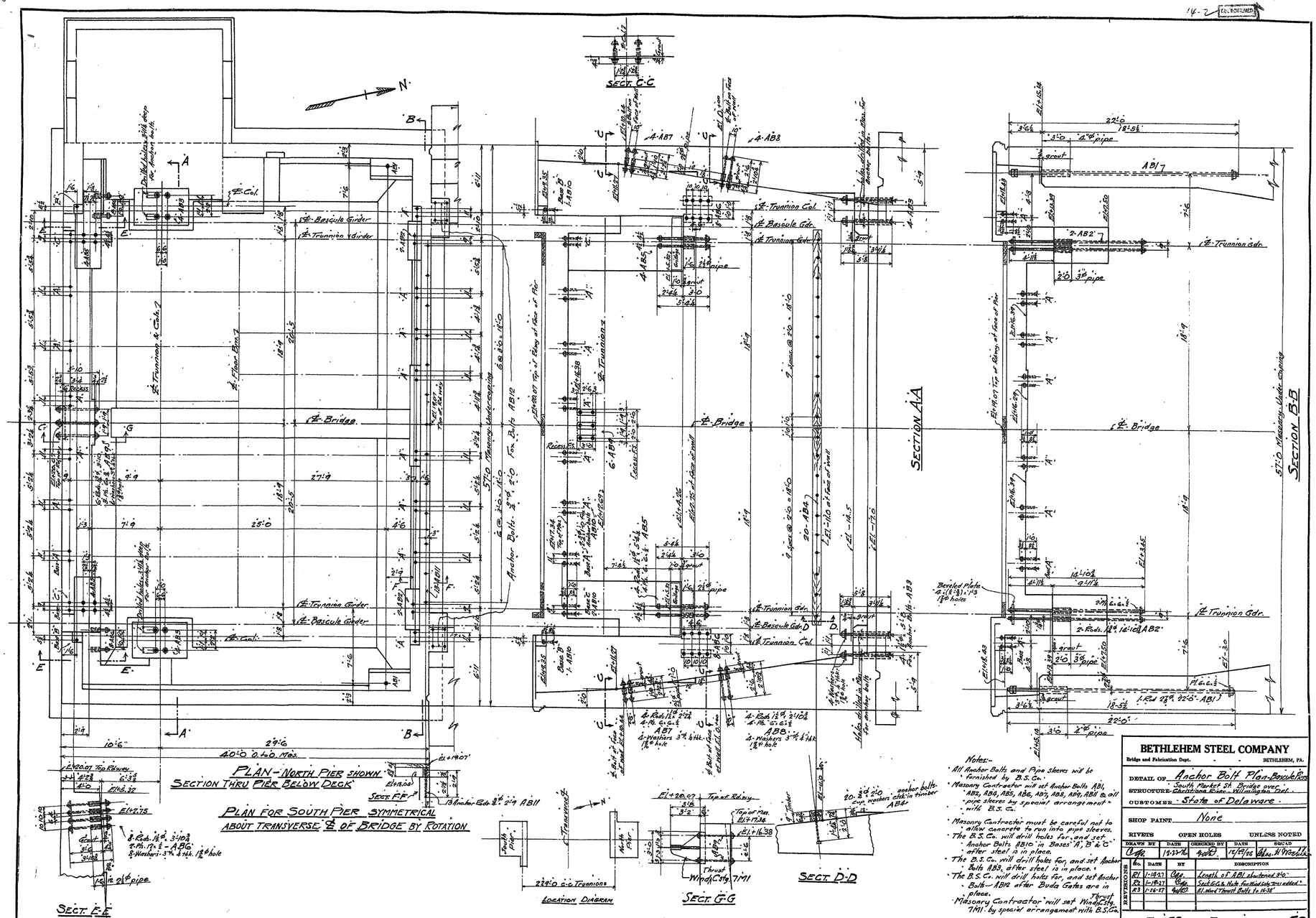
DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
C.A.S.	1-14-27	T.P.	1-18-27	Blue Hill Works

REVISIONS	No.	DATE	BY	DESCRIPTION
	1	2-5-27	CCS	Splices & Holes for rack changed

FILE F5579 CONT. EB4014 DWG. 7

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MOUSSEAU + MARTINS CONSULTING ENGINEERS DELAWARE
DRAWING No. 157 of 169

Name: Cd_064.CAL
Dimensions: 8800 x 6784 pixels



Notes:-

- All Anchor Bolts and Pipe sleeves will be furnished by B.S.Co.
- Masonry Contractor will set Anchor Bolts AB1, AB2, AB4, AB5, AB6, AB7, AB8, AB9, AB11 & all pipe sleeves by special arrangement with B.S.Co.
- Masonry Contractor must be careful not to allow concrete to run into pipe sleeves.
- The B.S.Co. will drill holes for, and set Anchor Bolts AB10 in Bases "A", B & C after steel is in place.
- The B.S.Co. will drill holes for, and set Anchor Bolts AB3, after steel is in place.
- The B.S.Co. will drill holes for, and set Anchor Bolt - AB12 after Bucks Gates are in place.
- Masonry Contractor will set Wind Stg. Thrust TM1 by special arrangement with B.S.Co.

BETHLEHEM STEEL COMPANY

Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF: Anchor Bolt Plan-Bascule Pier

STRUCTURE: South Market St. Bridge over Christiana River - Wilmington, Del.

CUSTOMER: State of Delaware

SHOP PAINT: None

RIVETS OPEN HOLES UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
Cafe	12-22-26	Cafe	12/29/26	Wm. H. Woodside

REVISIONS

No.	DATE	BY	DESCRIPTION
R1	1-14-27	Cafe	Length of AB1 shortened 3½"
R2	1-18-27	Cafe	Sect. G-G & Note five Wind Stg. Trss added.
R3	1-26-27	Cafe	El. was "Thrust Bolts to 16-38"

FILE: F5579 CONT.: EB4014 DWG.: E2

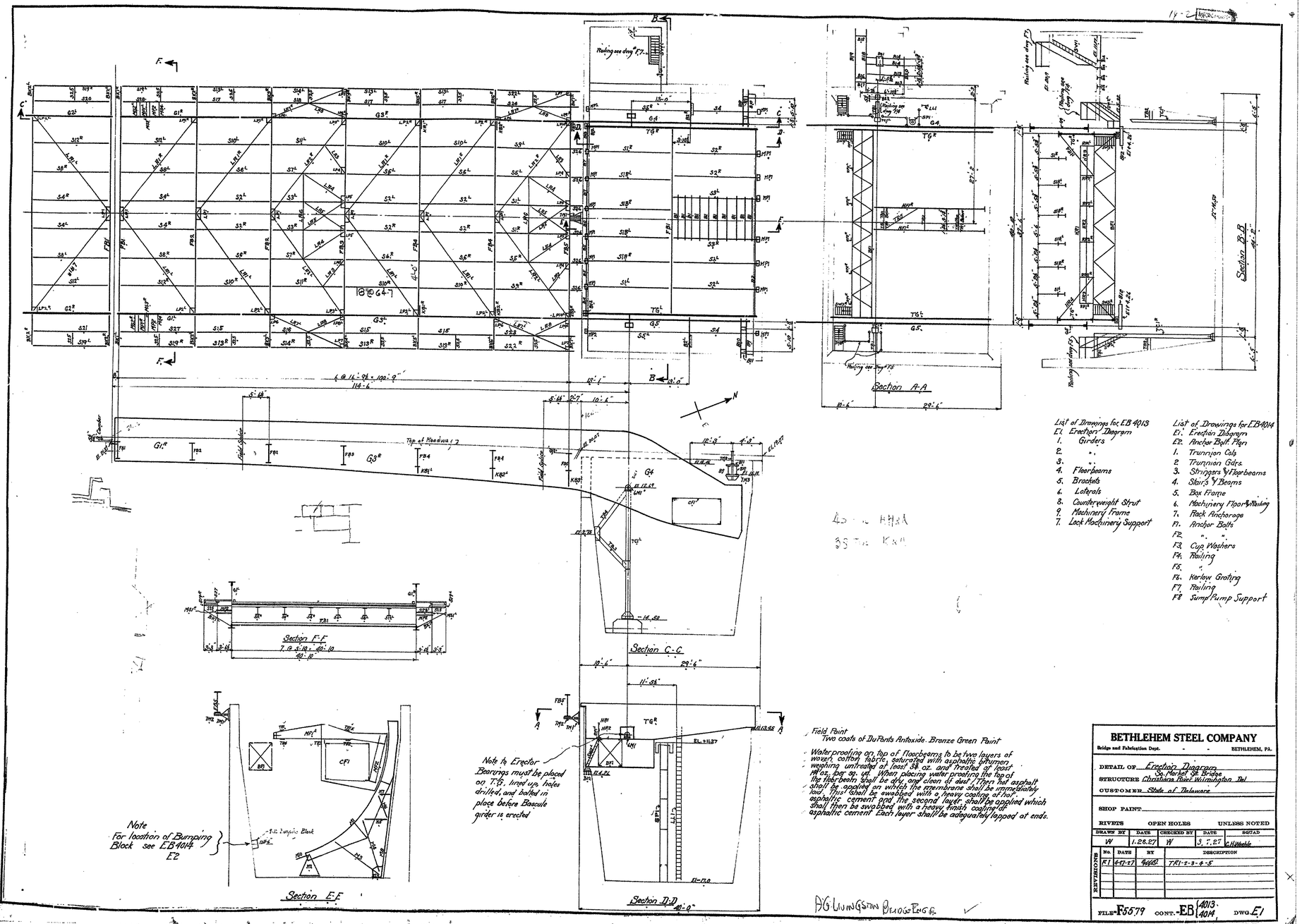
CONTRACT No. 21-074-07

REPRODUCED ORIGINAL SHOP DRAWING INCLUDED FOR INFORMATIONAL PURPOSES

MOUSSER + MASTERS CONSULTING ENGINEERS BERGER BRIDGE

DRAWING No. 158 of 149

Name: Cd_065.CAL
Dimensions: 8800 x 6784 pixels



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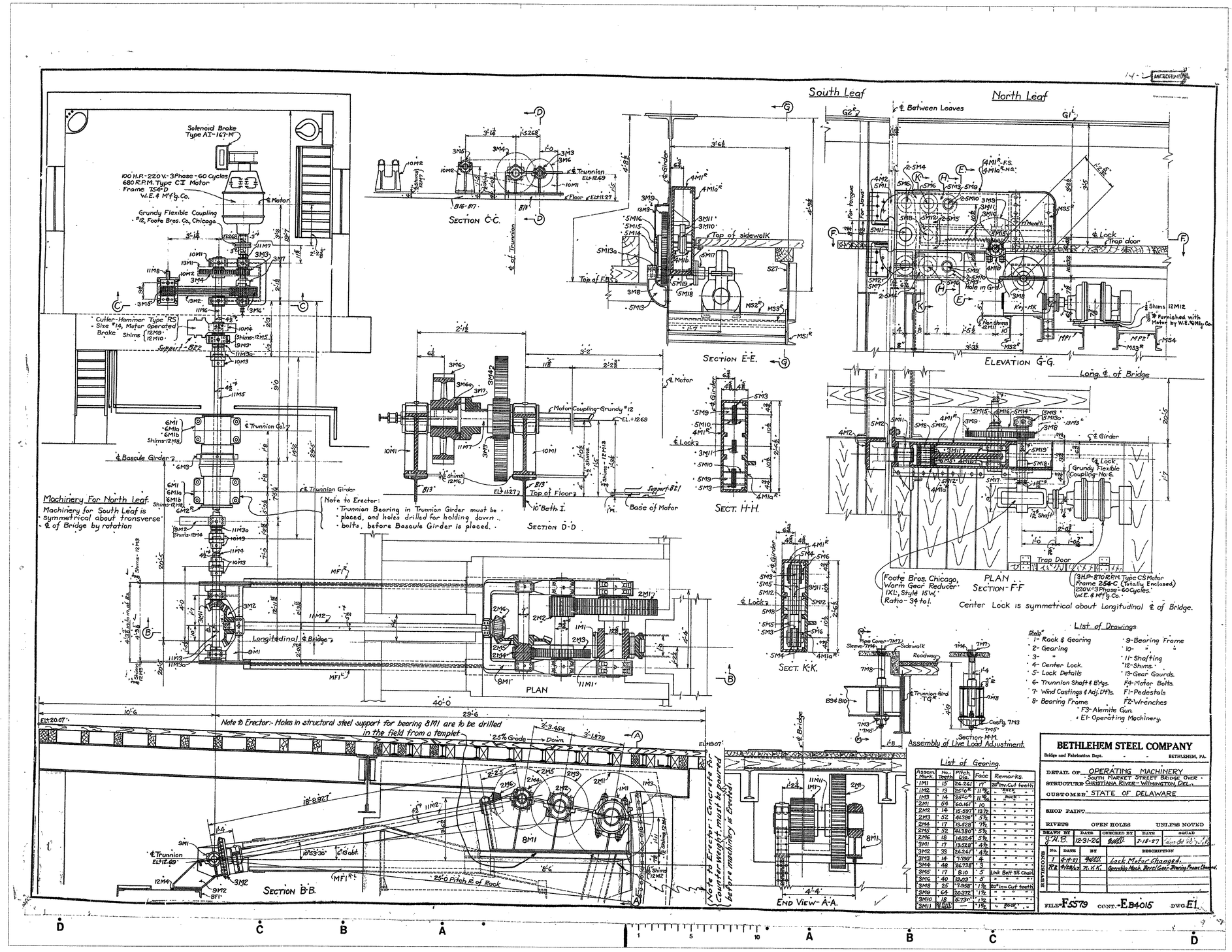

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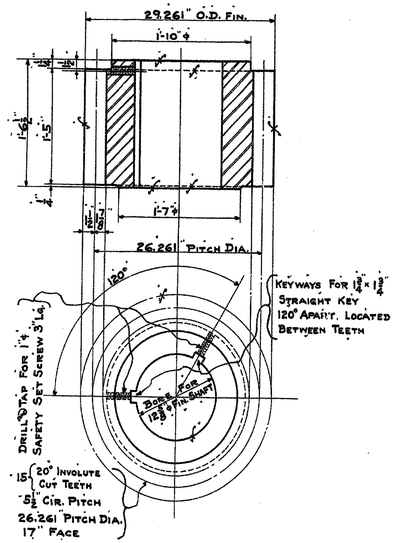
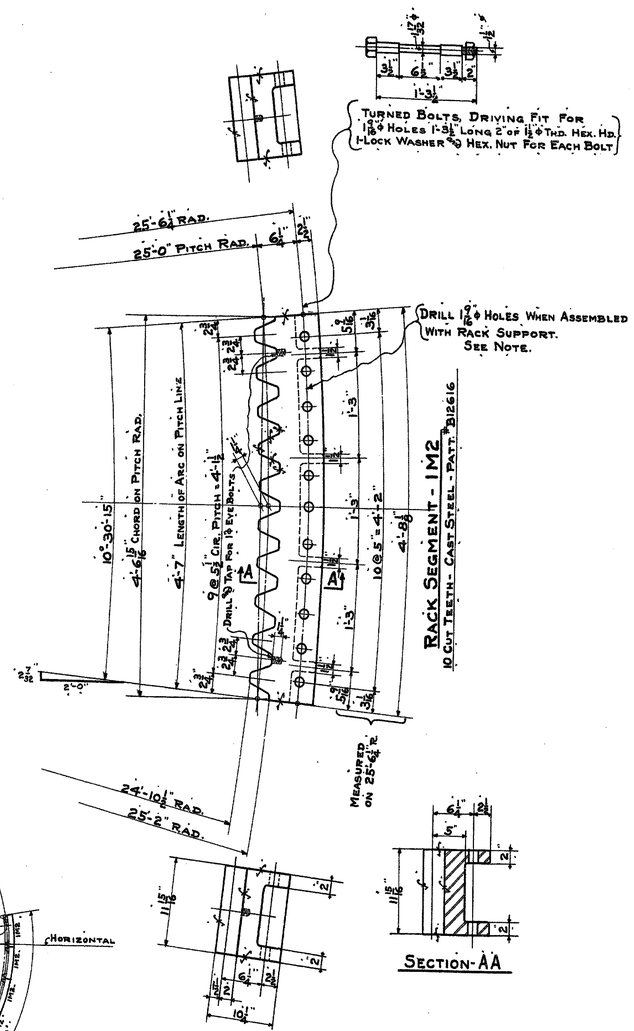


Pinion - 1M1

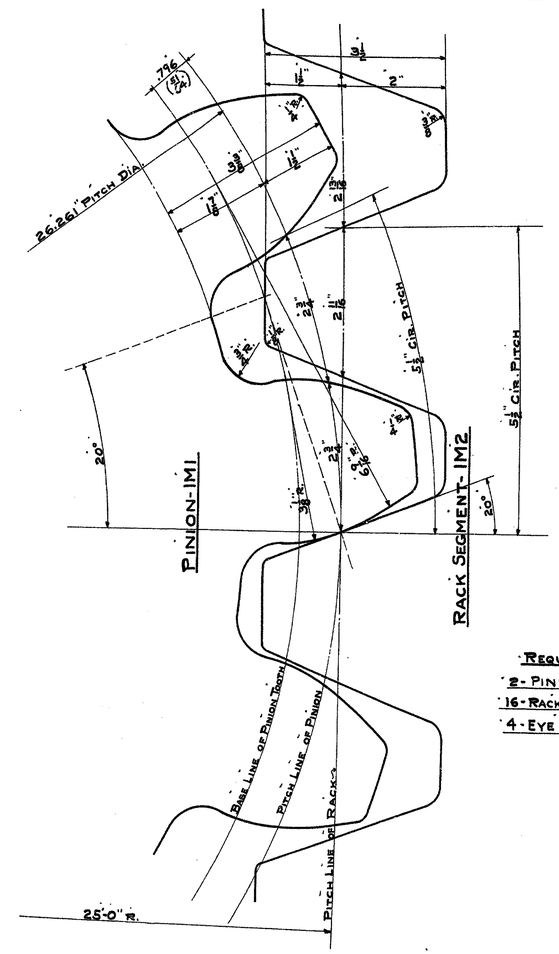
Forged Steel

Ship on Shaft 1M1 EB4015 Dwg. 1



Rack Segment - 1M2

10 Cut Teeth - Cast Steel - Patt. B1261G



Pinion - 1M1

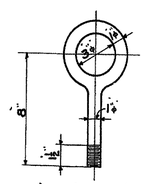
Rack Segment - 1M2

Required List

2 - Pinions — 1M1

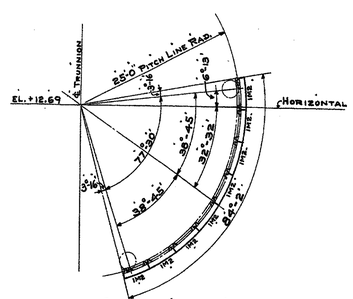
16 - Rack Segments - 1M2

4 - Eye Bolts — 1M4



Eye Bolt - 1M4

Forged Steel



Rack Assembly Diagram

Section - AA

Note: - Rack Castings & its Supporting Frame Shall Be Assembled in Shop & Holes Drilled, Ship Assembled. All Forgings & Steel Castings To Be Thoroughly Annealed. Rack & Pinion To Have 20° Involute Machine Cut Teeth & Pitch Line To Be Scribed on Both Sides of Teeth. All Nuts To Be Faced on Bearing Surfaces.

Specifications:- H.H. & A. Sec. M1-M1S-EM Except As Modified By Special Spec.

This Drawing Supersedes Drwg. of Same Number.

BETHLEHEM STEEL COMPANY

Bridge and Fabrication Dept. - - BETHLEHEM, PA.

Detail of Rack & Pinion

Structure: South Market Street Bridge Over Christiana River Wilmington Del.

Customer: State of Delaware

Shop Paint: On: Coat of DuPont's Kromaps Metal. Wt: Iron Machine Surfaces Coated: White Lead & Tallow

Rivets: OPEN HOLES UNLESS NOTED

Drawn By	Date	Checked By	Date	Approved
R.V.K.	3/1/27		7-1-27	

Revisions	No.	Date	By	Description
	R1	3/1/27	R.V.K.	This Drwg. Supersedes Drwg. of Same No.

File F5579 Cont. EB4015 Dwg. 1

Contract No. 21-074-07

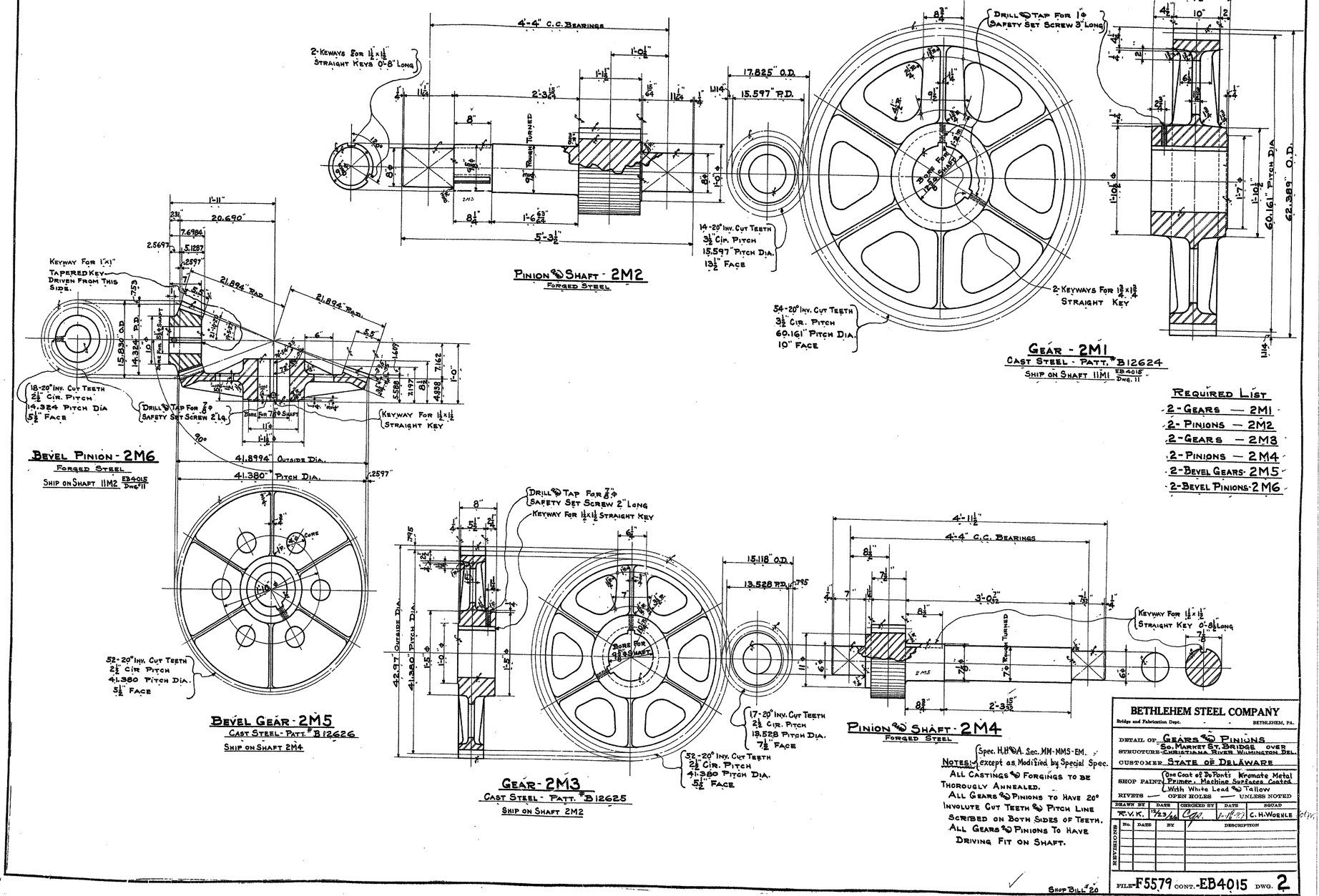
Original Shop Drawing

Reproduced Included For Informational Purposes

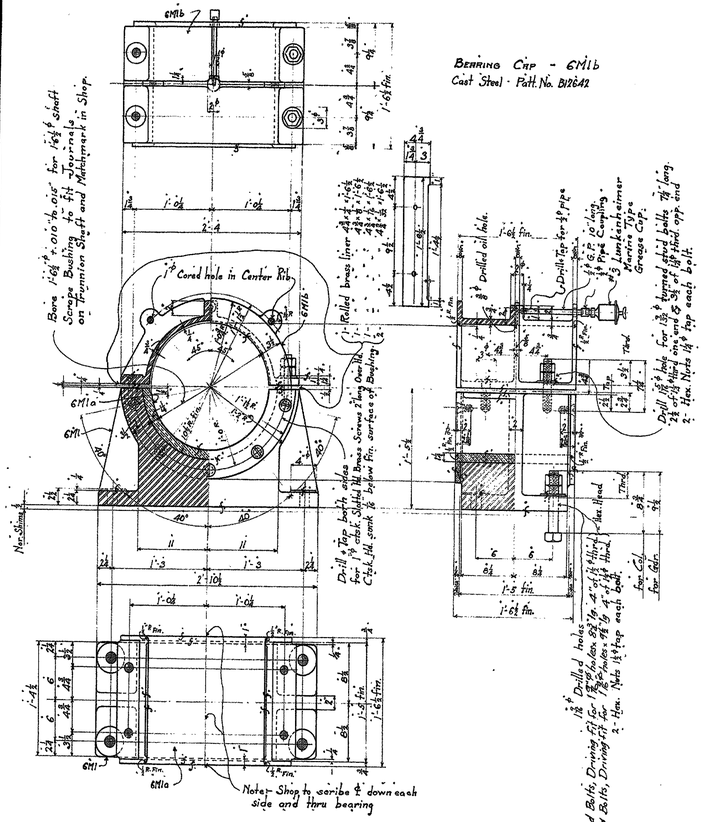
Modjeski & Masters Consulting Engineers

Drawing No. 1 of 102

Name: Cd_068.CAL
Dimensions: 8800 x 6784 pixels



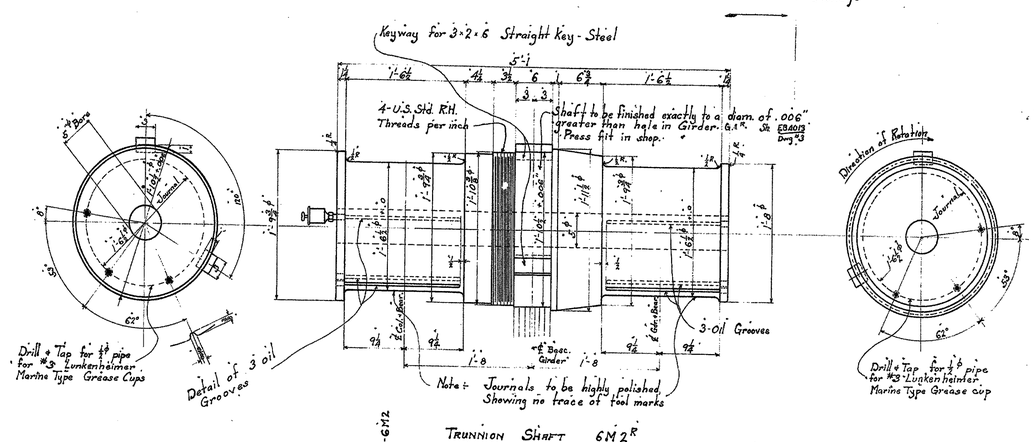
Name: Cd_069.CAL
Dimensions: 8800 x 6784 pixels



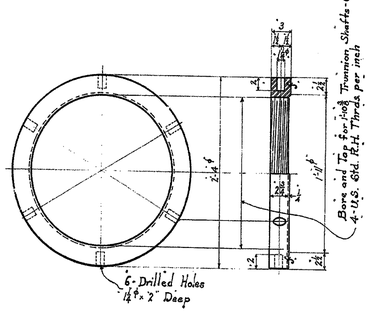
Bearing Cap - 6M1b
Cast Steel - Patt. No. B12642

Trunnion Bearing 6M1
Bearing Base-Cast steel. Patt. No. B12641

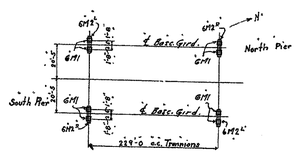
Bushing - 6M1a finished all over.
Phosphor Bronze - Patt. No. B12643 - for full Bushing
Material- A.S.T.M. Std. for Bronze
Bearing Metals - Class "B"
Note to Pattern Maker: Bushing Cast in Complete circle, finished all over and split in half as shown.



Trunnion Shaft 6M2R
Steel Forging - Finish all over



Trunnion Nut - 6M3
Cast Steel Patt. No. B12644



Marking Diagram

Required List

8 -	Trunnion Brgs.	-	6M1
2 -	Trunnion Shafts	-	6M2R as shown
2 -	" "	-	6M2 opp. shown
4 -	" Nuts	-	6M3

* Assemble with Girders in Shop

Notes:-
Specifications (*H.&A. Spec. M1M, M1M3, & EM except as modified by special Spec.)
All Steel Castings and Forgings to be Thoroughly Annealed.
All Nuts to be Faced on Bearing Surface.

Shop Bills - 60

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Trunnion Shaft & Bearings
STRUCTURE South Market Street Bridge over Christiana River - Wilmington, Del.
CUSTOMER State of Delaware
SHOP PAINT One Coat of Du Ponts Kromate Metal Primer. Machined Surfaces Coated with White Lead and Tallow.
RIVETS OPEN HOLES UNLESS NOTED

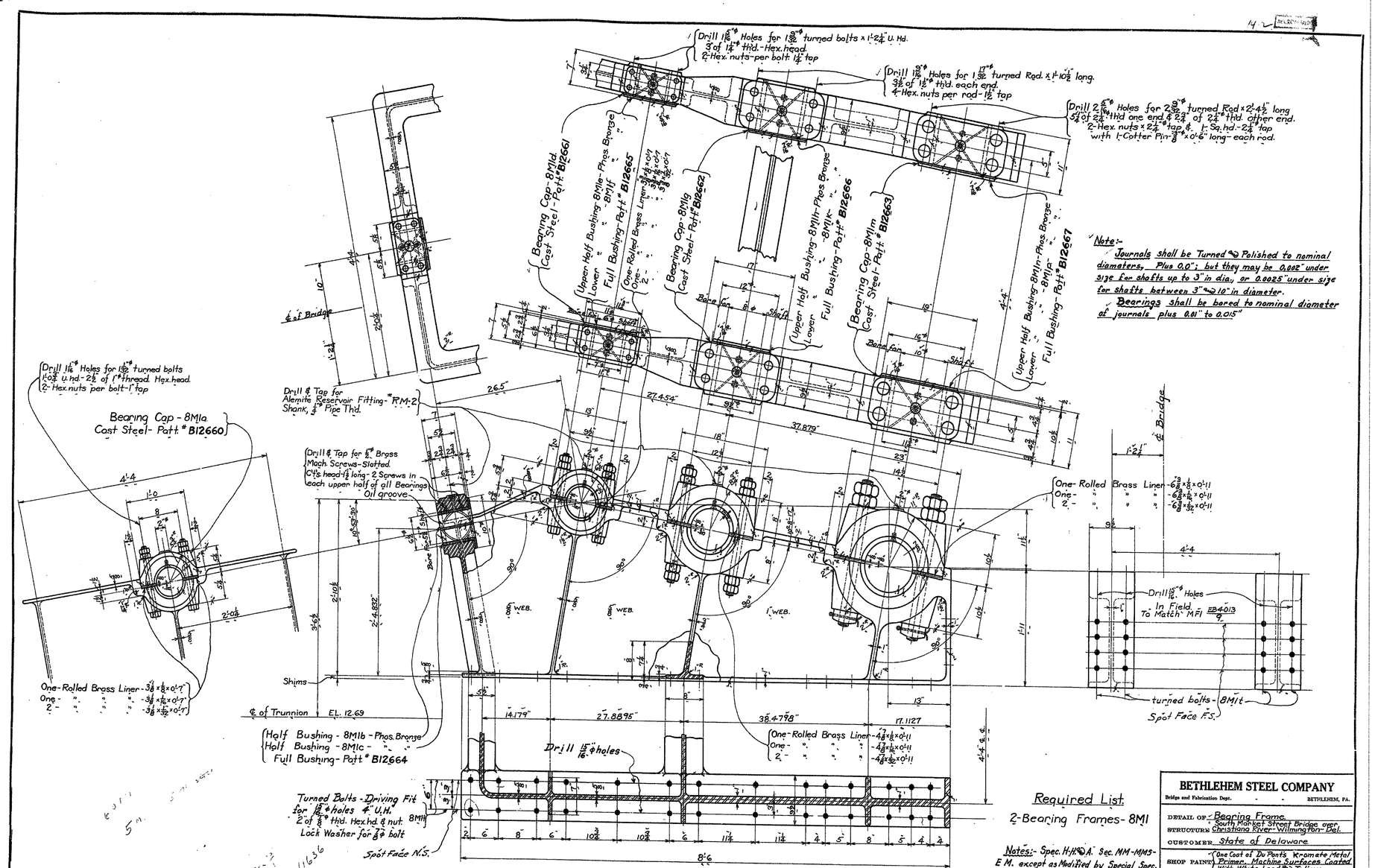
DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
C.G.S.	1/11/26	[illegible]	1/18/27	[illegible]

REVISIONS	No.	DATE	BY	DESCRIPTION

FILE F5579 CONT. EB4015 DWG. 6

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
KODJESKI-MASTERS CONSULTING ENGINEERS
DRAWING No. 163 of 169

Name: Cd_073.CAL
Dimensions: 8800 x 6784 pixels



Note:-
Journals shall be Turned & Polished to nominal diameters, Plus 0.0"; but they may be 0.002" under size for shafts up to 3" in dia., or 0.0025" under size for shafts between 3" & 10" in diameter.
Bearings shall be bored to nominal diameter of journals plus 0.01" to 0.015"

Required List.
2-Bearing Frames-8M1

Notes:- Spec. H-H & A. Sec. MM-MMS-EM. except as Modified by Special Spec.
All Castings to be thouroughly annealed.
Bushings:- Phos. Bronze Bearing Metal Class "C".
All Nuts to be faced on bearing surfaces.

Bearing Frame-8M1
Cast Steel-Patt. # B12659

Shop Bills-80 & 81.

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Bearing Frame
STRUCTURE South Market Street Bridge over Christiana River-Wilmington-Del.
CUSTOMER State of Delaware
SHOP PAINT One Coat of Du Pont's Kromate Metal Primer, Machine Surfaces Coated With White Lead & Tallow
RIVETS - - OPEN HOLES - UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
R.V.K. Traced-J.H.B.	1-13-26	[illegible]	1-24-27	[illegible]

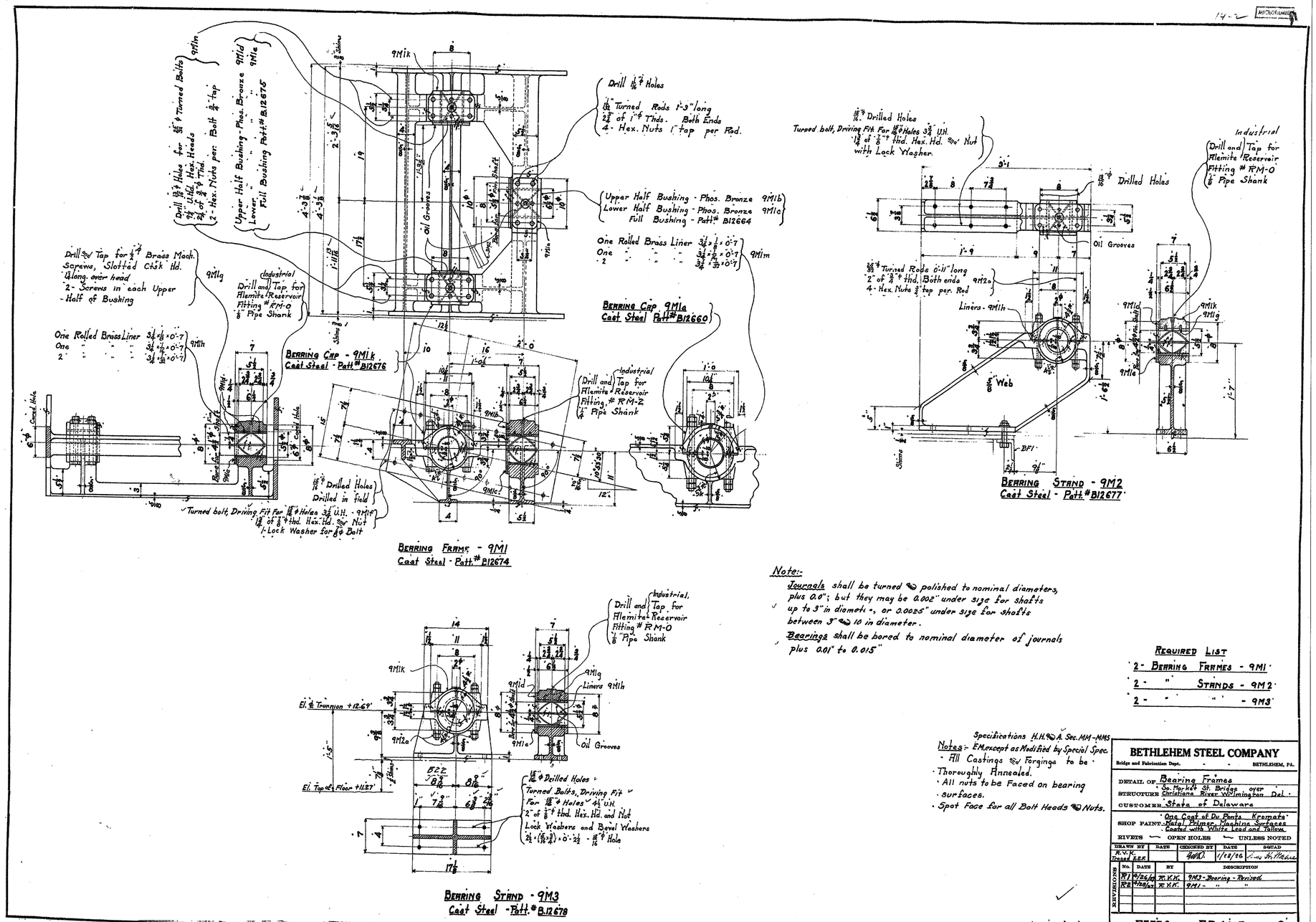
REVISIONS No.	DATE	BY	DESCRIPTION

FILE-F5579 CONT.-EB4015 DWG. 8

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI & MASTERS
COLUMBIA & SOUTHWARK
SINCE 1890
DRAWING No. 1104 of 1109

Name: Cd_075.CAL
Dimensions: 8800 x 6784 pixels

CONTRACT No. 21-074-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
MODJESKI and MASTERS
CONSULTING ENGINEERS
SINCE 1898
DRAWING No. 1109 of 1109



Note:-

Journals shall be turned & polished to nominal diameters, plus 0.0"; but they may be 0.002" under size for shafts up to 3" in diameter, or 0.0025" under size for shafts between 3" & 10 in diameter.

Bearings shall be bored to nominal diameter of journals plus 0.01" to 0.015"

REQUIRED LIST

2 - BEARING FRAMES - 9M1
2 - " STANDS - 9M2
2 - " " - 9M3

Specifications H.H. & A. Sec. MM-MMS

Notes:- EM except as Modified by Special Spec.
- All Castings & Forgings to be Thoroughly Annealed.
- All nuts to be Faced on bearing surfaces.
- Spot Face for all Bolt Heads & Nuts.

Bill Sbs 90-91

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Bearing Frames
STRUCTURE So. Market St. Bridge over Christiana River Wilmington Del.
CUSTOMER State of Delaware
SHOP PAINT One Coat of Du Ponts Kromate Metal Primer, Machine Surfaces Coated with White Lead and Tallow.
RIVETS — OPEN HOLES — UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
R.V.K. Traced L.E.R.		[illegible]	1/28/26	[illegible]

REVISIONS No.	DATE	BY	DESCRIPTION
R1	4/26/27	R.V.K.	9M3 - Bearing - Revised
R2	4/28/27	R.V.K.	9M1 - " "

FILE F5579 CONT. EB4015 DWG. 9

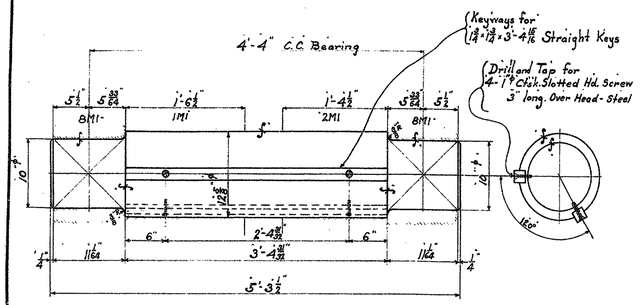
Name: Cd_076.CAL
Dimensions: 8800 x 6784 pixels

CONTRACT No. 21-074-07

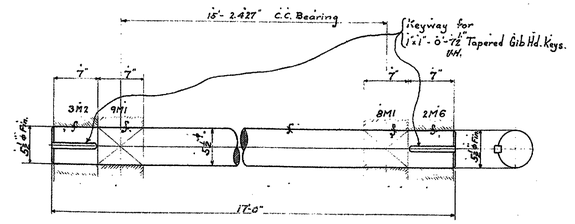
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES

MODJESKI-MASTERS
CONSULTING ENGINEERS
DAVID B. STEINMAN

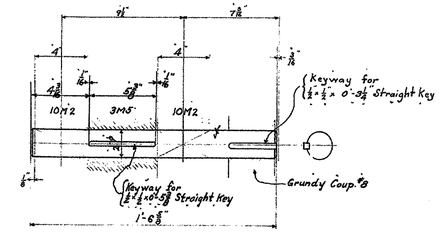
DRAWING No. 11 of 119



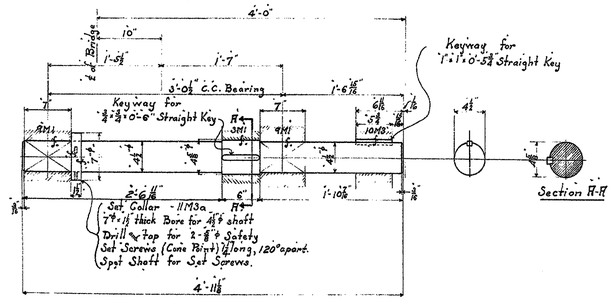
Shaft - 11M1
Forged Steel Fin. All Over



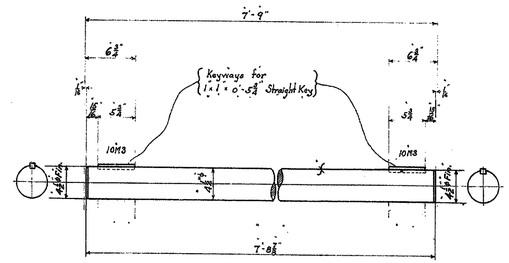
Shaft - 11M2
Rolled Steel Fin. all over.



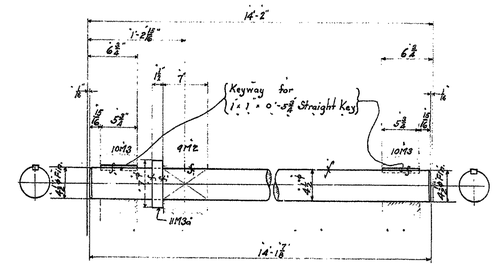
Shaft - 11M8
Rolled Steel - Fin. All Over



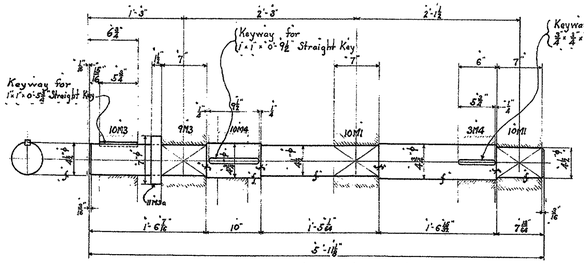
Shaft - 11M3
Rolled Steel - Fin. All Over



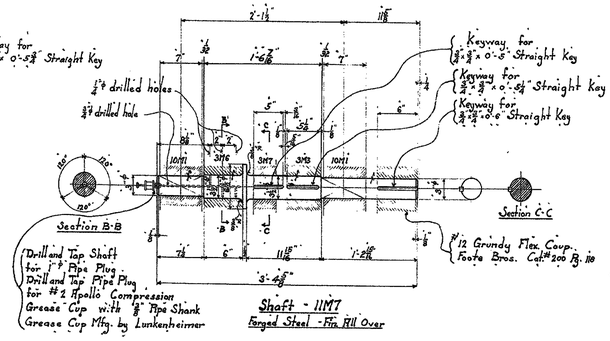
Shaft - 11M4
Rolled Steel - Fin. all over.



Shaft - 11M5
Rolled Steel - Fin. all over.



Shaft - 11M6
Rolled Steel Fin. All Over



Shaft - 11M7
Forged Steel - Fin. All Over

Note:- Journals shall be turned & Polished to nominal diameter, Plus 0.0" but they may be 0.002" under size for shafts up to 3" in dia, or 0.0025" under size for shafts between 3" & 10" in diameter.

Bearings Shall be bored to nominal diameter of journals plus 0.01" to 0.015".

Required List

2	-	Shafts -	11M1
2	-	" -	11M2
2	-	" -	11M3
2	-	" -	11M4
2	-	" -	11M5
2	-	" -	11M6
2	-	" -	11M7
2	-	" -	11M8

Note:-
- All Shafts must be perfectly Straight
- All Journals to be polished.
- Specifications H.H. & A. Sec. MM-MMS-EM except as Modified by Special Spec.

Shop Bills 1-10-11-12-115

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Shafting
STRUCTURE South Market Street Bridge over Christiana River - Wilmington Del.
CUSTOMER State of Delaware

SHOP PAINT Coated with White Lead & Tallow.

RIVETS OPEN HOLES UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
E.M.K. Trace: K.E.F.	1/27/27	[illegible]	2/1/27	Edw. H. Wells

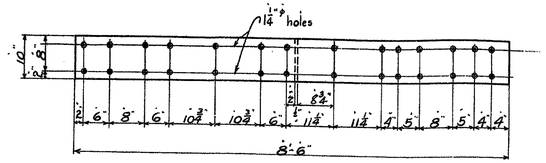
REVISIONS No.	DATE	BY	DESCRIPTION

FILE-F5579 CONT.-EB4015 DWG. 11

D C B A 1 5 10 A B C D

Name: Cd_078.CAL
Dimensions: 8800 x 6784 pixels

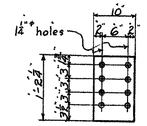
14-2 MICROFILMED



1- Pl. 10" × ½ × 8'-6"
1- " 10" × ¼ × 8'-6"
1- " 10" × ⅛ × 8'-6"
1- " 10" × 1/16 × 4'-3¼" 1-Pl. 10" × 1/16" × 4'-2"
1- " 10" × #20 gage × 4'-3½" 1-Pl. 10" × #20 gage × 4'-2"

Shim Pls. - 12M1

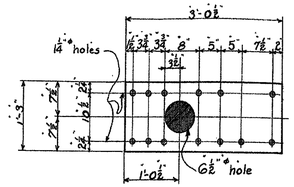
(Shims for Bearing Frame - 8M1)



1- Pl. 10" × ½ × 1'-2¼"
1- " 10" × ¼ × 1'-2¼"
1- " 10" × ⅛ × 1'-2¼"
1- " 10" × 1/16 × 1'-2¼"
1- " 10" × #20 gage × 1'-2¼"

Shim Pls. - 12M2

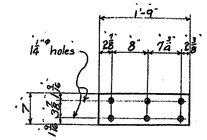
(Shims for Bearing Frame - 8M1)



1- Pl. 15" × ½ × 3'-0½"
1- " 15" × ¼ × 3'-0½"
1- " 15" × ⅛ × 3'-0½"
1- " 15" × 1/16 × 3'-0½"
1- " 15" × #20 gage × 3'-0½"

Shim Pls. - 12M3

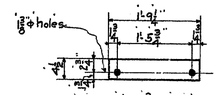
(Shims for Bearing Frame - 9M1)



1- Pl. 7" × ½ × 1'-9"
1- " 7" × ¼ × 1'-9"
1- " 7" × ⅛ × 1'-9"
1- " 7" × 1/16 × 1'-9"
1- " 7" × #20 gage × 1'-9"

Shim Pls. - 12M4

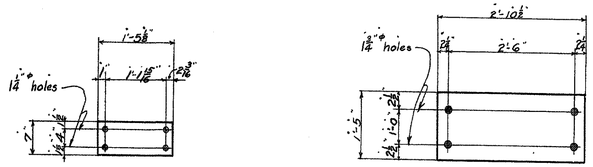
(Shims for Bearing Stand. - 9M2)



1- Pr. 4½" × ¾ × 1'-9¼"
1- Pr. 4½" × ½ × 1'-9¼"
1- Pr. 4½" × ¼ × 1'-9¼"
1- Pr. 4½" × ⅛ × 1'-9¼"
1- Pr. 4½" × 1/16 × 1'-9¼"
1- Pr. 4½" × #20 gage × 1'-9¼"

Shim Pls. - 12M13

(Shims for Operating Motor)



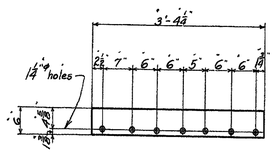
1- Pl. 7" × ½ × 1'-5⅜"
1- " 7" × ¼ × 1'-5⅜"
1- " 7" × ⅛ × 1'-5⅜"
1- " 7" × 1/16 × 1'-5⅜"
1- " 7" × #20 gage × 1'-5⅜"

Shim Pls. - 12M5

(Shims for Bearing Stand. - 9M3)

1- Pl. 17" × ½ × 2'-10½"
1- " 17" × ¼ × 2'-10½"
1- " 17" × ⅛ × 2'-10½"
1- " 17" × 1/16 × 2'-10½"
1- " 17" × #20 gage × 2'-10½"

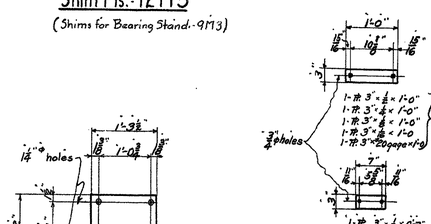
} Shim Pls. - 12M8 — ½ of Shims between Trunnion Girder & Bearing - 6M1 and Trunnion Girder & Bearing 6M1.



1- Pl. 6" × ½ × 3'-4¼"
1- " 6" × ¼ × 3'-4¼"
1- " 6" × ⅛ × 3'-4¼"
1- " 6" × 1/16 × 3'-4¼"
1- " 6" × #20 gage × 3'-4¼"

Shim Pls. - 12M6

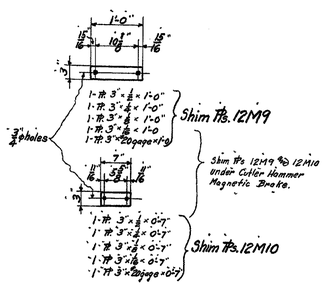
Shims for Bearing Frame - 10M1



1- Pl. 14" × ½ × 1'-3½"
1- " 14" × ¼ × 1'-3½"
1- " 14" × ⅛ × 1'-3½"
1- " 14" × 1/16 × 1'-3½"
1- " 14" × #20 gage × 1'-3½"

Shim Pls. - 12M7

(Shims for Bearing - 10M2)



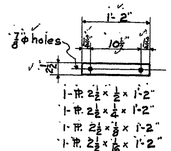
1- Pr. 3" × ½ × 1'-0"
1- Pr. 3" × ¼ × 1'-0"
1- Pr. 3" × ⅛ × 1'-0"
1- Pr. 3" × 1/16 × 1'-0"
1- Pr. 3" × #20 gage × 1'-0"

} Shim Pls. 12M9

Shim Pls. 12M9 & 12M10 under Cutler Hammer Magnetic Brake.

1- Pr. 3" × ½ × 0'-7"
1- Pr. 3" × ¼ × 0'-7"
1- Pr. 3" × ⅛ × 0'-7"
1- Pr. 3" × 1/16 × 0'-7"
1- Pr. 3" × #20 gage × 0'-7"

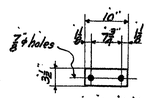
} Shim Pls. 12M10



1- Pr. 2½" × ½ × 1'-2"
1- Pr. 2½" × ¼ × 1'-2"
1- Pr. 2½" × ⅛ × 1'-2"
1- Pr. 2½" × 1/16 × 1'-2"
1- Pr. 2½" × #20 gage × 1'-2"

Shim Pls. - 12M12

(For Center Lock Motor)



1- Pr. 3½" × ½ × 0'-10"
1- Pr. 3½" × ¼ × 0'-10"
1- Pr. 3½" × ⅛ × 0'-10"
1- Pr. 3½" × 1/16 × 0'-10"
1- Pr. 3½" × #20 gage × 0'-10"

Shim Pls. - 12M11

(Shims for I-K-L Worm Gear Box)

Required List

4-	Sets of Shims	12M1
4-	" " "	12M2
4-	" " "	12M3
2-	" " "	12M4
2-	" " "	12M5
4-	" " "	12M6
2-	" " "	12M7
8-	" " "	12M8
2-	" " "	12M9
2-	" " "	12M10
4-	" " "	12M11
4-	" " "	12M12
4-	" " "	12M13

Bills:- 120-121-122-123

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF: Shim Plates
STRUCTURE: Christiana River, Wilmington, Del. (Market St. Bridge over)
CUSTOMER: State of Delaware.
SHOP PAINT: One Coat of DuPont's Kromatone Metal Primer.
RIVETS — OPEN HOLES — UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
K.V.K. Based T.E.M.	1-24-27	[illegible]	2-17-27	[illegible]

REVISIONS

No.	DATE	BY	DESCRIPTION
R1	9/12/62	K.V.K.	Lock Motor Shim Pls. Changed.
R2	9/7/62	K.V.K.	Holes in 12M5 Relocated.
R3	6/11/62	K.V.K.	12M3 changed ½" Pl. to ¾" Pl.

FILE F5579 CONT. EB4015 DWG 12

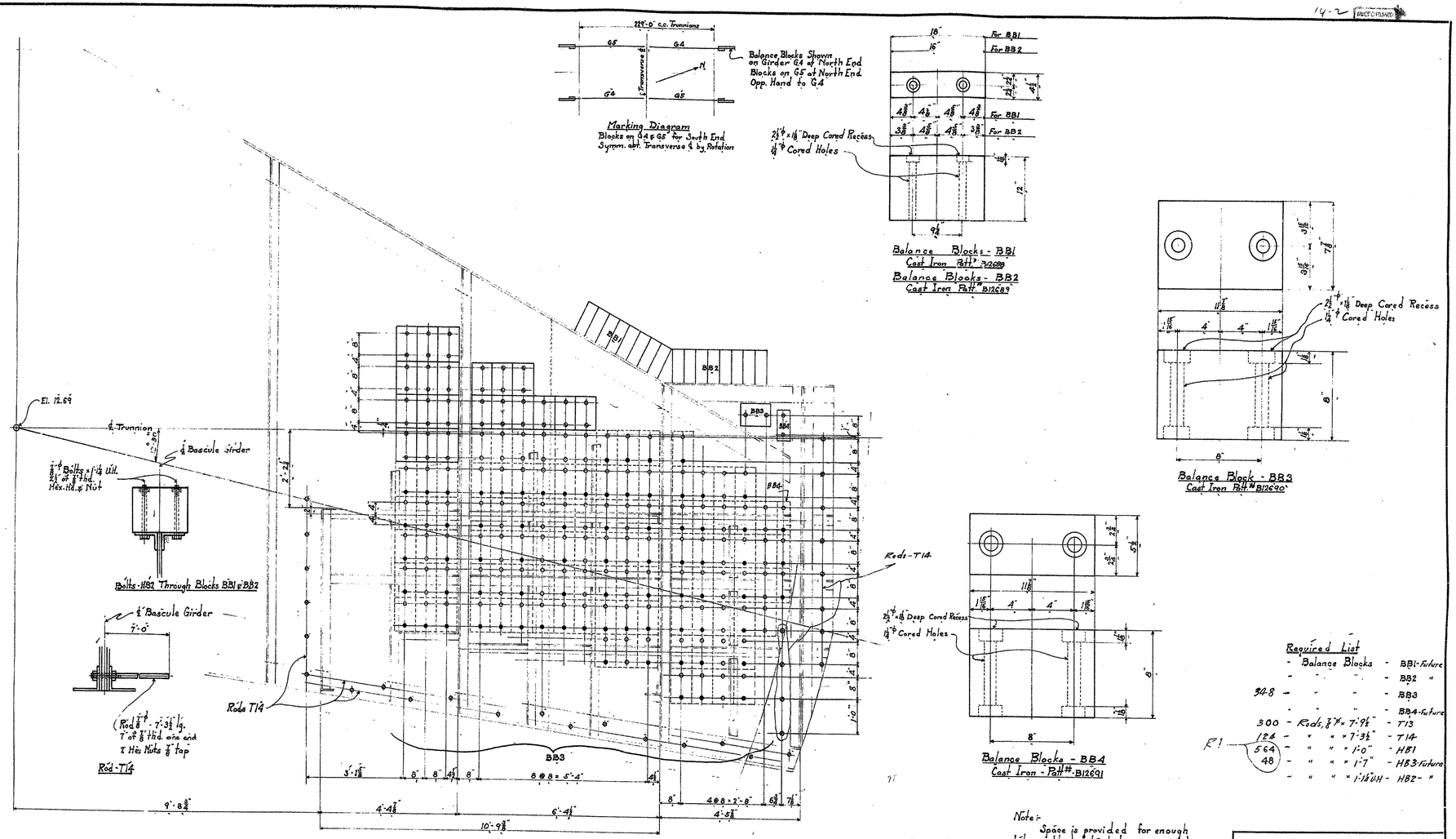
CONTRACT No. 21-0174-07
REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
DRAWING No. 107 of 109
MODJESKI and MASTERS Consulting Engineers New Jersey

D C B A 1 5 10 A B C D

Name: Cd_079.CAL
Dimensions: 8800 x 6784 pixels

REPRODUCED
ORIGINAL SHOP DRAWING
INCLUDED FOR INFORMATIONAL PURPOSES
CONTRACT No. 21-074-07
MODJESKI and MASTERS
CONSULTING ENGINEERS
ESTABLISHED 1929
DRAWING No. 109 of 109

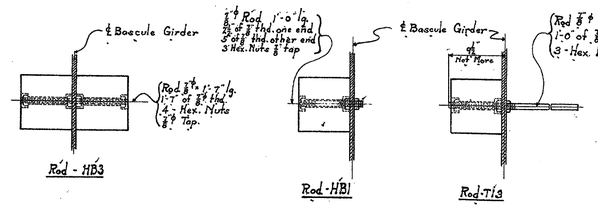
14-2



Required List

	-	Balance Blocks	- BB1-Future
	-	" " "	- BB2 "
348	-	" " "	- BB3
	-	" " "	- BB4-Future
300	-	Rods, ⅞" ϕ × 7'-9½"	- T13
124	-	" " × 7'-3½"	- T14
564	-	" " × 1'-0"	- HB1
48	-	" " × 1'-7"	- HB3-Future
	-	" " × 1'-8½" UH	- HB2- "

R1



- ⊙ - Indicates Rods - HB3
- ○ - " " - HB1
- ● - " Rods - T13
- ◐ - " " - T14

Note:- Space is provided for enough balance blocks to balance moments of 5% of moving leaf less ctwt. concrete. After the Concrete is placed, enough blocks shall be provided in such position as necessary to complete the balance of moving leaf about ½" of trunnion. Not less than 1½% of the weight of finished counterweight shall be in balance blocks.

Specifications:- H.H. & H. Sec. M.M.-MMS. & EM. except as modified by special specifications.

BETHLEHEM STEEL COMPANY
Bridge and Fabrication Dept. - - BETHLEHEM, PA.

DETAIL OF Balance Blocks
STRUCTURE So. Market Street Bridge over Christiana River Wilmington Del.
CUSTOMER State of Delaware

SHOP PAINT None

RIVETS OPEN HOLES UNLESS NOTED

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
K.E.F.	2/9/27	J.G.	2-17-27	Chas. H. Hirst

REVISIONS	No.	DATE	BY	DESCRIPTION
	R1	7/14/27	[illegible]	Number of Bolts changed.

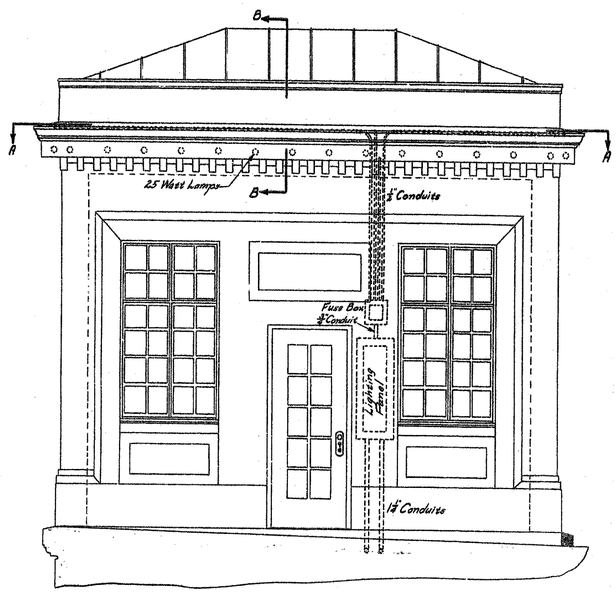
FILE-F5579 CONT.-EB4016 DWG. 4

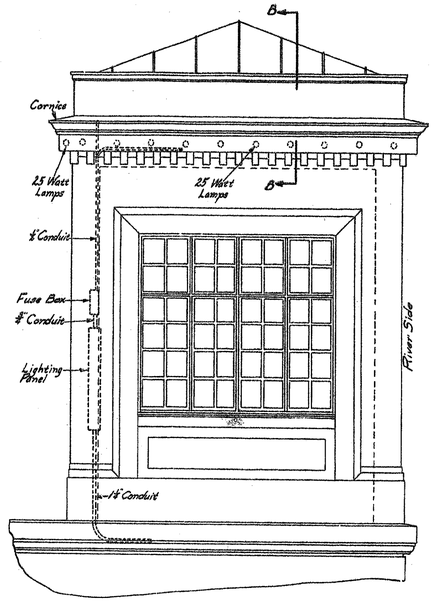
A.G. Livingston Chief Engr.

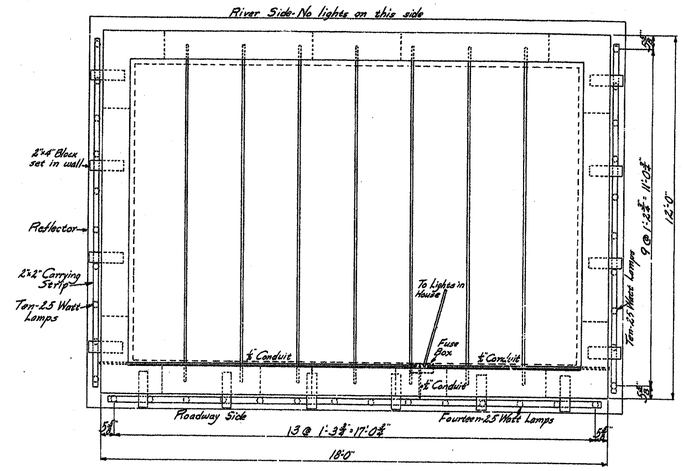
Shop Bill:- BS40

D C B A 1 5 10 A B C D

Name: Cd_086.CAL
Dimensions: 8800 x 6784 pixels

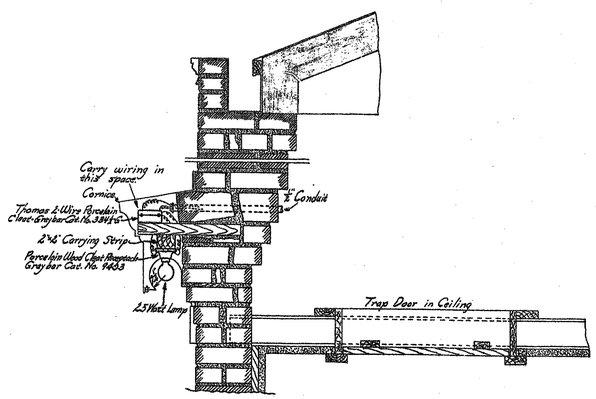






Section "AA"

Section showing location of lights on outside of operator's houses. No lights on river side of houses.



Enlarged Section "BB"

Showing location of lighting fixtures.

Note:-
Both houses to have the outside lighting as shown above.

BETHLEHEM STEEL COMPANY

Bridge and Fabrication Dept. - - BETHLEHEM PA.

ERECTION DIAGRAM OF Lights Outside Houses

STRUCTURE South Market Street Bridge over Christiana River, Wilmington, Del.

CUSTOMER State of Delaware

DRAWN BY	DATE	CHECKED BY	DATE	SQUAD
S.L.S.	7-5-27	OOM	7-6-27	[illegible]

REVISIONS No.	DATE	BY	DESCRIPTION

FILE-F-5579 CONT.-EB-4017 DWG. E9

CONTRACT No. 21-074-07

REPRODUCED

ORIGINAL SHOP DRAWING

INCLUDED FOR INFORMATIONAL PURPOSES

DRAWING No. 169 OF 169

MODJESKI and MASTERS CONSULTING ENGINEERS SINCE 1893

D C B A 1 5 10 A B C D

Name: Cd_105.CAL
Dimensions: 8800 x 6784 pixels