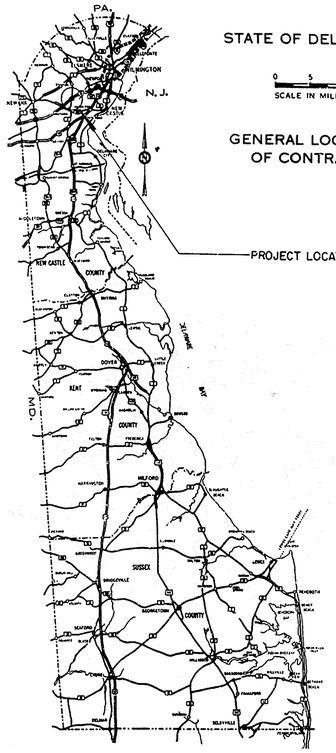


STATE OF DELAWARE

0 5 10
SCALE IN MILES

GENERAL LOCATION OF CONTRACT

PROJECT LOCATION

DESIGN DESIGNATION

FEDERAL CLASS	Primary	
A.D.T. 1995	17 000	
D.H.V.	1 700	
DESIGN SPEED	VARIES	M.P.H.
MIN. STOPPING SIGHT DISTANCE	VARIES	FT.
MAX. S.E.	0.08	FT./FT.
MAX. DEGREE CURVE	48°58'15"	
MAX. % GRADE	5.2	

THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

CONSTRUCTION PLAN FOR:

CONTRACT NUMBER 76 - 12 - 005

FEDERAL AID PROJECT NUMBER N.A.

BEGIN PROJECT: STATION NO. 22 +50.00 (Ramp A) **END:** STATION NO. 26 +00.00 (Ramp A)

LENGTH: 350 FEET = .0663 MILES
LENGTH: 106.68 METERS = .10668 KILOMETERS

CONTRACT	COUNTY	STATE	F.H.W.A. REG. NO.	FEDERAL AID PROJECT NUMBER	FISCAL YEAR	SHEET NUMBER	TOTAL SHEETS
76-12-005	New Castle	DEL.	2			1	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

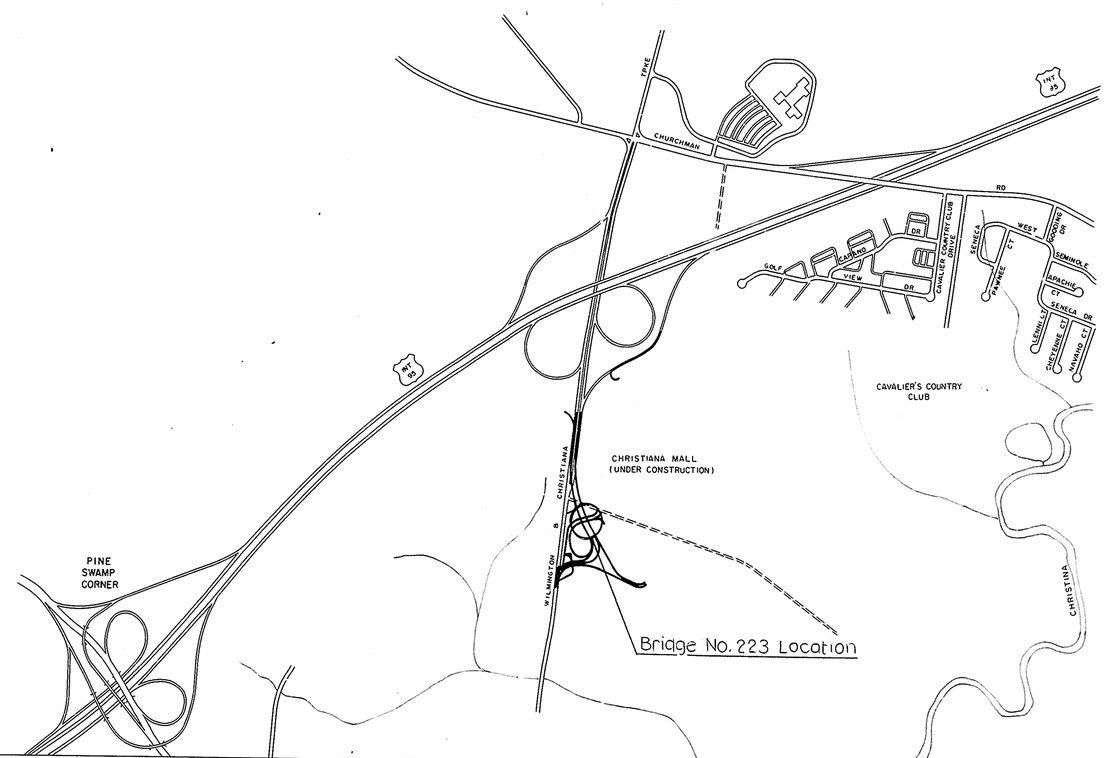
SURVEY BOOKS

Refer to Mann-Talley, Inc.
818 West Street
Wilmington, De. 19901

INDEX OF SHEETS

1 TITLE SHEET
TYPICAL SECTION SHEETS
2 QUANTITY SHEET & GENERAL NOTES
3 PLANS & PROFILE SHEETS
4 to 19 BRIDGE SHEETS
20 to 29 STANDARD SHEETS C-2, C-4, D-7, D-16, G-2, G-3, G-4, G-5, G-6, G-7

UTILITIES See Mann-Talley, Inc.



SCALES	
TITLE SHEET	1" = 800' FEET / METERS
CONSTRUCTION	1" = 30' FEET / METERS
VERTICAL PROFILE	1" = 10' FEET / METERS

DIVISION OF HIGHWAYS

RECOMMENDED	RECOMMENDED	RECOMMENDED	APPROVED
Jack J. Schuh, CHIEF OF DESIGN	G. B. C[illegible], ASSISTANT CHIEF ENGINEER	R. E. Tomasetti, CHIEF ENGINEER	[illegible], DIRECTOR OF HIGHWAYS
RECOMMENDED 6/17 1977	RECOMMENDED 17 June 1977	RECOMMENDED 22 June 1977	APPROVED 6/17 1977
JACK J. SCHUH REGISTERED NO. 3033 DELAWARE PROFESSIONAL ENGINEER — SEAL	SEAL	SEAL	SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ 19 ___

DIVISION ADMINISTRATOR

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL		2	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	ADDENDUM 1: DELETE ITEMS 209, 716, 711, 715, 716 & APPROACH SLAB. ADD ITEMS 202 & 724. CHANGE ITEMS 207 & 605. ADD CONTRACTOR NOTE.	F.J.S.	7/11/77
2	Revised Rebar Quantities	CRL	6/19/78

GENERAL NOTES:

SPECIFICATIONS: Design Criteria are based on AASHTO 1973 Standard Specifications for Highway Bridges, with Interim Specifications as they govern.
Material & Workmanship Del.Dot&T. Standard Spec's, dated January 1, 1974 unless otherwise noted and/or modified by Special Provisions

BORINGS: Contractor shall make his own interpretation and judgements of the boring results and assume full responsibility for same. The subsoil data and interpretations do not form a part of the contract, and are made available to the bidders for their information only.

ELEVATIONS: Elevations are based on U.S.C. & G.S. datum 1929.

FOUNDATIONS: All piles shall be 12" Dia. C.I.P. Concrete Piles 7Ga.-Not protected, driven to a minimum bearing capacity of 45 tons in accord. with Sect. 624. A minimum of one Test Pile shall be driven at a permanent pile location in all abutment and pier footing as directed by the Director. Min. pile tip Elev. for W. Abutment, Pier East & West is El. 15.00. Min. pile tip Elev. for E. Abutment is El. 25.00. Augering required through fill.

EXCAVATION FOR STRUCTURES: It is assumed for estimating purposes, that all Embankment and Excavation is in place or performed. The depth of structure excavation measured for payment shall be the vertical distance from the bottom of concrete to the ground line existing at the time of excavation but not above finished grade. The horizontal limits of excavation for payment shall be 1' 6" beyond the face of concrete.
If acceptable soil conditions are not found at Frg. El. indicated on the drawings, the work shall proceed as directed by the Director. Material excavated below the bottom of the footing shall be replaced with subfoundation concrete as specified.

P.C.C. MASONRY: All concrete shall be controlled concrete with a min. compr. strength f'_c = 4500 p.s.i. in 28 days for deck concrete. All other f'_c = 4000 p.s.i. for 28 days. Cover for reinforcing bars shall be 2 in. except as otherwise noted on the drawings or as follows: Pile Caps 3 in. - Approach Slabs 3 in. bottom & 2 in. top. All exposed edges of concrete shall be chamfered ¾ x ¾ in. unless otherwise shown. Concrete in areas under bearing plates shall be constructed to smooth finish, to the Elevations shown on plans. Anchor bolts may be cast in place or drilled in and placed after concrete surfaces are finished.

BAR REINFORCEMENT: Bar reinforcement to be deformed type (A.S.T.M-A615), billet steel, Grade 40, Lapped splices, unless otherwise noted, are to be a min. of 38 bar diameters and staggered

SHEAR CONNECTORS: Welded studs shall be either a. Solid-flux-filled welding end or b. Granular-flux-filled welding end.

STAY-IN-PLACE FORMS: S.I.P. forms may be used. See sheet No. 13 for details. All shop drawings for stay-in-place forms shall be submitted to the Engineer for approval. Min. material thickness 20 Ga.

STRUCTURAL STEEL: All structural steel shall conform with the requirements of A.S.T.M. Designation A 588, except as noted. No painting required, except as noted below.
All welding shall conform to the Standard Specifications for welded Highway and Railway Bridges of the American Welding Society, with current addenda and connections as they govern. See Special Provisions.
All dimensions shown on the drawings are for structures at a normal temperature of 68°F.
To avoid oversight the shop drawings shall show clearly the nature, dimensions and locations of all welds, bolt sizes, open holes, painting etc.
Plate girders and rolled beams shall be cambered as shown on the drawing, allowing for loss of camber due to welding.
Fog coat steel surfaces in contact w/th substructure concrete, in order to prevent rust stains on concrete, Outside of fascia girders shall be commercial blast cleaned in accordance with S.S.P.C. SP-6. Payment included under Sect. 606.
Anchor bolts may be cast in place, using a template for positioning. Immediately after the concrete has attained its initial set, the anchor bolts shall be thoroughly coated with an approved heavy grease and securely wrapped in burlap. Payment for this item shall include costs for these rust preventive measures.
All stiffeners are to be in a truly vertical plane when beams are in final erected position with the slab in place.
Welded field splices will be not permitted.

SLOPE PAVING: Slope paving to the extent indicated on the drawings shall be executed as specified in the special provisions & Standard Specifications.

EXCAVATION & SHEETING: Plans for all sheeting and shoring required for all excavation shall be prepared by a registered professional engineer and submitted to the Delaware Department of Transportation, Division of Highways, for approval.

△ EXCAVATION & EMBANKMENT: EXCAVATION AND EMBANKMENT SHALL INCLUDE EXCAVATION BELOW THE BRIDGE FROM EXISTING GROUND LINE TO ROUGH GRADE FOR FUTURE ROUTE 7 AND RING ROAD OF MALL. SIDE LIMITS SHALL BE 15' FROM EDGE OF BRIDGE SLAB, SLOPING UP AT 1:1. END LIMITS SHALL BE 15'-0" INSIDE ABUTMENT FOOTINGS AND VERTICAL.

△ LATERAL OR LONG. DITCHING: AREA UNDER BRIDGE SHALL BE DRAINED BY EXCAVATING A DITCH TO THE RIVER UNDER EXISTING ROUTE 7. THE DITCH WILL BE APPROXIMATELY 5% L.F. AND SHALL HAVE 3:1 SIDE SLOPES AND A 2' BOTTOM WIDTH. SLOPE OF DITCH GRADE SHALL BE SET IN FIELD.

△ CONTRACTORS' NOTE: CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY AS PER SEC. 108.07 OF DELAWARE DEPT. OF HWYS. & TRANS STANDARD SPECIFICATIONS, JANUARY 1, 1974

▲ Estimated Fixed Quantity Items. (Refer to Subsection 109.06 of Standard Specifications)

ESTIMATED QUANTITIES FOR STRUCTURES ✦

LOCATION	SECTION	S.P.	△ 207	△ 209	602				△	△ 605 △	606	609	611	△ 202	624		628	△ 710	△ 711	△ 715	△ 716	△ 724	732	SPEC. PROV.	
					P.C.C. MASONRY ▲				△																
	ITEM	INITIAL EXPENSE	EXCAVATION AND BACKFILL FOR STRUCTURES	BORROW (TYPE C)	ABUTMENT	PIER FOOTINGS	PIER ABOVE FOOTING	SUPER-STRUCTURE	APPROACH SLAB	BAR REINFORCEMENT ▲	STEEL STRUCTURES (Est'd Weight)	COARSE AGGREGATE FOR FOUNDATION STABILIZATION	SUBFOUNDATION CONCRETE	EXCAVATION AND EMBANKMENT	*12"ϕ CAST-IN-PLACE CONCRETE PILES (7GA) TEST PILES		CONCRETE SLOPE PAVING (t = 4")	CORRUGATED METAL DOWNSPOUTS 10" DIA.	CATCH BASIN Type A	GALV. STEEL BEAM GUARD RAIL	TWISTED END ANCHORAGES	LATERAL OR LONG. DITCHING	SACKED CONCRETE RIPRAP	PREFABRICATED EXP. JT. SYSTEM ▲	
	UNIT	LumpSum	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	LBS	LumpSum	TONS	C.Y.	C.Y.	L.F.	L.F.	S.Y.	L.F.	EACH	L.F.	EACH	L.F.	C.Y.	L.F.	
BRIDGE 223	PROPOSAL	L.S.	~~1815~~ *	7000	574	115	90	470	~~250~~	~~252,430~~	(440 000)	80	15	8400 ✦	180	5440	325	180	3	300	4	270	10	69.5	91.5
			1150 ✦							~~218,854~~															
										218,859															

	6"	1¼"
6"		
1¼"		

* Not protected

✦ NOTE: Items not listed shall be found in plans developed by Mann-Talley, Inc. ~~Excavated material suited for backfill and utilized for filling embankments shall be measured and deducted from Borrow-Type C quantity~~

△ SUITABLE EXCAVATED MATERIAL, AT THE SITE, SHALL BE UTILIZED ON ADJACENT ROAD CONTRACT EMBANKMENT, AS DIRECTED BY ENGINEER.

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

GENERAL NOTES & QUANTITIES

D. BGS
T. BGS
C.

SCALE

APPROVED BY: 5/09/78

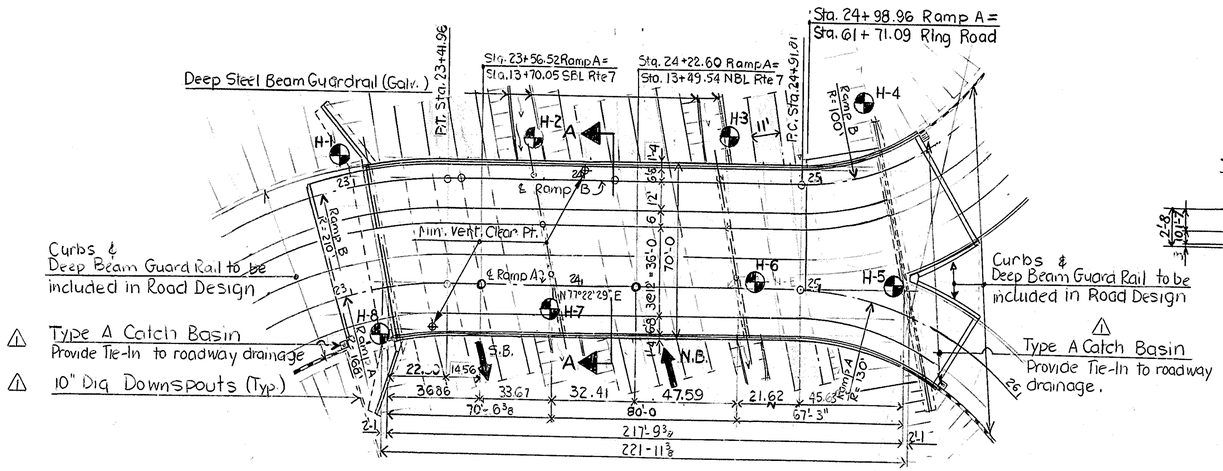
BRIDGE ENGINEER

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		3	29

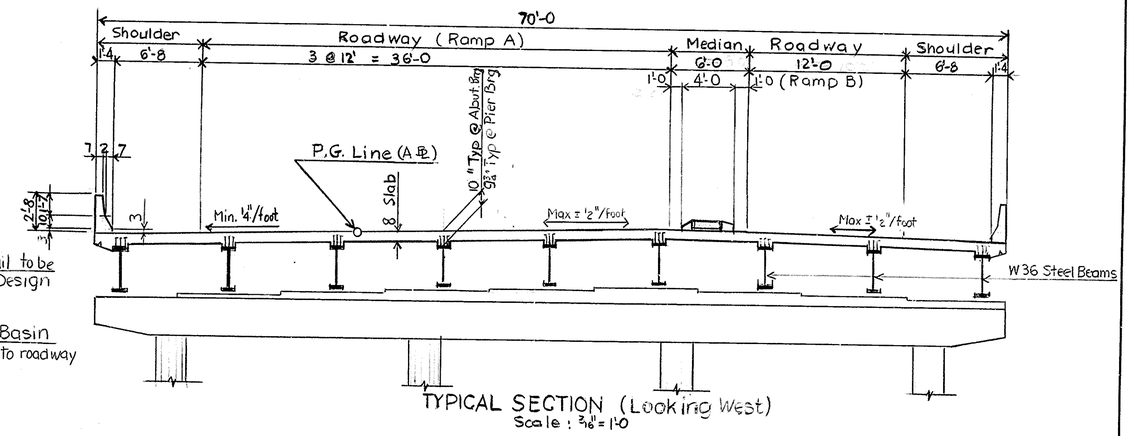
ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	ADDITIONAL ITEMS NOT INCLUDED IN THIS CONTRACT	PJS	7/11/77
2	Add Sht. Nos.	CKL	3/1/78

BENCH MARK: (Mann Talley, Inc.)
1. Sta. 12+56.00 106' Rt of SBL Route 7
R.R. spike in telephone pole # 109
Elevation 62.38.
2. Sta. 8+48.00 44' Lt of NBL Route 7
RR. spike in telephone pole # 106
Elevation 67.02.

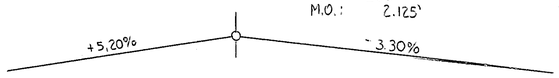


PLAN
Scale: 1" = 30'-0

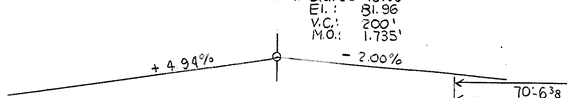


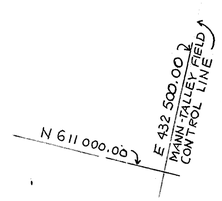
TYPICAL SECTION (Looking West)
Scale: 3/16" = 1'-0

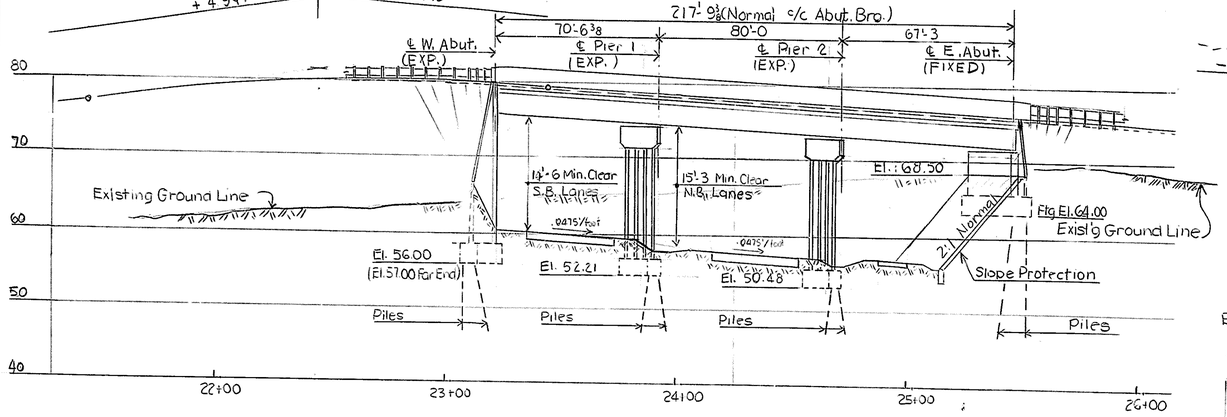
RAMP 'B': P.V.I. Sta. 22+66.96
El.: 83.44
V.C.: 200'
M.O.: 2.125'



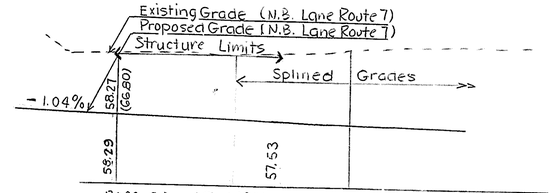
RAMP 'A': P.V.I. Sta. 22+40.80
El.: 81.96
V.C.: 200'
M.O.: 1.735'



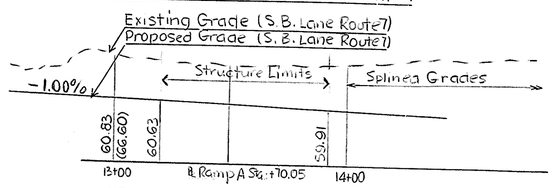




ELEVATION
H. Scale: 1" = 30'-0
V. Scale: 1" = 10'-0

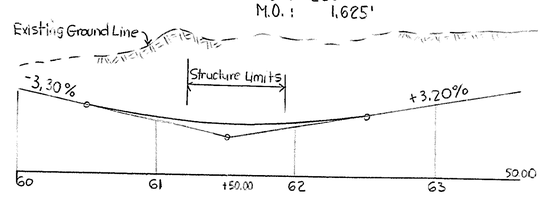


PROFILE GRADE N.B. Lane Rte 7



PROFILE GRADE S.B. Lane Rte 7

RING ROAD: P.V.I. Sta. 61+50.00
El.: 54.90
V.C.: 200'
M.O.: 1.625'



PROFILE OF RING ROAD

NOTES:

Specifications: For General Notes see Sheet 2 of 29

Construction: Delaware Department of Highways & Transportation Standard Specifications, January 1, 1974

Design: A.A.S.H.T.O. Specifications for Highway Bridges 1973, with Interims as they govern.

Dead Load: Concrete - 150 lbs. per cu.ft.
Future Wearing Surface - 25 lbs. per sq.ft.

Live Load: HS 20-44

Unit Stresses: Reinforcing Steel (A-615 Grade 40): fs = 20 000 psi
Concrete fc' = 4 000 psi fc = 1 200 psi
Structural Steel (AA.S.H.T.O. M222-ASTM A588) fs = 27 000 psi

Superstructure: Concrete Deck - Steel Beam Construction
Composite Action under Live Load.
Prefabricated Expansion Joint System

BORING LOCATIONS:

PILING: Cl. P Conc. Piles (12" Dia 7 Ga) Driven to a 45 Ton Bearing Capacity. No protection required

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

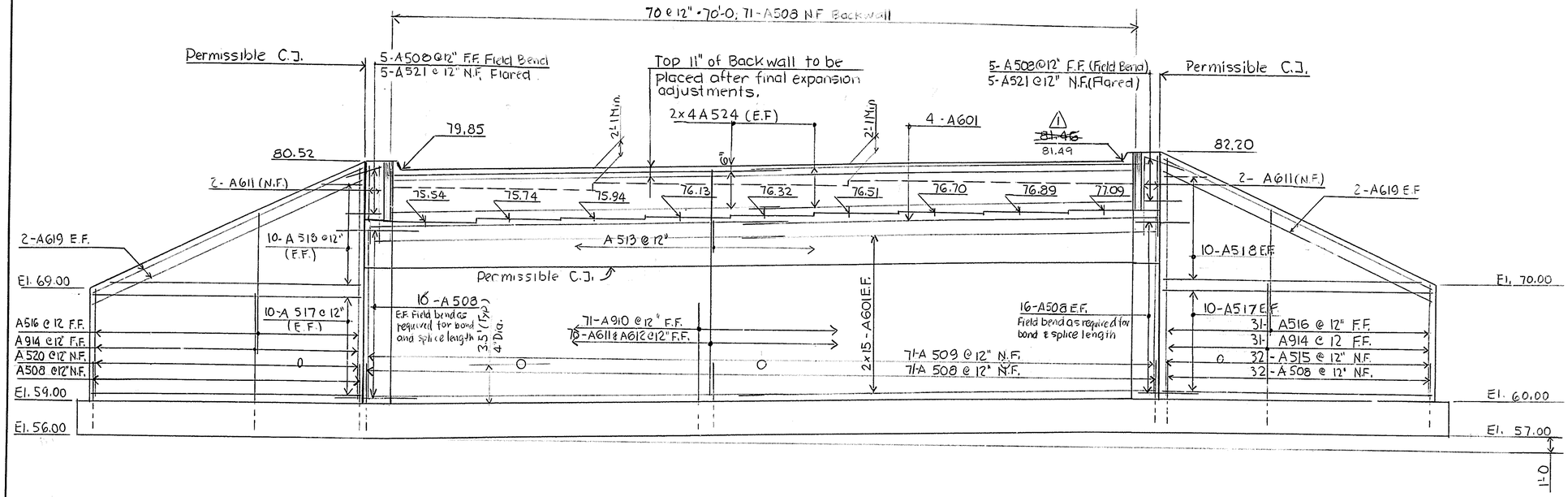
SITE PLAN

D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	BRIDGE ENGINEER
C.		

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		4	29

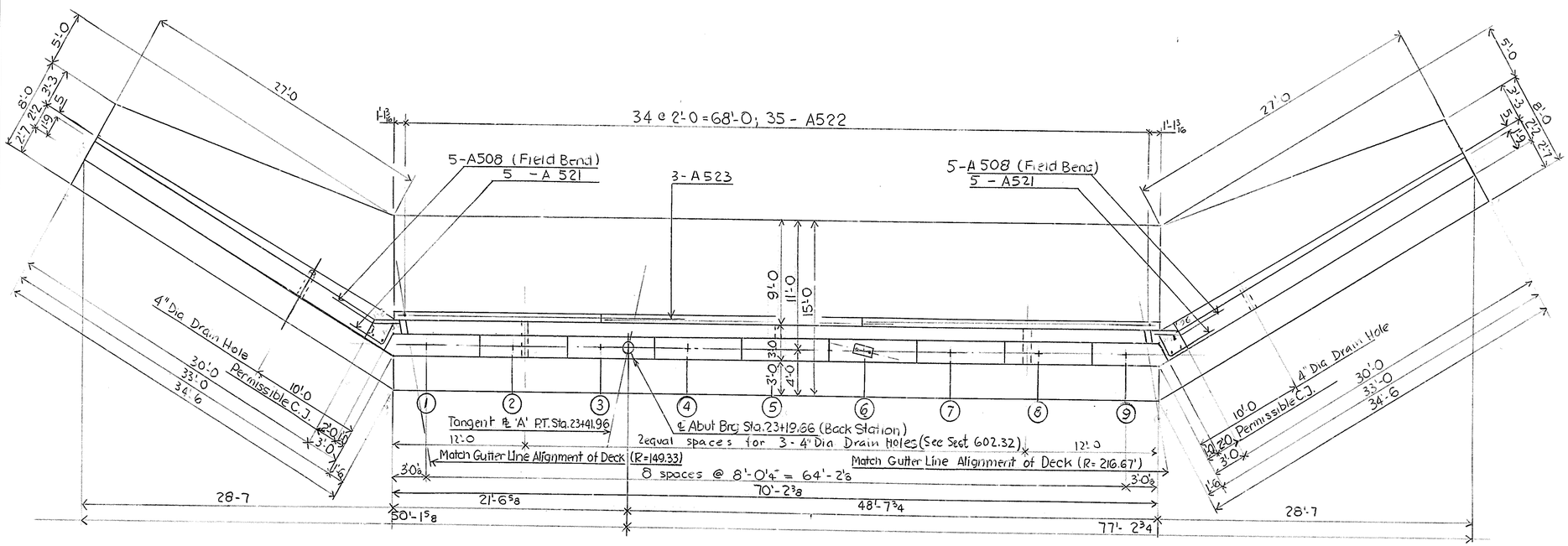
ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	Revised Elevation	CRL	3/1/73



ABUTMENT ELEVATION

Scale: 3/16" = 1'-0



FOOTING LAYOUT

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

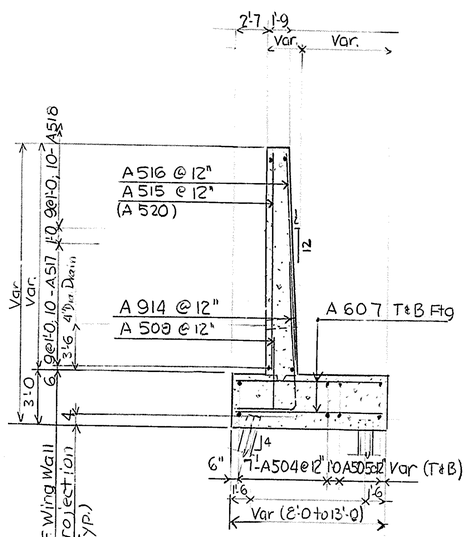
WEST ABUTMENT

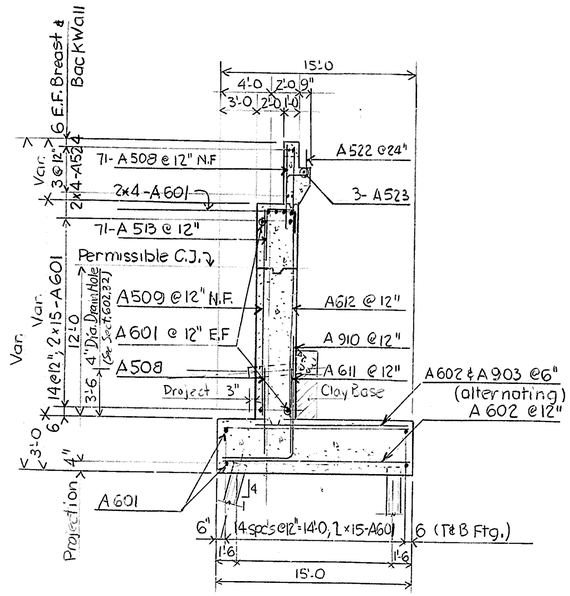
D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	H. C. Wyland
C.		BRIDGE ENGINEER

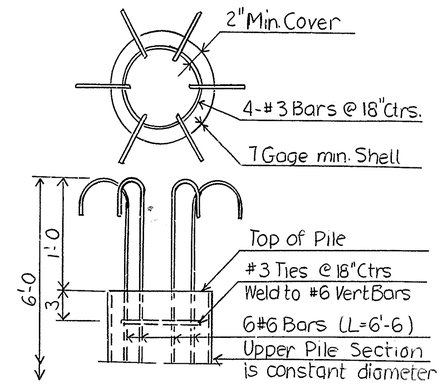
COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		5	29

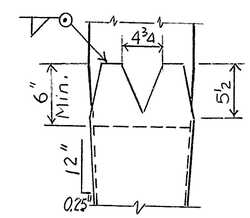
ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	ADDENDUM 1: CHANGE RE BAR WEIGHT	BGS	7/11/77
2	All front piles shall be battered	BGS	8/23/77









NOTE: Full compensation for all bar reinforcement furnished and installed in the pile shell, shall be included in the contract unit price per linear foot bid for Sect. 624 12" Dia. C.I.P. Concrete Piles - 7 Gage. No protection required.

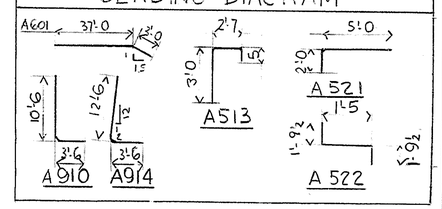
4 notches per splice are required. They shall be spaced evenly around perimeter.

Max L. tapered Section = 17 ft

BAR SCHEDULE — WEST ABUTM.

Straight Bars				Bent Bars			
MARK	SIZE	LENGTH	NUMBER	MARK	SIZE	LENGTH	NUMBER
A602	6	14'-6	2x70	A601	6	40'-0	126
A903	9	12'-0	71	A910	9	14'-0	71
A504	5	31'-0 to 34'-0	4x8	A513	5	8'-0	71
A505	5	7'-0 to 26'-0	4x4	A914	9	16'-0	62
A506	5	29'-0	4				
A607	6	7'-6 to 14'-4	4x34	A521	5	7'-0	10
A508	5	6'-0	280	A522	5	5'-0	35
A509	5	16'-0 to 16'-3	71				
A611	6	7'-0	74				
A612	6	20'-6	70				
A515	5	9'-10 to 21'-6	32				
A516	5	6'-6 to 17'-0	2x31				
A517	5	29'-6	4x10				
A518	5	4'-3 to 27'-9	4x10				
A619	6	31'-6	8				
A520	5	9'-10 to 21'-0	32				
A524	5	39'-0	16				
A523	5	28'-0	3				

BENDING DIAGRAM



ESTIMATED QUANTITIES — WEST ABUT.

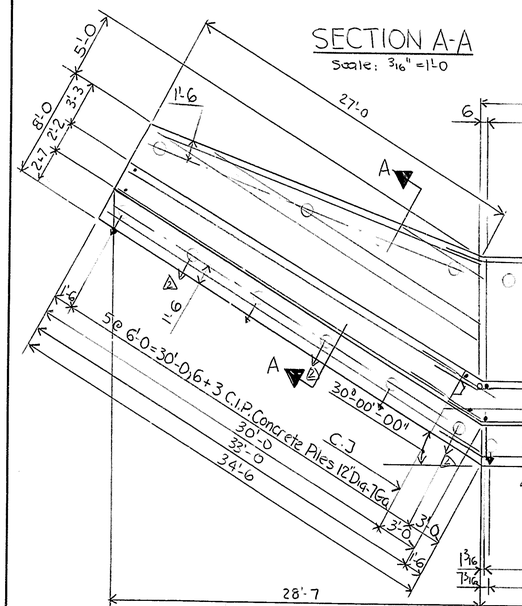
SECTION	ITEM	UNIT	PROPOSAL
207	Excavation & Backfill for Struct.	C.Y.	740
602	P.C.C. Masonry - Footings	C.Y.	191
	- Above Ftg.	C.Y.	241
605	Bar Reinforcement	Lbs. 1	~~42 520~~
624	C.I.P. Concrete Piles 12" Dia. Test Pile	L.F.	45
	C.I.P. Concrete Piles 12" Dia 7Ga	L.F.	2 120

1 See 1c

NOTE: Piles shall be battered on a 1:4 slope.
N.F. = Near Face
F.F. = Fill Face
E.F. = Each Face
T & B = Top and Bottom Slab or Footing
C.J. = Construction Joint

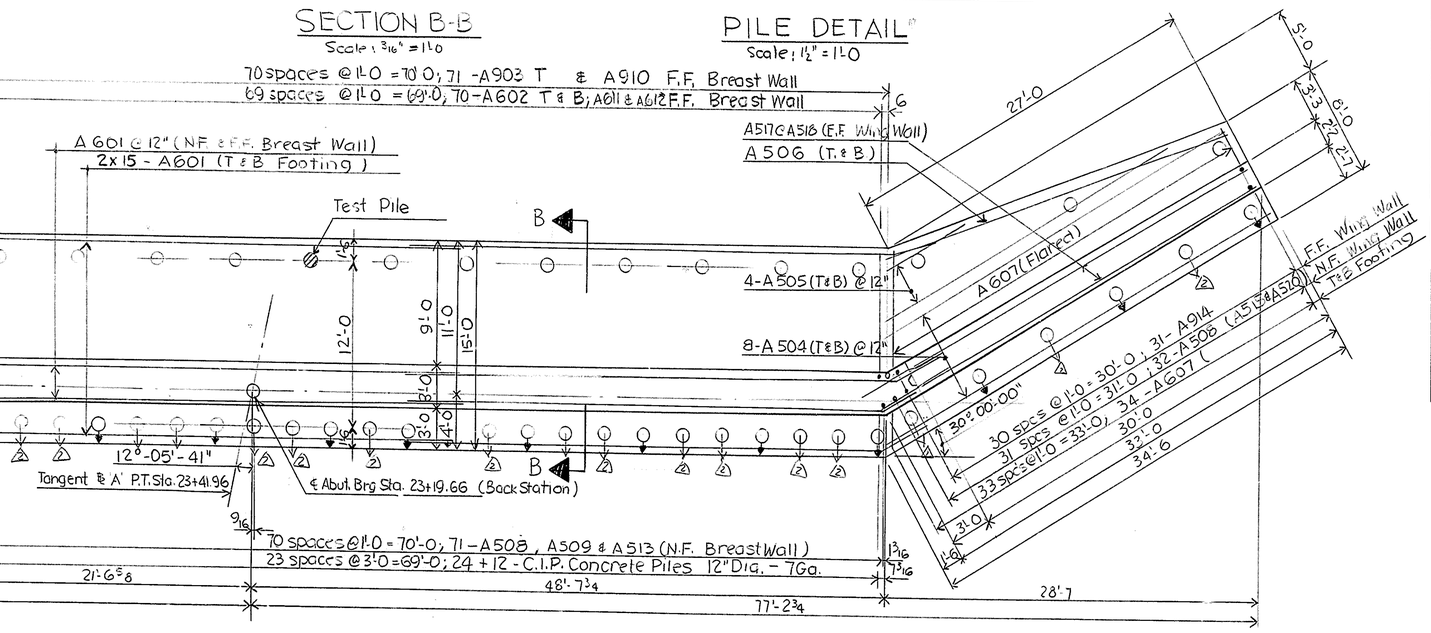
SECTION A-A

Scale: 3/16" = 1'-0



SECTION B-B

Scale: 3/16" = 1'-0



PILE DETAIL

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

FOOTING LAYOUT

Scale: 3/16" = 1'-0

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

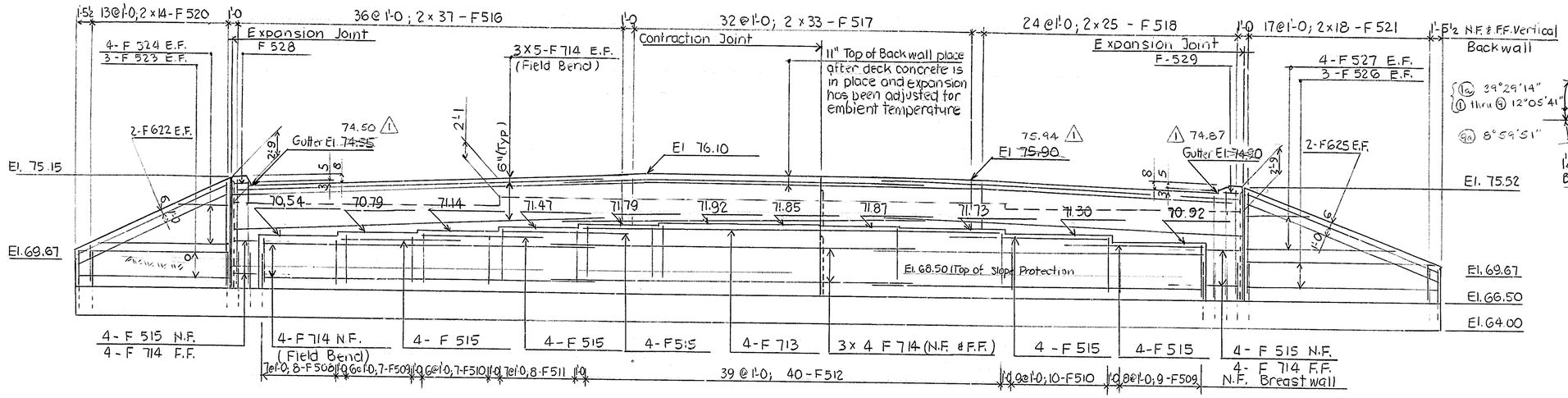
WEST ABUTMENT

D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	BRIDGE ENGINEER
C.		

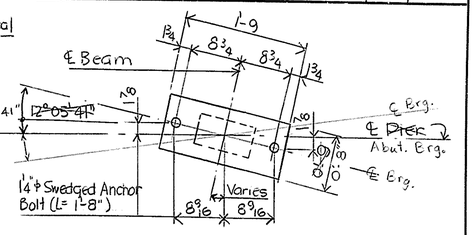
COUNTY	CONTRACT	P. R. A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		6	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

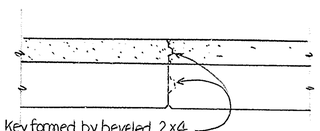
NO.	REVISIONS	BY	DATE
1	Revised Elevations & Masonry & Positioning Details	CRL	3/1/78



ABUTMENT ELEVATION (Looking East)
Scale: 3/16" = 1'-0

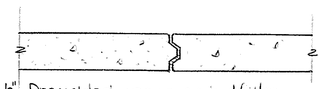


POSITIONING 1
OF MASONRY ℞ ON ABUTMENT
Scale: 1" = 1'-0



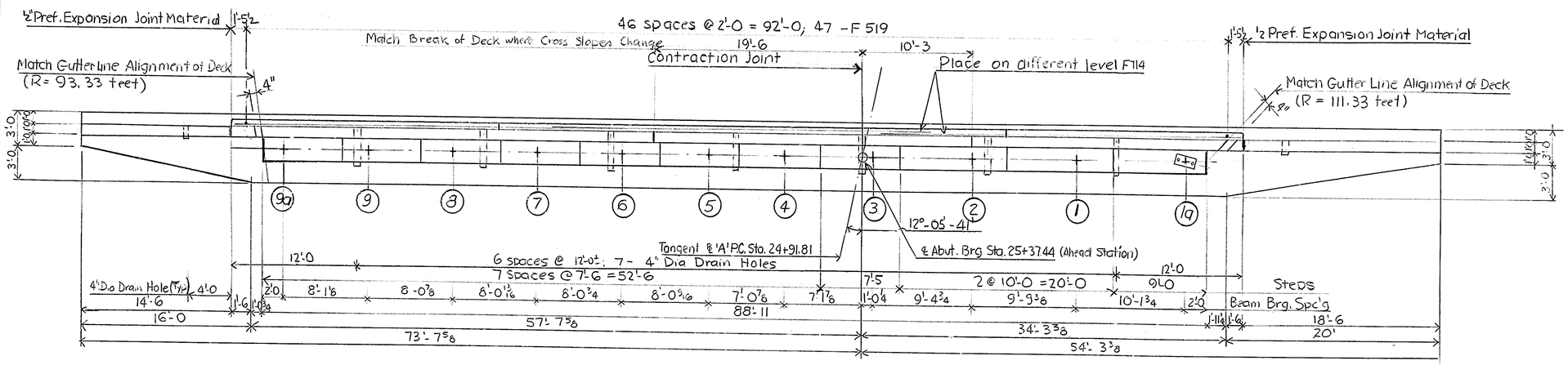
Key formed by beveled 2x4
Break bond between concr. surfaces
by means of sprayed on curing compound

CONTRACTION JOINT



½" Premolded expansion joint filler
Fasten to one side with 4" galv. nails
on 6" Ctrs staggered. Min. edge
distance 2".

EXPANSION JOINT



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

NOTE: For piling layout see next sheet.

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

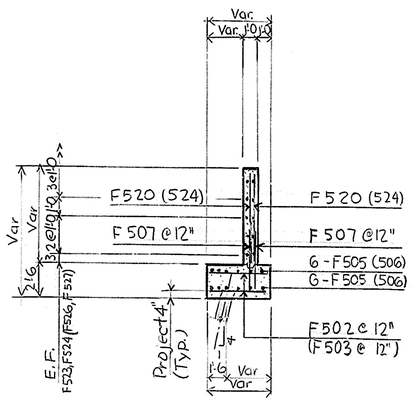
EAST ABUTMENT

D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	BRIDGE ENGINEER
C.		

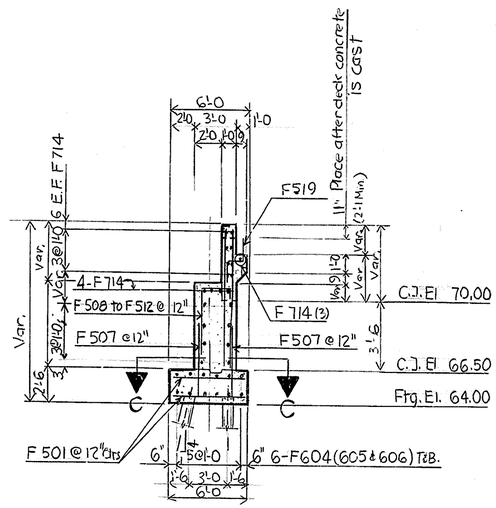
COUNTY	CONTRACT	P. R. A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		7	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE



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

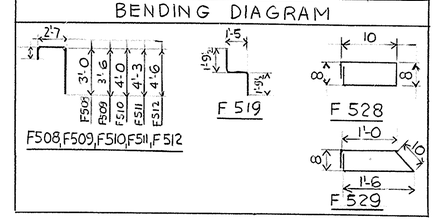


SECTION B-B
Scale: 3/16" = 1'-0

BAR SCHEDULE - EAST ABUTMENT

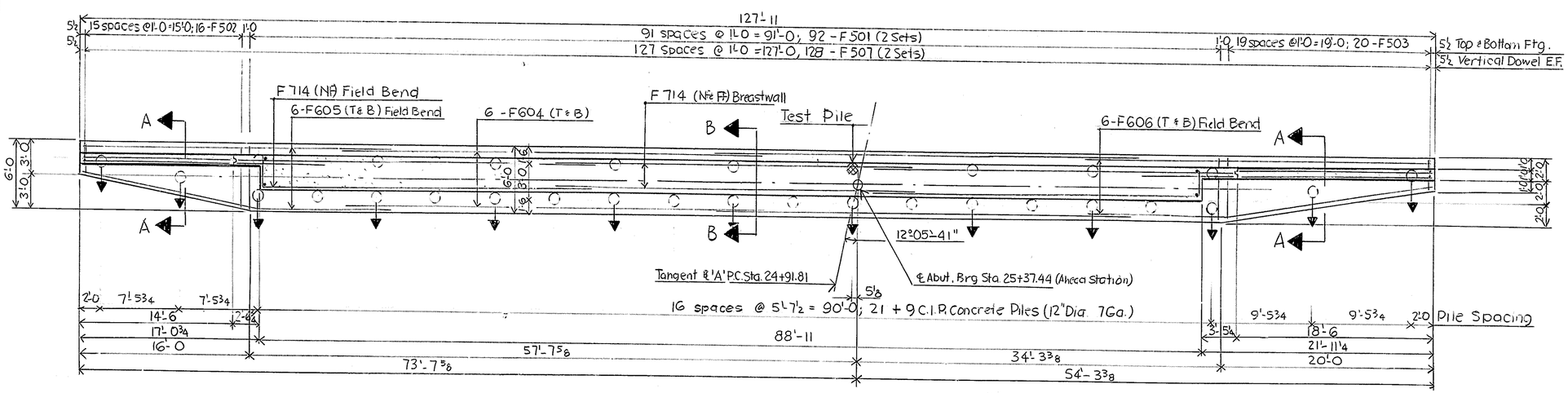
Straight Bars				Bent Bars			
MARK	SIZE	LENGTH	NUMBER	MARK	SIZE	LENGTH	NUMBER
F501	5	5'-6	2 x 92	F508	5	6'-0	8
F502	5	2'-8 to 5'-3	2 x 16	F509	5	6'-6	14
F503	5	2'-8 to 5'-4	2 x 19	F510	5	7'-0	17
F604	6	40'-0	24	F511	5	7'-3	8
F605	6	29'-0	12	F512	5	7'-6	40
F606	6	33'-0	12	F519	5	5'-0	47
F507	5	5'-3	2 x 128	F528	5	3'-8	1
F713	7	39'-6	4	F529	5	4'-7	1
F714	7	34'-0	57				
F515	5	12'-0	28	Straight Bars			
F516	5	7'-9 to 9'-3	2 x 37	F523	5	14'-0	6
F517	5	9'-3 to 8'-11	2 x 33	F524	5	3'-6 to 11'-6	2 x 4
F518	5	8'-0 to 8'-10	2 x 25	F525	5	19'-0	4
F520	5	3'-0 to 8'-0	2 x 13	F526	5	18'-0	6
F521	5	3'-0 to 8'-2	2 x 18	F527	5	5'-10 to 14'-6	2 x 4
F622	6	15'-6	4				

BENDING DIAGRAM



ESTIMATED QUANTITIES - EAST ABUT.

SECTION	ITEM	UNIT	PROPOSAL
207	Excavation & Backfill for Struct.	C.Y.	195
602	P.C.C. Masonry - Footings	C.Y.	66
	- Above Ftg.	C.Y.	76
605	Bar Reinforcement	Lbs.	13 455
624	C.I.P. Concrete Piles 12 Dia - Test Pile	L.F.	45
	C.I.P. Concrete Piles 12 Dia 7Ga	L.F.	1160



SECTION CC & FOOTING LAYOUT
Scale: 3/16" = 1'-0

NOTE: Piles shall be battered on a 1:4 slope.
N.F. = Near Face
F.F. = Fill Face
E.F. = Each Face
T & B = Top and Bottom Slab or Footing
C.J. = Construction Joint

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

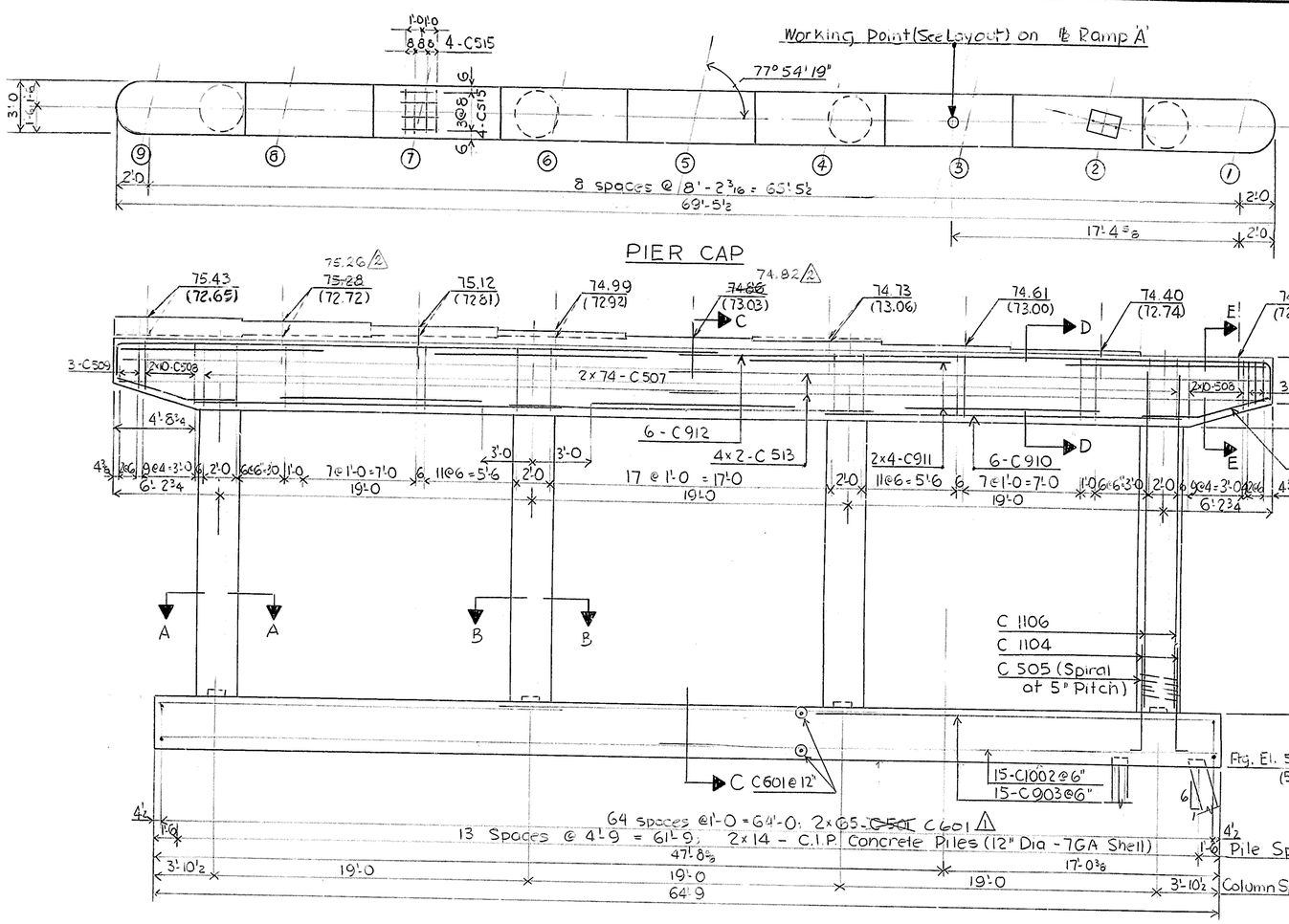
EAST ABUTMENT

D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	BRIDGE ENGINEER
C.		

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL		8	29

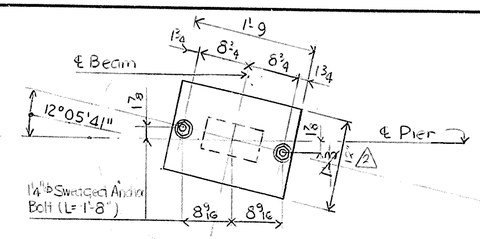
ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	ADDENDUM 1: CHANGE QUANTITY SIZE AND WEIGHT OF RE BARS	F.J.S	7/1/77
2	Revised Elevations & Masonry Pl. Dimension	CRL	3/1/78

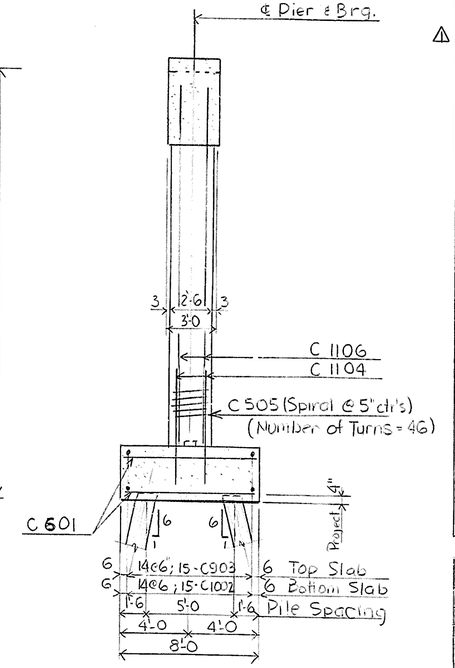


PIER ELEVATION (Looking East)
Scale: 1/4" = 1'-0

Note: Dashed steps for E. Pier and Elev. in ( ) brackets for E. Pier Steps.



POSITIONING OF MASONRY PL ON PIER
Scale: 1" = 1'-0

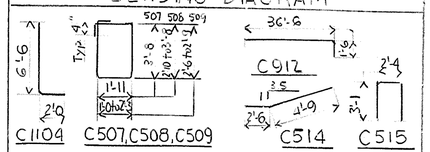


PIER SECTION C-C

BAR SCHEDULE - TWO PIERS

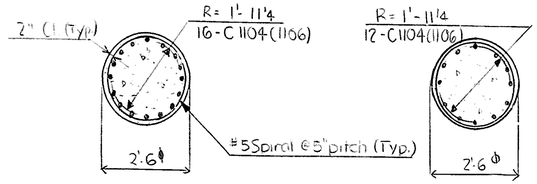
Straight Bars				Bent Bars			
MARK	SIZE	LENGTH	NUMBER	MARK	SIZE	LENGTH	NUMBER
C601	~~5~~ 6	7'-6	2x 130	C1104	11	8'-6	2x56
C1002	10	34'-0	2x 30	C505	5	296'-0	2x 4
C903	9	23'-6	2x 45	C507	5	11'-10	4x 74
C1106	11	18'-6	2x 56	C508	5	10'-2 to 11'-10	8x 10
C910	9	21'-6	2x 18	C509	5	7'-6 to 10'-6	4x 3
C911	9	13'-0	2x 28	C912	9	36'-0	1 2x 8
C513	5	36'-6	2x 8	C514	5	7'-3	2x 8
				C515	5	6'-6	1 26x 8
				1 C1112	9	36'-0	2x12
				1 C515	5	6'-6	12x8

BENDING DIAGRAM



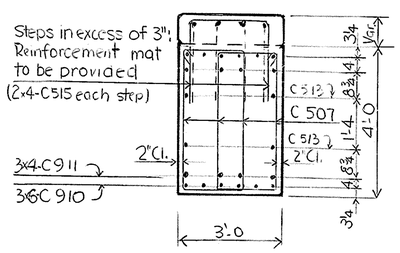
ESTIMATED QUANTITIES - TWO PIERS

SECTION	ITEM	UNIT	PROPOSAL
207	Excavation and Backfill for Str.	C.Y.	880
602	P.C.C. Masonry - Footing	C.Y.	115
	" - Above Ftg	C.Y.	90
605	Bar Reinforcement	LBS	1 ~~5,100~~ 8,511
624	C.I.P. Concrete Piles 12" Dia Test P.	L.F.	90
624	C.I.P. Concrete Piles 12" Dia	L.F.	2,160

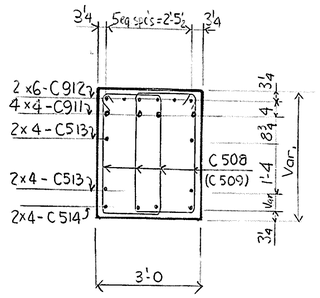


SECTION A-A

SECTION B-B

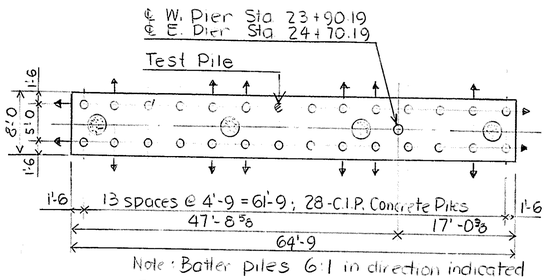


SECTION D-D



SECTION E-E

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



Note: Batter piles 6:1 in direction indicated

FOOTING & PILING LAYOUT
Scale: 1" = 1'-0

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

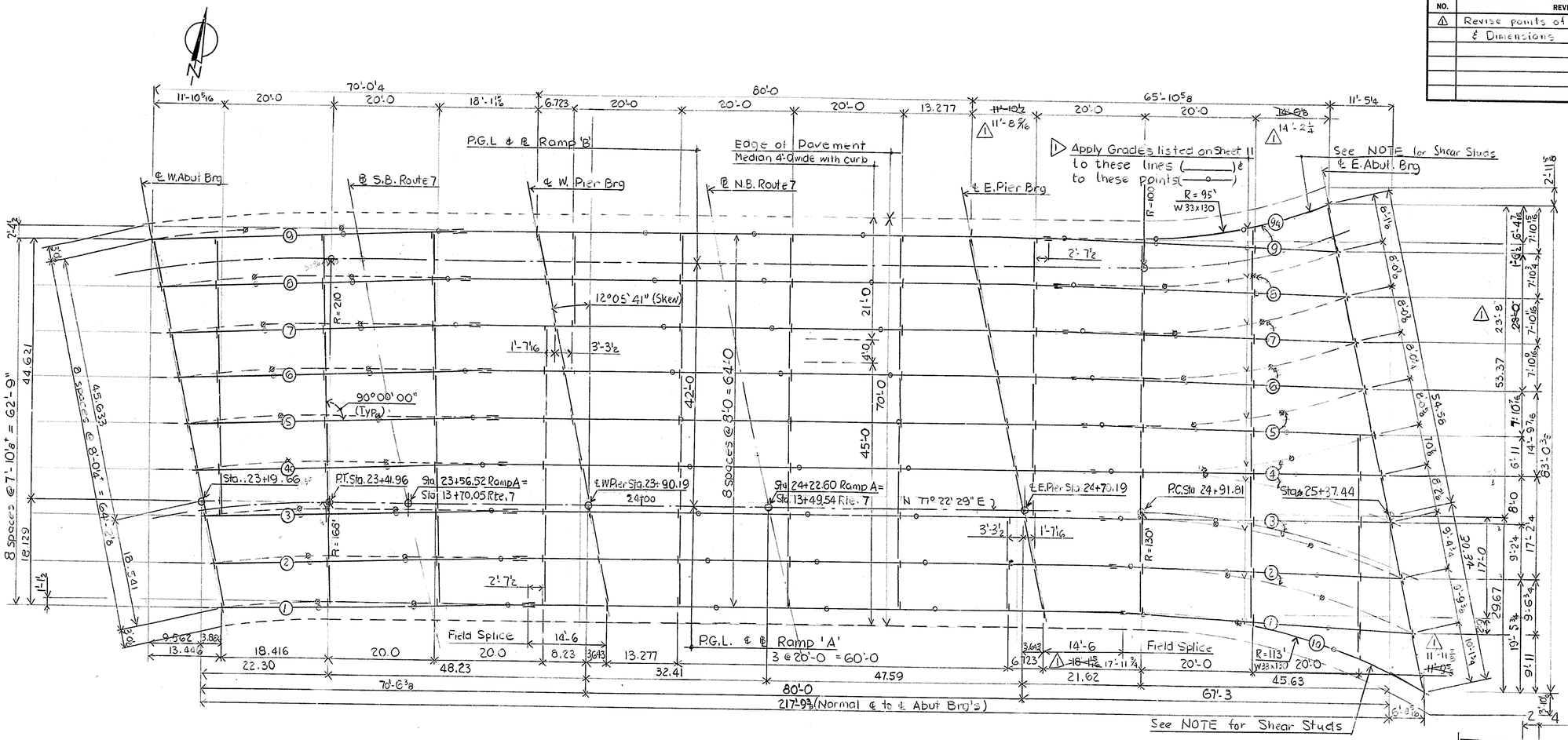
EAST AND WEST PIER

D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	H. F. Wiedwald
C.		BRIDGE ENGINEER

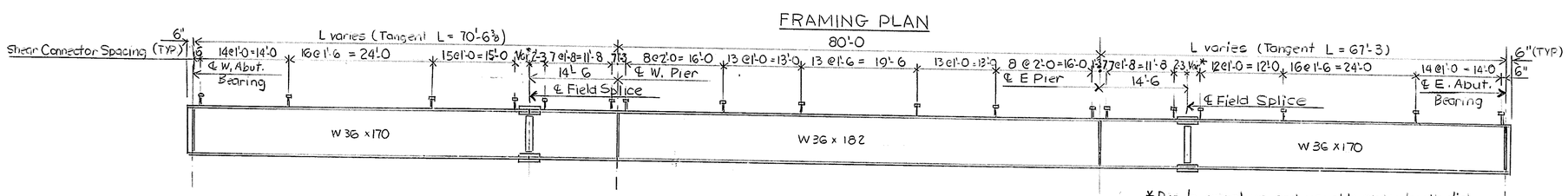
COUNTY	CONTRACT	P.B.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		9	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	Revise points of grade application & Dimensions	CRL	2/2/78



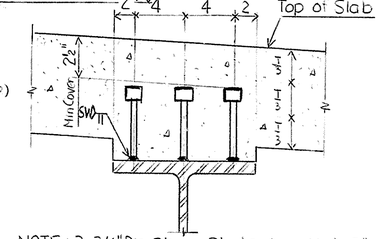
FRAMING PLAN



BEAM ELEVATION (TYPICAL)
NO SCALE

* Due to curvature and variable girder length, distance from ℄ Field Splice to first row of Shear Connector Studs will vary slightly.

Note: Main load carrying members in tension, are subject to the 'Requirements For Notch Toughness' as described under Section 606 of the Special Provisions.
All Structural Steel shall meet A.S.T.M A588.
Girders shall be assembled in the shop to the correct blocking El. before reaming and drilling of bolt holes for splices.
Forms for deck slab shall be supported by the beams
Place 3 shear studs on beams 1a & 9a at 12" ctrs.



NOTE: 3-3/4" Dia. Shear Studs. Length is 6". Head of Stud shall fall in center third of deck.

SHEAR CONNECTORS
No Scale

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

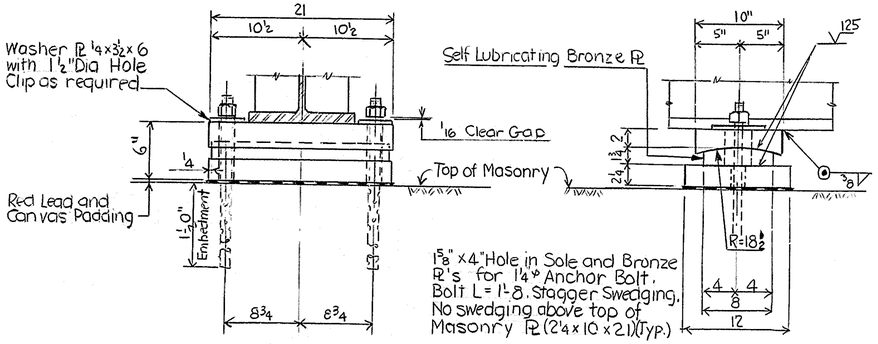
SUPER STRUCTURE
FRAMING PLAN

D. BGS	SCALE	APPROVED BY:
T. BGS	1" = 10'-0	H. I. Wyndell
C.		BRIDGE ENGINEER

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. A'D PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL		10	29

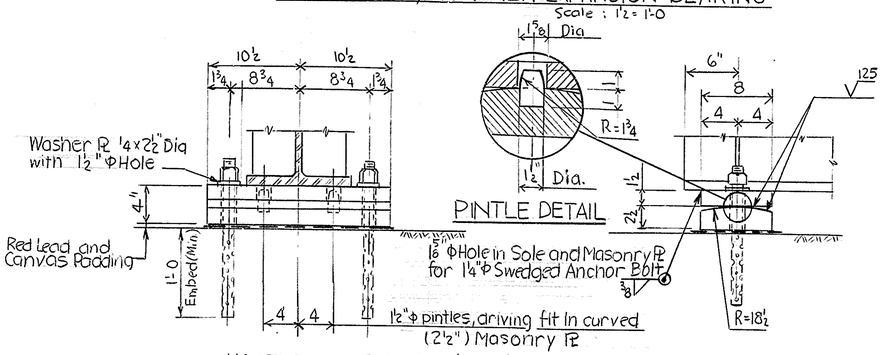
ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	See sht. 11 for Finish Deck Elevations & Dead Load Deflections. Revised Dimension	CRL	1/26/79



W. ABUTMENT, E. & W. PIER EXPANSION BEARING

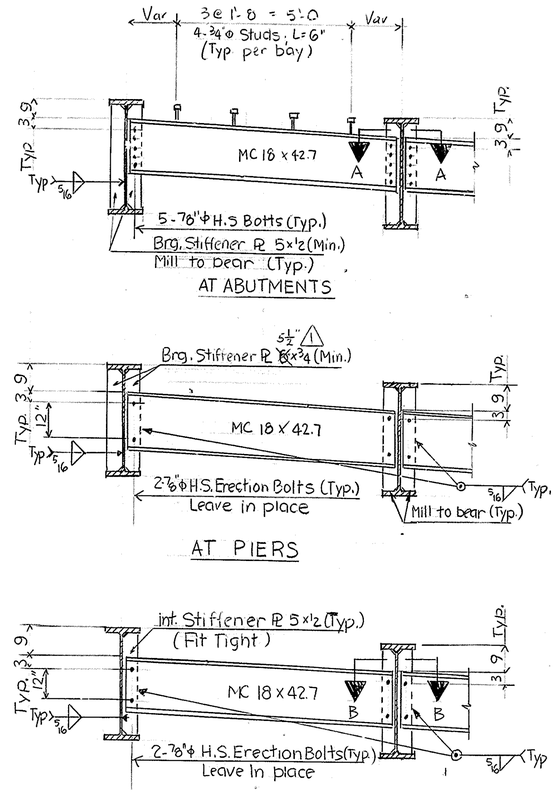
Scale : 1½" = 1'-0



NOTE: Bronze PL for Expansion Brg's shall conform to A.S.T.M. B22, Alloy A. Surface finish of metals shall meet USASI-B 46.1 in the direction of expansion or rotation. After erection, anchor bolts shall be slacked off 1/4 inches above nut and the nut shall be spot welded to the anchor bolt.

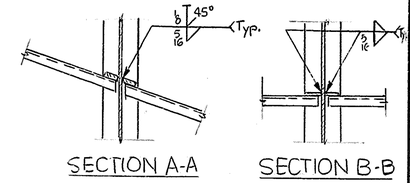
E. ABUTMENT FIXED BEARING

Scale : 1½" = 1'-0



DIAPHRAGM CONNECTION DETAILS

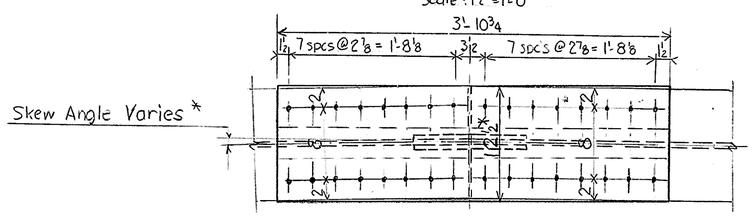
Scale : ½" = 1'-0



FINISH DECK ELEVATIONS AND DEAD LOAD DEFLECTIONS [feet]

	GIRDER	POINT	℄ WABUT	¼	½	¾	℄ PIER	¼	½	¾	℄ PIER	¼	½	¾	℄ EABUT
ELEVATIONS (REFER TO RADIAL LAYOUT)	1		79.83	79.54	79.21	78.86	78.55	78.11	77.68	77.25	76.82	76.36	75.90	75.44	74.98
	2		80.08	79.74	79.40	79.07	78.74	78.34	77.91	77.50	77.08	76.68	76.28	75.88	75.48
	3		80.76	79.94	79.61	79.26	78.95	78.56	78.15	77.74	77.34	76.78	76.62	76.27	75.91
	℄ A														
	4		80.47	80.12	79.77	79.42	79.07	78.65	78.24	77.82	77.40	77.06	76.73	76.39/76.42	76.05/76.10
	5		80.66	80.29	79.92	79.56	79.20	78.74	78.28	77.83	77.37	77.02	76.67	76.32	75.97
	6		80.85	80.47	80.09	79.71	79.33	78.81	78.30	77.78	77.26	76.86	76.46	76.05	75.65
	7		81.04	80.64	80.24	79.85	79.46	78.88	78.31	77.73	77.15	76.70	76.24	75.78	75.32
	8		81.23	80.82	80.42	80.02	79.62	78.96	78.31	77.70	77.06	76.54	76.02	75.50	74.97
	℄ B														
	9		81.43	81.00	80.58	80.17	79.77	79.07	78.38	77.69	76.99	76.32	75.79	75.19	74.60
DEFLECTION FOR ALL SPANS	STR. STEEL		0	1/16	3/16	1/16	0	1/16	1/8	1/16	0	1/16	3/16	1/16	0
	DECK CONCR		0	3/4	11/16	3/8	0	5/16	1/2	5/16	0	5/8	11/16	3/4	0
	DL-DEFLECT		0	13/16	7/8	7/16	0	3/8	5/8	3/8	0	7/16	7/8	13/16	0

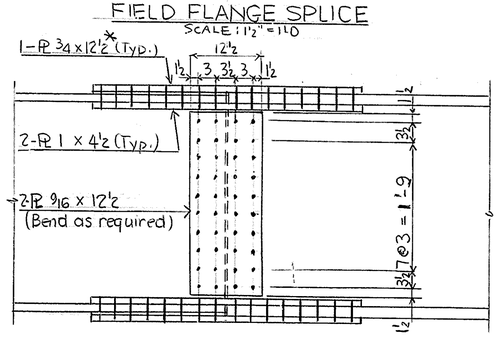
~~NOTE For locations of grade applications see Sheet ___ and "FRAMING PLAN".~~



FIELD FLANGE SPLICE

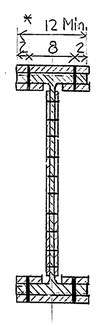
SCALE : 1½" = 1'-0

* NOTE: Plate width may be changed to a minimum 12 inch width in location with small angle changes. All bolts shall be ⅞" Dia. H.S. designation ASTM A325 - Type 3.



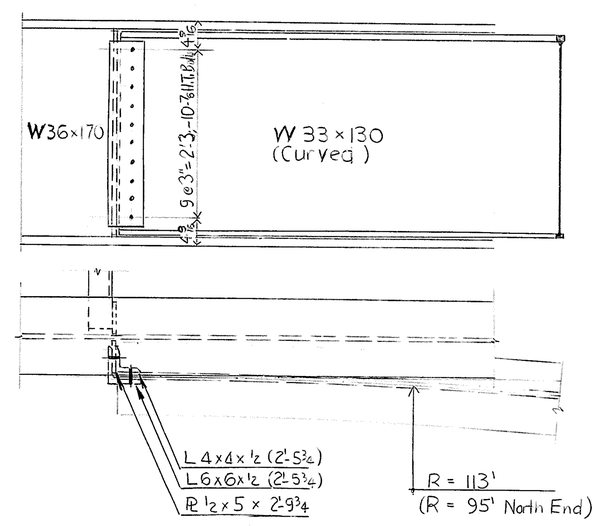
FIELD WEB SPLICE

SCALE : 1" = 1'-0



SECTION THROUGH SPLICE

SCALE : 1" = 1'-0



BEAM TO BEAM ATTACHMENT

SCALE : 1" = 1'-0

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

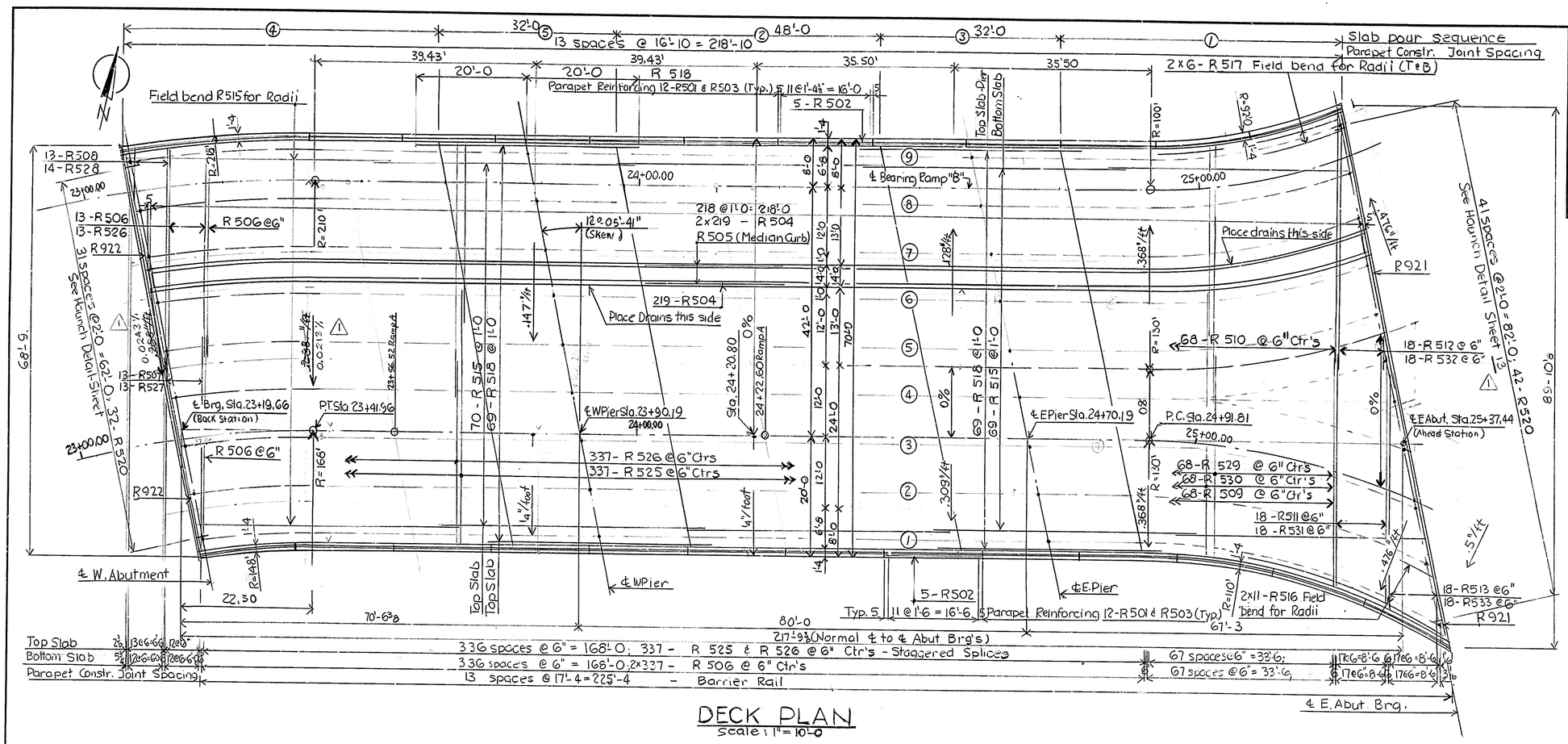
SUPER STRUCTURE
STRUCTURAL STEEL DETAILS

D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	BRIDGE ENGINEER
C.		

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NewCastle	76-12-005	2	DEL		11	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE
1	Added revised table of Finished Deck Elevations & Dead Load Deflections	CRL	2/2/78
	Revised cross slopes & Note		



DECK PLAN

Scale: 1" = 10'-0

NOTE: Pouring sequence 3 & 5 must not be poured until deck concrete in adjacent pouring sequence 1 & 2 ~~or 2 & 3~~ complete. △1 Meet breaks in cross slopes of slab by field bending transverse bars. △1 & 4

FINISHED DECK ELEVATIONS & DEAD LOAD DEFLECTIONS

△1

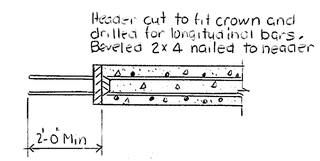
FINISH DECK ELEVATIONS *

Point / Girder	℄ W. Abut	1/4	1/2	3/4	℄ Pier	1/4	1/2	3/4	℄ Pier	1/4	1/2	3/4	℄ E. Abut
1a	—	—	—	—		—	—	—	—	—	—		75.01
1	79.88	79.58	79.27	78.89	78.55	78.12	77.69	77.23	76.83	76.45	76.01	75.67	75.47
2	80.08	79.77	79.45	79.07	78.75	78.32	77.91	77.50	77.08	76.73	76.35	76.07	75.91
3	80.28	79.98	79.64	79.28	78.95	78.55	78.15	77.74	77.34	77.00	76.68	76.35	76.00
℄ A	80.30				78.97				77.37				75.97
4	80.47	80.18	79.83	79.42	79.07	78.68	78.27	77.85	77.40	77.07	76.73	76.39	76.04
5	80.67	80.38	80.03	79.56	79.17	78.77	78.32	77.86	77.38	77.02	76.69	76.42	76.07
6	80.86	80.59	80.23	79.71	79.33	78.85	78.33	77.82	77.26	76.84	76.45	76.15	75.98
7	81.06	80.79	80.43	79.85	79.47	78.92	78.34	77.77	77.16	76.68	76.23	75.87	75.64
8	81.25	81.00	80.64	80.02	79.61	78.98	78.35	77.71	77.06	76.53	76.01	75.58	75.30
℄ B	81.32				79.67				77.03				74.83
9	81.44	81.20	80.85	80.17	79.77	79.08	78.38	77.69	76.98	76.39	75.81	75.31	74.97
9a	—	—	—	—	—	—	—	—	—	—			74.63

DEAD LOAD DEFLECTIONS (ins)

Str. Steel	0	1/16	3/16	1/16	0	1/16	1/8	1/16	0	1/16	3/16	1/16	0
Dead Load 1	0	3/4	11/16	3/8	0	5/16	1/2	5/16	0	3/8	11/16	3/4	0
Dead Load 2	0	13/16	7/8	7/16	0	3/8	5/8	3/8	0	7/16	7/8	13/16	0

* See sl. 9 for points of grade application



PERMISSIBLE CONSTRUCTION JOINT
NOT TO SCALE

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

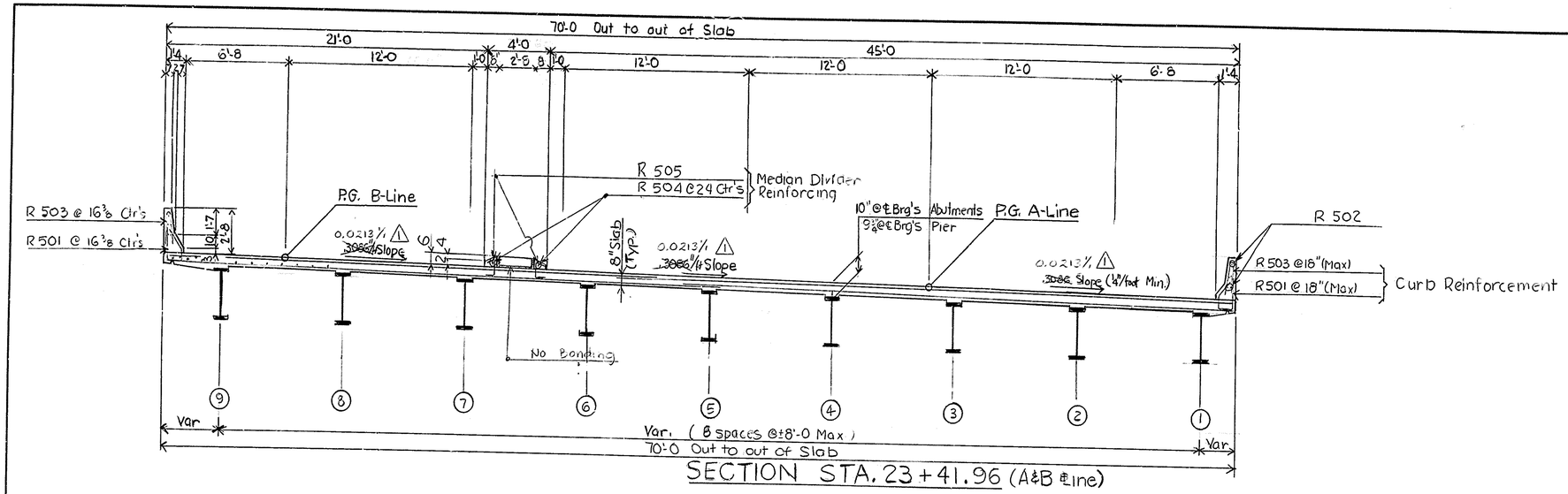
SUPER STRUCTURE DECK PLAN

D. BGS	SCALE	APPROVED BY:
T. BGS	1" = 10'-0	BRIDGE ENGINEER
C.		

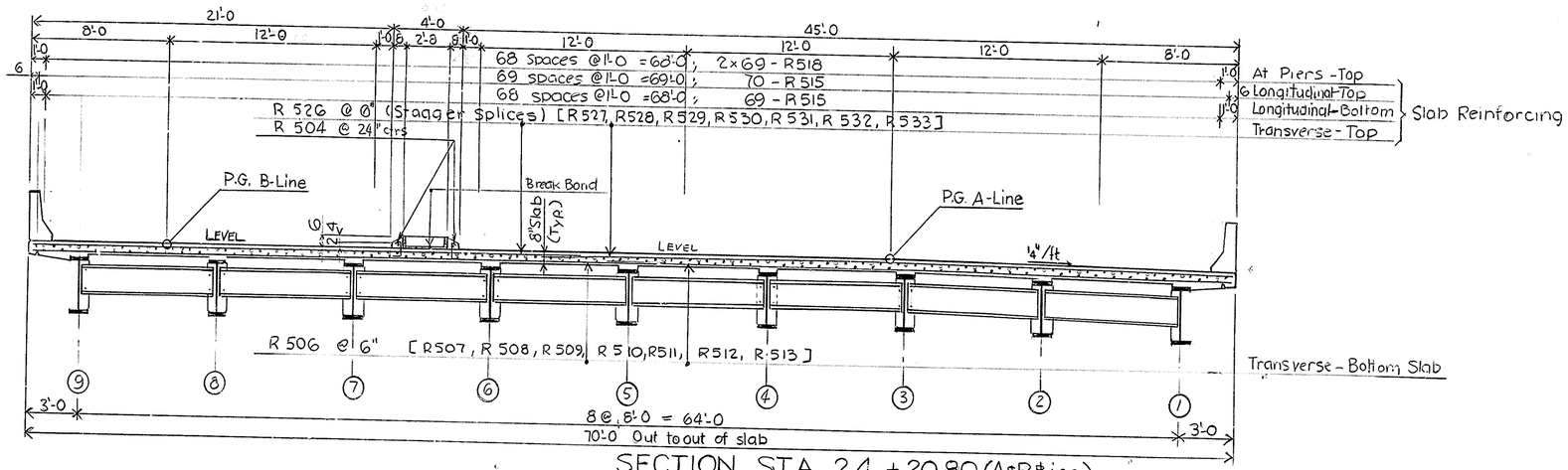
COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO	TOTAL SHEETS
New Castle	76-12-005	2	DEL		12	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

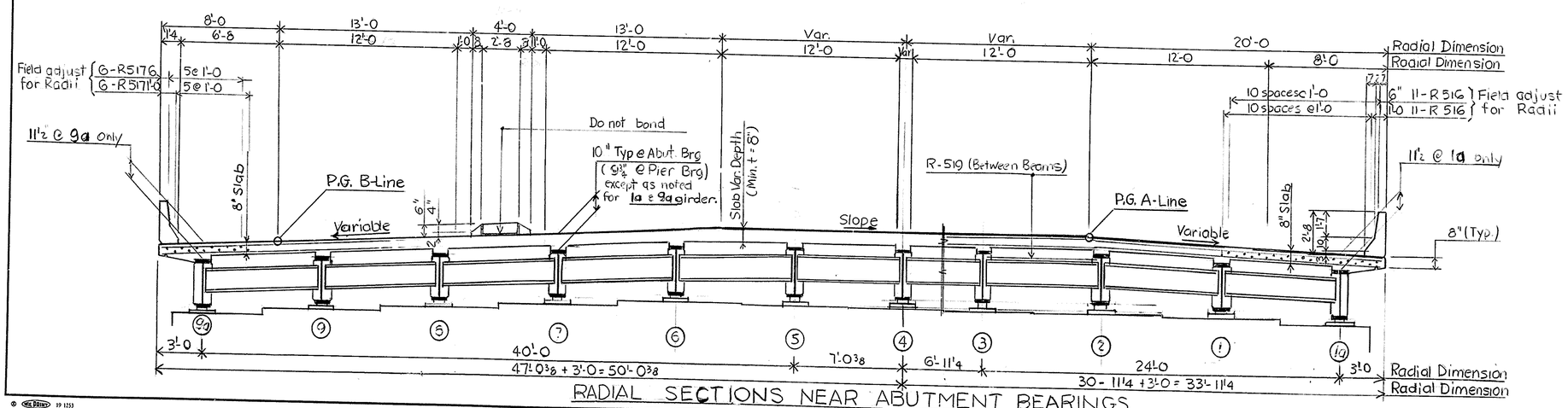
NO.	REVISIONS	BY	DATE
1	Revised Cross Slopes	CRL	3/1/78
2	Revised Rebar Quantities	CRL	6/19/78



SECTION STA. 23 + 41.96 (A&B ℄ line)



SECTION STA. 24 + 20.80 (A&B ℄ line)

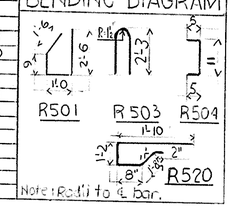


RADIAL SECTIONS NEAR ABUTMENT BEARINGS

BAR SCHEDULE - DECK SLAB

Straight Bars				Bent Bars			
MARK	SIZE	LENGTH	NUMBER	MARK	SIZE	LENGTH	NUMBER
R502	5	16'-6 to 17'-0	65 x 2	R501	5	5'-9	312
R505	5	38'-0	12	R503	5	4'-6	312
R506	5	36'-0	687	R504	5	1'-9	438
R507	5	4'-0 to 36'-0	13	R520	5	5'-6	74
R508	5	7'-6 to 35'-6	13				
R509	5	36'-0 to 41'-6	68				
R510	5	36'-0 to 43'-0	68				
R511	5	40'-6 to 43'-6	18				
R512	5	3'-9 to 40'-6	18				
R513	5	7'-2 to 41'-6	18				
R515	5	46'-0	5 x 139				
R516	5	9'-0 to 45'-0	2 x 11				
R517	5	6'-0 to 36'-0	2 x 6				
R518	5	40'-0	138				
R519	5	6'-9	18				
R921	9	32'-0	36				
R922	9	36'-6	24				
R525	5	43'-6	337				
R526	5	31'-6	350				
R527	5	42'-0 to 44'-0	13				
R528	5	6'-4 to 36'-8	14				
R529	5	34'-0 to 39'-0	68				
R530	5	43'-0 to 49'-0	68				
R531	5	40'-0	18				
R532	5	9'-0 to 45'-0	18				
R533	5	6'-0 to 47'-4	18				

BENDING DIAGRAM



ESTIMATED QUANTITIES - DECK SLAB

SECTION	ITEM	UNIT	PROPOSAL
602	PCC Masonry - Superstr.	C.Y.	470
605	Bar Reinforcement	Lbs.	116 505
606	Steel Structures	L.S.	L.S.
	(Est'd W = 440 000 lbs)		

NOTE: Do not cut bars. Use field bending for adjustments.

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

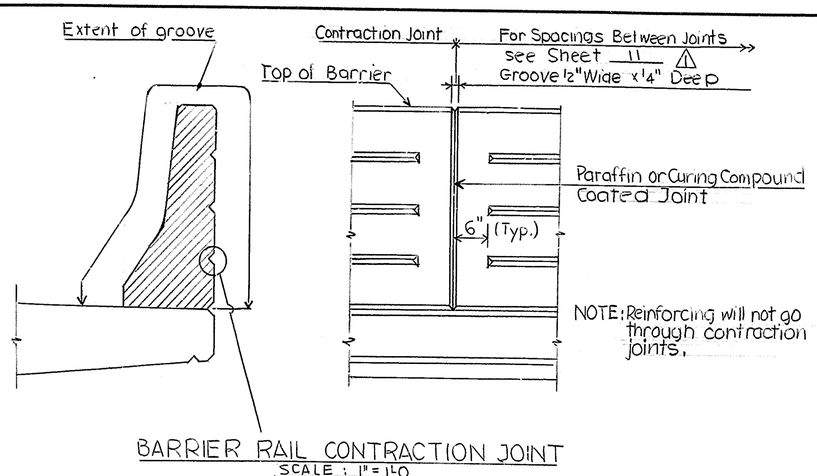
SUPER STRUCTURE
DECK SLAB

D. BGS	SCALE	APPROVED BY:
T. BGS	1/4" = 1'-0	BRIDGE ENGINEER
C.		

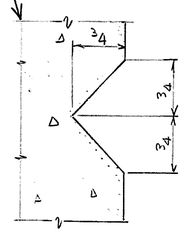
COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL		13	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

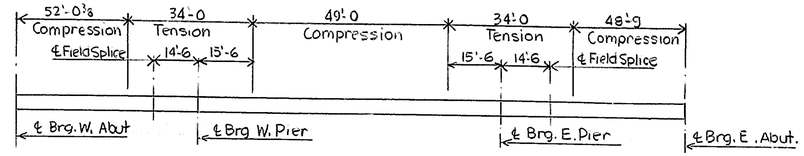
NO.	REVISIONS	BY	DATE
1	Added Sht. Nos. & Deleted Median Rail Detail	CRL	3/1/78



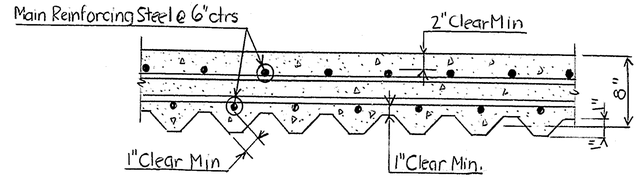
BARRIER RAIL CONTRACTION JOINT
SCALE: 1" = 1'-0



SCORE DETAIL
FULL SCALE

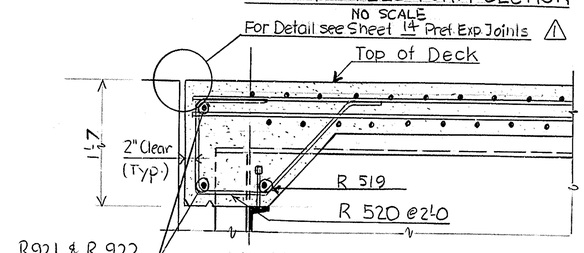


TOP FLANGE
LIMITS OF TENSION AND COMPRESSION AREAS
NO SCALE

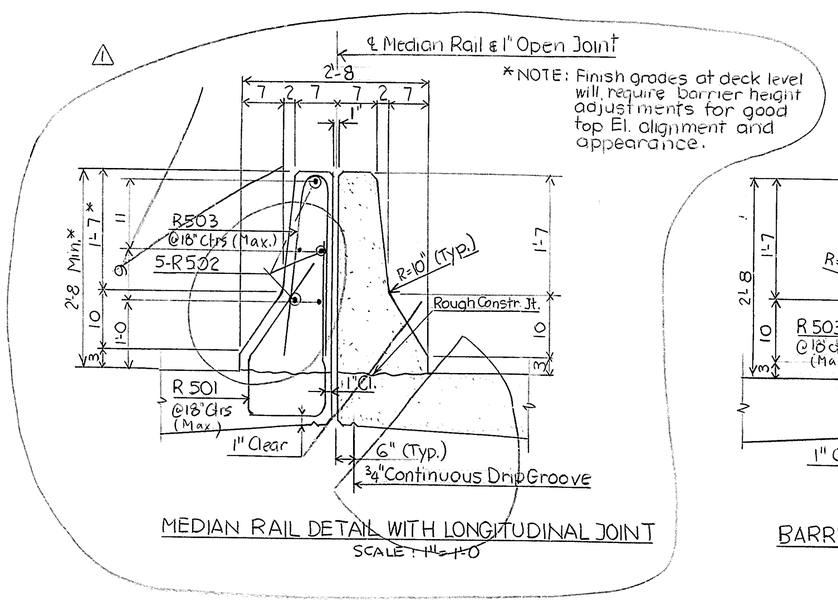


NOTE: No welding of steel forms is permitted to top Flange Areas. Steel forms remain in place Min. 20 Ga. sheet metal thickness required. Deflection requirements shall be met.

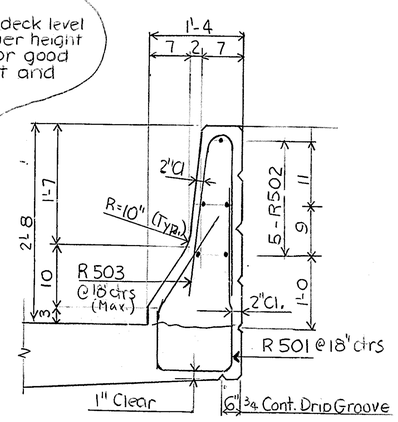
DECK & STEEL FORM SECTION
NO SCALE



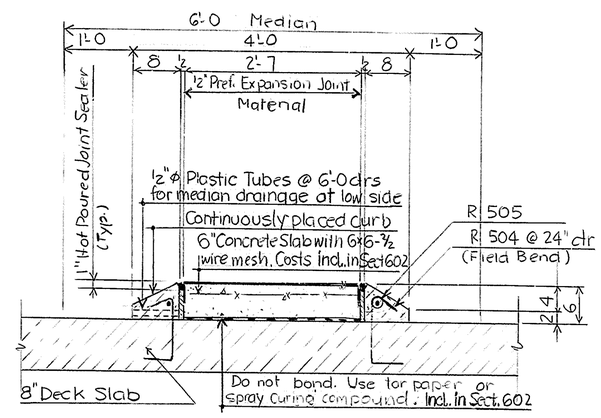
HAUNCH DETAIL AT ABUTMENTS
Scale: 1" = 1'-0



MEDIAN RAIL DETAIL WITH LONGITUDINAL JOINT
SCALE: 1" = 1'-0



BARRIER RAIL DETAIL
SCALE: 1" = 1'-0"



MEDIAN DIVIDER
SCALE: 1" = 1'-0

NOTE: See Standard Sheet G-7 for parapet taper end and connection of guard rail to bridge.

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

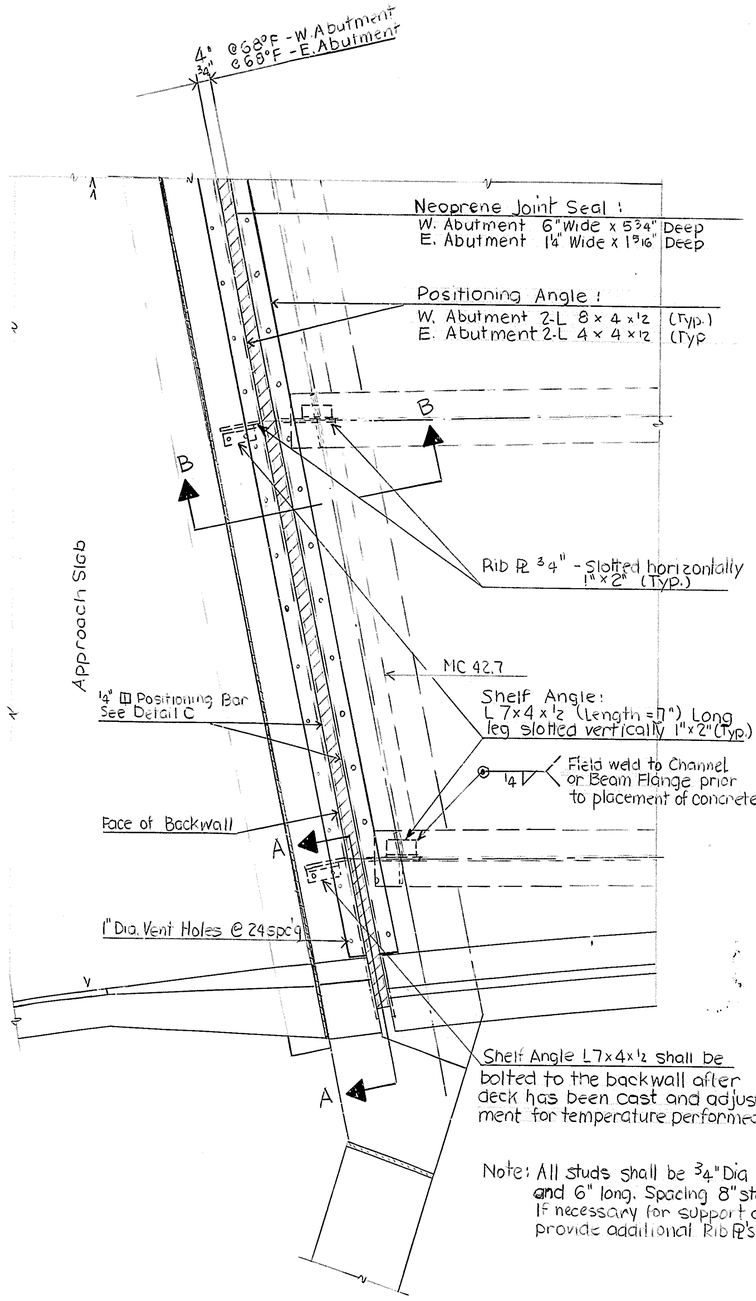
SUPER STRUCTURE
DECK SLAB DETAILS

D. BGS T. BGS C.	SCALE	APPROVED BY: H. C. Wilhelm BRIDGE ENGINEER

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	T612-005	2	DEL.		14	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

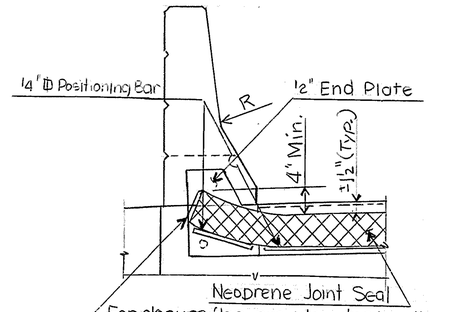
NO.	REVISIONS	BY	DATE



PLAN AT ABUTMENT

Scale: 3/4" = 1'-0

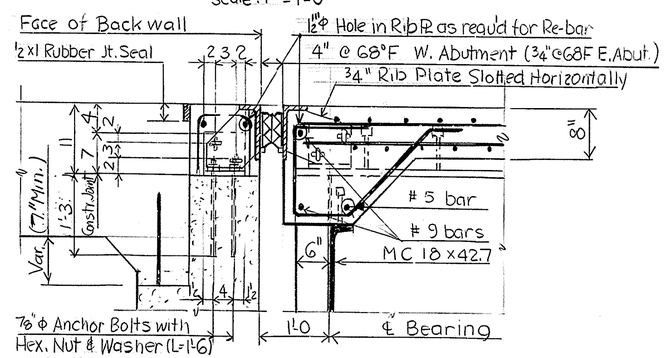
NOTE: W. Abutment shown
E. Abutment similar



For closure flap, provide extra length of seal at ends of preformed elastic joint sealer. Cut away all but top of shell to provide end flap, bond down and seal with Lube Adhesive (Typ.).

SECTION A-A

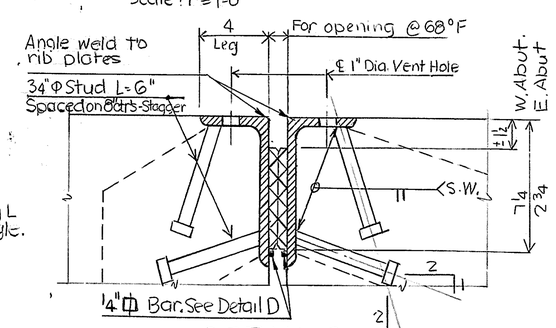
Scale: 1" = 1'-0



NOTE: Break bond between approach slab and backwall by spraying with curing compound or unsanded tar paper.

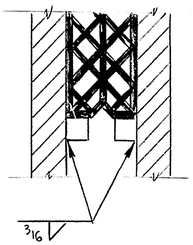
SECTION B-B

Scale: 1" = 1'-0



DETAIL C

Scale: 3" = 1'-0



DETAIL D

No Scale

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

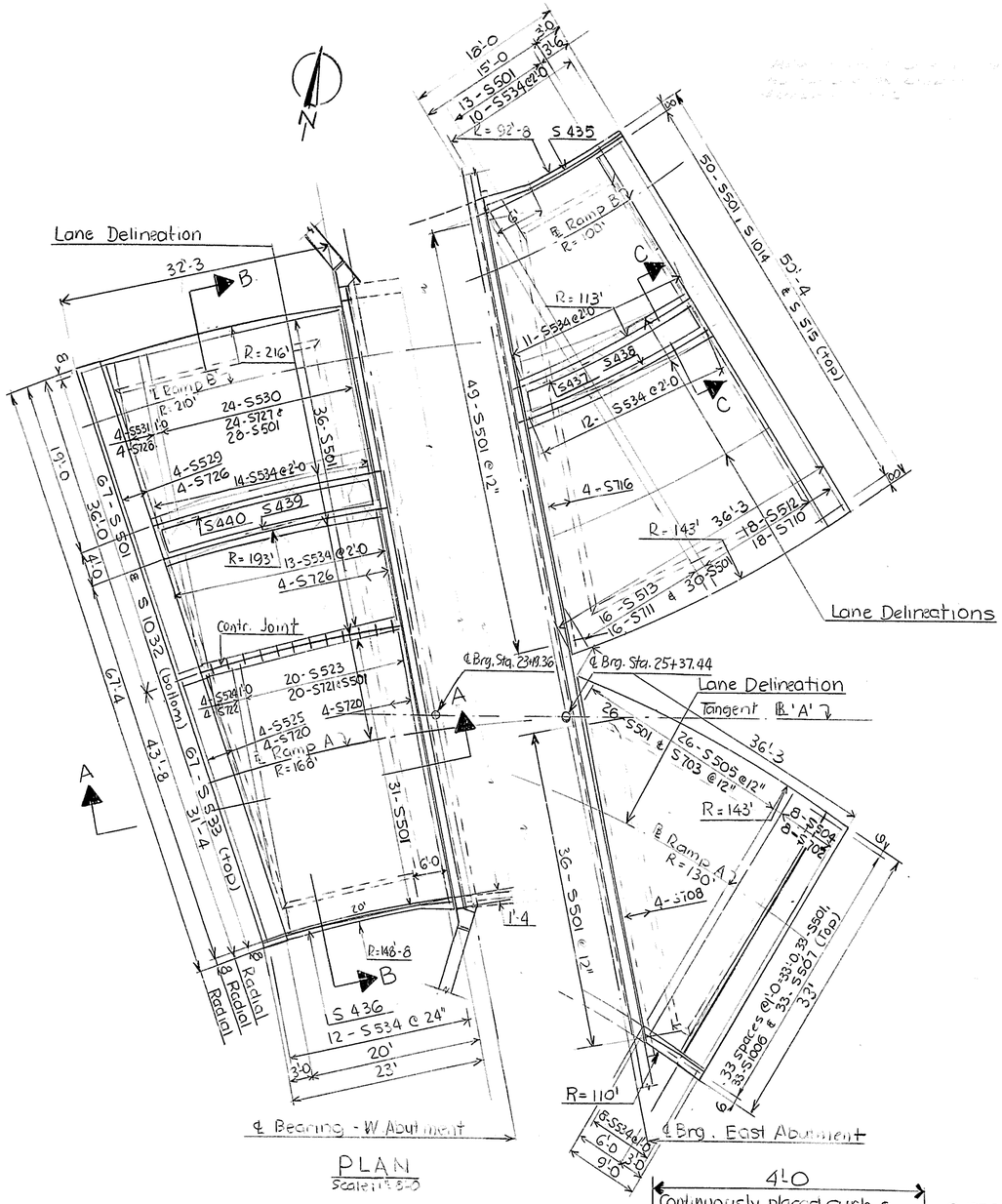
SUPER STRUCTURE
PREF. EXPANSION JOINTS

D. BGS	SCALE	APPROVED BY:
T. BGS	as noted	BRIDGE ENGINEER
C.		

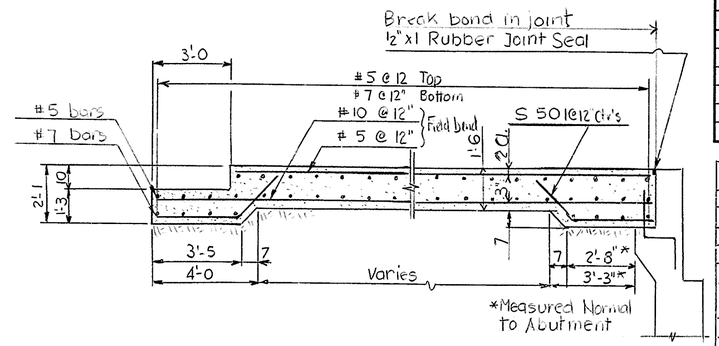
COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		15	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

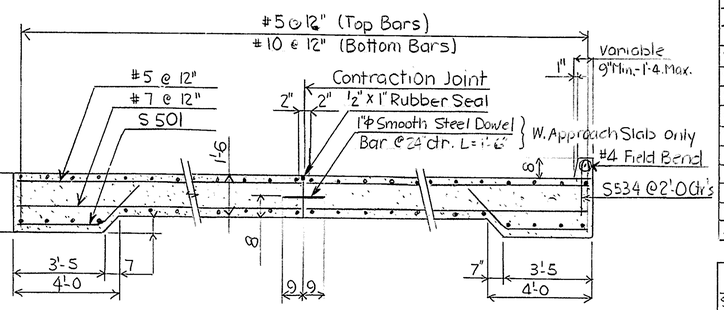
NO.	REVISIONS	BY	DATE



PLAN
Scale: 1" = 3'-0



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



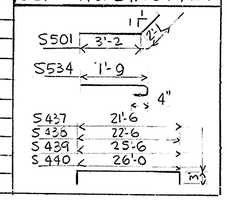
NOTE: 8" curb to be placed at low shoulder edge
Curb ties into Type A Catch Basin.

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

BAR SCHEDULE - E. & W. APPROACH SLAB

Straight Bars				Bent Bars			
MARK	SIZE	LENGTH	NUMBER	MARK	SIZE	LENGTH	NUMBER
S 702	7	32'-6	8	S 501	5	5'-3	419
S 703	7	2'-0 to 31'-0	26	S 534	5	2'-3	80
S 504	5	32'-6	8	S 435	4	17'-6	1
S 505	5	2'-0 to 31'-0	26	S 437	4	27'-6	1
S 1006	10	7'-0 to 35'-0	33	S 436	4	28'-9	1
S 507	5	4'-0 to 32'-0	33	S 439	4	31'-6	1
S 708	7	41'-0	4	S 440	4	32'-0	1
S 710	7	49'-10	18	S 436	4	22'-6	1
S 711	7	4'-6 to 46'-0	16				
S 512	5	49'-10	18				
S 513	5	4'-6 to 46'-0	16				
S 1014	10	17'-6 to 35'-0	50	STRAIGHT BARS			
S 515	5	14'-6 to 32'-0	50	S 1032	10	22'-0 to 31'-0	67
S 716	7	50'-0	4	S 533	5	19'-0 to 28'-0	67
Dowel	1" ϕ	1'-6	12				
S 720	7	30'-10	8				
S 721	7	30'-6	20				
S 722	7	4'-0 to 24'-6	4				
S 523	5	30'-6	20				
S 524	5	4'-0 to 24'-6	4				
S 525	5	30'-10	4				
S 726	7	35'-6	8				
S 727	7	35'-0	24				
S 728	7	10'-0 to 33'-6	4				
S 529	5	35'-6	4				
S 530	5	35'-0	24				
S 531	5	10'-0 to 33'-6	4				

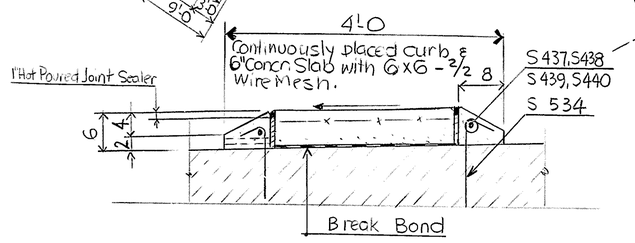
BENDING DIAGRAM



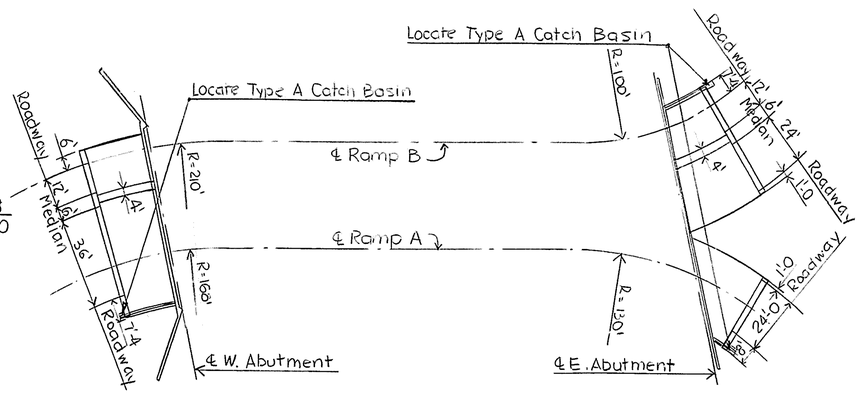
ESTIMATED QUANTITIES - E. & W. APPROACH SLAB

SECTION	ITEM	UNIT	PROPOSAL
602	P.C.C. Masonry - Approaches	C.Y.	250
605	Bar Reinforcement	Lbs.	~~[illegible]~~

NOTE: Field bend reinforcing bars as required for cross slope breaks in pavement. Cross slope changes will be at lane delineation lines. Costs for welded wire fabric include in Sect 602.



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



KEY PLAN
No Scale

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

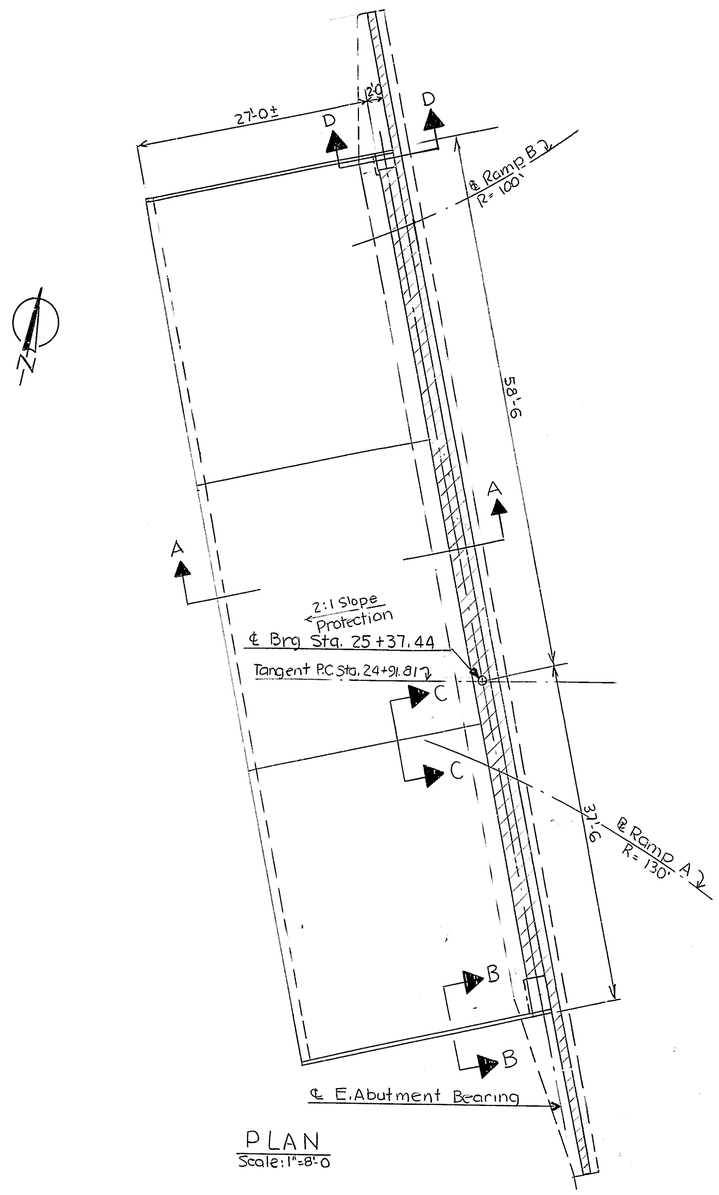
APPROACH SLABS

D. BGS	SCALE	APPROVED BY:
T. BGS	as shown	BRIDGE ENGINEER
C.		

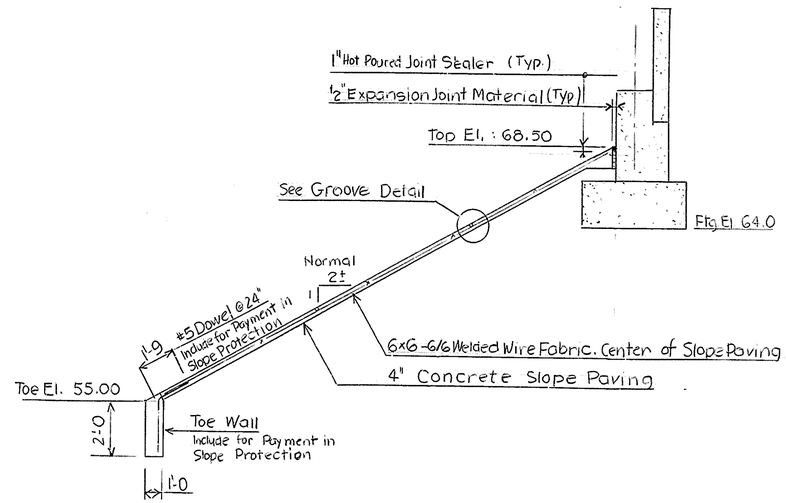
COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL		16	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

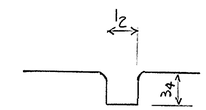
NO.	REVISIONS	BY	DATE
1	Added Sht No	CRL	3/1/78



PLAN
Scale: 1"=8'-0

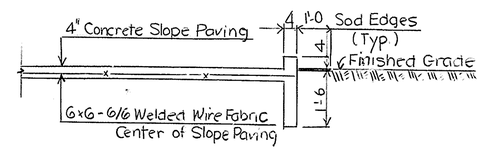


SECTION A-A
Scale: 1/4" = 1'-0

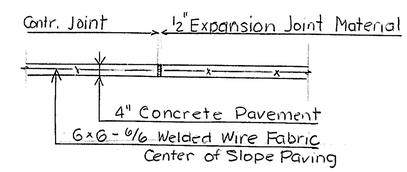


For Locations see Special Provisions

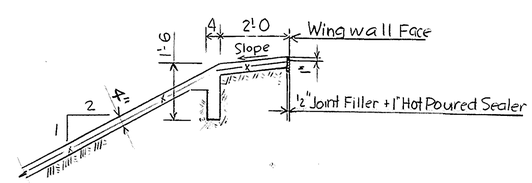
GROOVE DETAIL
No Scale



SECTION B-B
Scale: 1½" = 1'-0



SECTION C-C
Scale: ½" = 1'-0



SECTION D-D
Scale: ½" = 1'-0

△1

NOTE: For General Notes see Sheet 2

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

SLOPE PROTECTION

D. BGS T. BGS C.	SCALE as shown	APPROVED BY: H. P. Wilhelm BRIDGE ENGINEER

COUNTY	CONTRACT	P. R. A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL		17	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE

BORING NO H-1

STA. 13+10.00, 50' RIGHT OF ℄ SBL

Fig El ± W

ELEV. [feet]	DEPTH [feet]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO	SAMPLE BLOWS/6"
63.12	0				
			TOP SOIL		
			BRWN. TO GRAY SILT w/ some sand	1	3 7 6
60.0					
	5		REDDISH BRWN SANDY SILT w/ traces of clay	2	3 5 8
			REDDISH BRWN SILT w/ some clay and trace of sand	3	4 7 10
	10			4	4 7 12
50.0					
	15			5	5 10 16
			CLAYEY SILT, RED AND GRAY SILTY CLAY w/ sand lenses		
	20			6	6 11 16
40.0					
	25			7	7 14 21
	30			8	4 9 14
30.0					
	35			9	5 10 26
			BROWN & GRAY SANDY SILT w/trace organic material - moist		
	40			10	15 17 20
20.0					
	45		BROWN & GRAY SANDY SILT w/trace organic material - wet	11	10 16 20
	50		▼ WET	12	6 12 20
10.0					
	55		GRAY SILT w/ traces of clay, sand and organic material	13	5 12 25
	60			14	12 19 30
0.0					

BORING NO. H-8

STA. 13+80.00, 48' RIGHT OF ℄ SBL

Fig El ± W

ELEV. [ft]	DEPTH [ft]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO.	SAMPLE BLOWS/6"
64.72	0				
			TOP SOIL	1	3 5 7
			BRWN & GRAY SILT w/ traces of clay		
60.0	.5			2	9 9 14
			REDDISH BRWN. SILT w/ traces of silt	3	4 11 16
	10		VARIEGATED SILT w/ trace of fine sand	4	6 10 15
50.0	15		BRWN. SILTY FINE SAND w/ trace of mica	5	4 9 14
	20			6	4 7 9
			RED AND GRAY CLAYEY SILT w/ trace of sand - wet		
40.0	25			7	4 8 12
	30			8	6 9 18
30.0	35		GRAY SILTY FINE SAND w/ trace of mica	9	6 11 14
	40		WHITE FINE SAND w/ trace of mica	10	6 21 33
20.0	45		DARK, GRAY F/M SAND	11	11 19 29
	50		DARK, GRAY F/M SAND w/ trace of silt and organic	12	11 19 30
10.0	55		GRAY FINE SAND w/ organic	13	20 41 45
	60		GRAY FINE SAND w/ silt & org.	14	19 31 50
0.0					

BORING NO. H-2

STA. 13+15.00, 35' LEFT OF ℄ SBL

Fig. El. ± Pier W

ELEV. [ft]	DEPTH [ft]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO	SAMPLE BLOWS/6"
66.03	0				
			TOP SOIL	1	5 5 6
			BRWN & GRAY SILT w/ trace of sand		
60.0	5			2	6 26 26
			BRWN & GRAY SILT w/ trace of sand & clay	3	10 15 15
	10			4	5 9 13
	15			5	4 10 15
50.0					
			RED & GRAY SILTY CLAY w/ trace of sand lenses		
	20			6	6 10 14
	25			7	4 10 15
40.0					
	30		RED & GRAY CLAY w/ traces of silt & fine sand lenses	8	5 7 10
	35			9	4 12 18
30.0					
			BROWN AND GRAY FINE/MEDIUM SAND		
	40			10	10 19 19
			BRWN AND GRAY SILTY FINE SAND		
20.0	45		GRAY F/M SAND w/ some silt	11	11 15 18
	50			12	16 26 37
			GRAY FINE SAND w/ some silt		
10.0	55			13	17 21 28
	60			14	17 32 52

BORING DATA:

Weight of Casing Hammer:	300 lbs
Average Fall:	18 in
Casing Diameter:	in
Weight of Sample Hammer:	140 lbs
Average Fall:	30 in
Type of Sampler:	(Split Spoon)
Sampler Diameter:	2 in
Sampler Length:	in
Date of Borings:	
Boring No: H-1 through 8	April 1977
Boring Locations:	

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURAL BORINGS

D. BGS	SCALE	APPROVED BY:
T. BGS	VERTICAL: 1" = 5'-0"	H. C. Wilhelm
C.		BRIDGE ENGINEER

COUNTY	CONTRACT	P. R. A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL		18	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE

BORING NO H-7

STA. 13+85.00; 30' LEFT OF ℄ SBL

Water Elev. Elev. 1 Prev W

ELEV. [ft]	DEPTH [ft]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO	SAMPLE BLOWS/6"
66.04	0				
			TOP SOIL		
			GRAY & BRWN CLAYEY SILT w/ trace of mica	1	3 3 5
60.0	5		BRWN & GRAY CLAYEY SILT w/ sand and mica	2	5 7 9
				3	4 6 9
	10		BRWN & GRAY SANDY SILT w/ tr. of gravel & mica	4	3 13 11
50.0	15		BRWN & GRAY SILT w/ sand lenses – wet	5	8 9 11
	20		VARIEGATED CLAYEY SILT w/ traces of sand	6	6 9 14
40.0	25			7	4 6 11
	30			8	6 9 12
30.0	35		DARK GRAY CLAYEY SILT w/ traces of mica	9	4 10 15
	40		GRAY & BRWN F/M SAND	10	12 28 32
20.0	45		ALTERNATE LAYERS OF GRAVEL, SAND AND SILT w/ organic	11	12 12 25
	50		GRAY FINE SAND w/ silt and organic matter	12	14 20 24
10.0	55			13	20 28 49
	60			14	14 29 50
0.0					

BORING NO. H-3

STA. 13+00.00; 52' LEFT OF ℄ NBL

Elev. 1 Prev E

ELEV. [ft]	DEPTH [ft]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO.	SAMPLE BLOWS/6"
68.68	0		TOP SOIL & FILL	1	2 3 5
	5		BRWN & GRAY SILT w/ trace of clay and sand	2	11 15 18
60.0	10			3	3 6 8
	15			4	8 15 24
50.0	20		RED & GRAY SILTY CLAY	5	5 8 12
	25			6	6 8 11
40.0	30			7	5 9 11
	35		GRAY SANDY SILT	8	4 7 10
30.0	40		BRWN AND GRAY VERY FINE SAND	9	6 17 19
	45		GRAY SANDY SILT	10	5 17 33
20.0	50			11	3 7 17
	55		BRWN & GRAY SANDY SILT w/ trace of coal & wood – wet	12	10 10 17
10.0	60			13	7 15 25
	65			14	8 30 54
0.0					

BORING NO H-6

STA 13+60.00; 50' LEFT OF ℄ NBL

Elev. 1 Prev E

ELEV. [ft]	DEPTH [ft]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO	SAMPLE BLOWS/6"
66.97	0		TOP SOIL	1	3 8 12
	5		BRWN & GRAY SILT w/ trace of gravel	2	6 8 14
60.0			RED BRWN & GRAY SILT w/ trace fine sand	3	2 6 8
	10		VARIEGATED CLAYEY SILT	4	4 9 14
50.0	15			5	5 9 15
	20			6	4 6 9
40.0	25			7	4 9 12
	30			8	5 7 12
30.0	35		GRAY SILT w/ traces of sand & mica	9	5 9 16
	40		RED & GRAY CLAYEY SILT	10	4 8 10
20.0	45		GRAY SILT w/ traces of sand & mica	11	5 12 18
	50		GRAY SANDY SILT w/ mica	12	11 18 21
10.0	55			13	6 22 30
	60		GRAY SILT w/ some sand and wood	14	8 17 19
0.0					

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURAL BORINGS

D. BGS	SCALE	APPROVED BY:
T. BGS	VERTICAL: 1"=5'-0	H. R. Wuchnell BRIDGE ENGINEER
C.		

COUNTY	CONTRACT	P.R.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
New Castle	76-12-005	2	DEL.		19	29

ROUTE 7 RE-ALIGNMENT & FLY-OVER BRIDGE NO. 223

NO.	REVISIONS	BY	DATE

BORING NO. H-4

STA. 12+95.00; 110' LEFT OF ℄ NBL

Ftg. El. ±

ELEV. [ft]	DEPTH [ft]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO.	SAMPLE BLOWS/6"
65.85	0		TOP SOIL		
	5		BRWN & GRAY SILT w/ some sand	1 2 3	5 8 12 7 15 13 3 9 15
60.0	10		BRWN & GRAY SILT w/ trace of sand	4	5 10 14
50.0	15			5	5 8 10
	20		RED SILTY CLAY (NO REC. LARGE PIECE OF GRAVEL BLOCKING SAMPLE IN SPOON)	6	4 6 9
40.0	25		RED AND GRAY SILTY CLAY w/ trace of sand	7	2 7 9
	30			8	4 7 8
30.0	35		BRWN & GRAY SILTY FINE SAND w/ traces of mica	9	6 20 26
	40		RED AND GRAY CLAYEY SILT	10	5 12 16
20.0	45		GRAY SILT w/ traces of fine sand & mica	11	6 16 21
	50		DARK GRAY SILT w/ trace of mica - wet	12	6 11 18
10.0	55		GRAY FINE SAND w/ silt and traces organic material	13	13 20 33
	60		GRAY FINE SAND w/ trace of silt & organic material	14	6 22 31
0.0					

BORING NO. H-5

STA. 13+75.00; 118' LEFT OF ℄ NBL

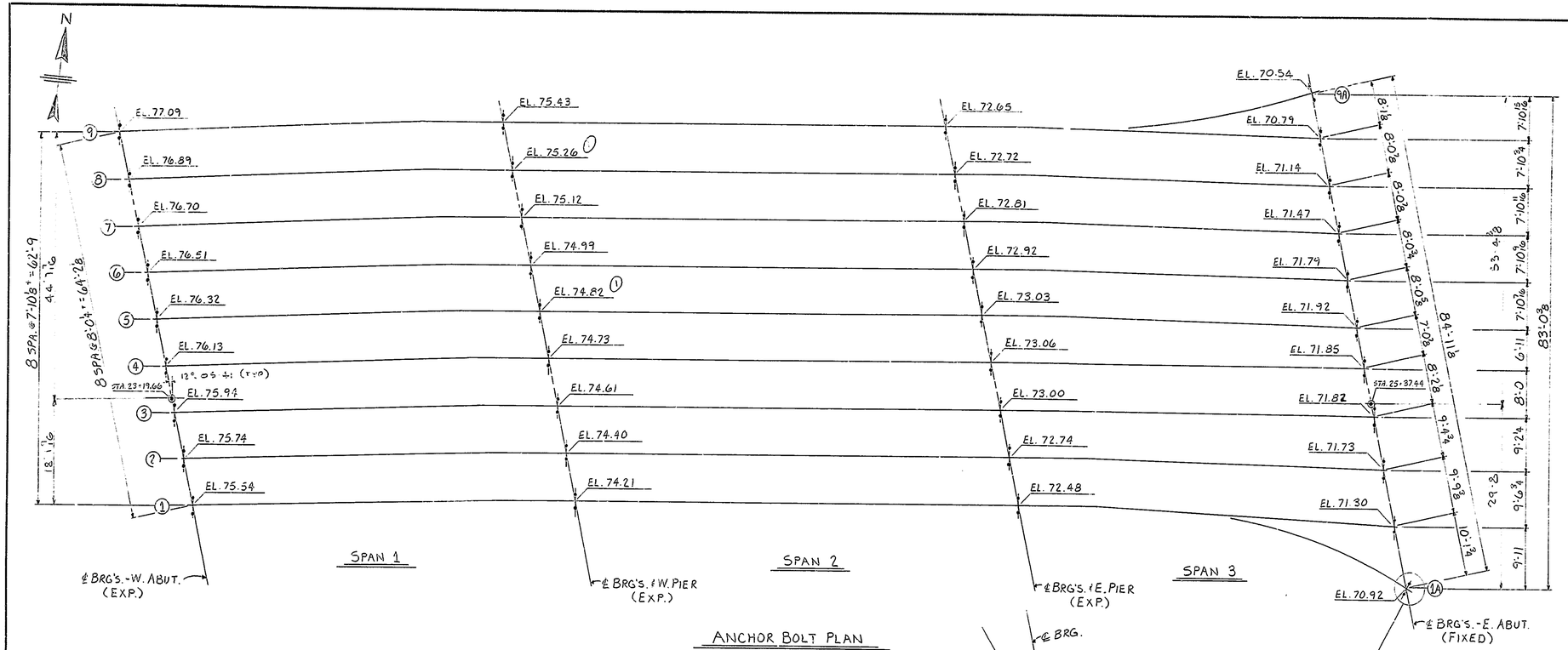
Ftg. El. ±

ELEV. [ft]	DEPTH [ft]	CASING BLOWS	SAMPLE DESCRIPTION	SAMPLE NO	SAMPLE BLOWS/6"
68.29	0		TOP SOIL		
	5		BRWN & GRAY SILT w/ trace of sand	1 2 3	3 10 15 3 8 8 3 5 6
60.0	10		RED & GRAY CLAYEY SILT w/ trace of sand	4	3 10 16
	15			5	5 10 14
50.0	20			6	5 8 14
	25			7	4 8 10
40.0	30			8	4 6 11
	35			9	6 13 16
30.0	40		GRAY SANDY SILT	10	5 13 20
	45			11	7 12 15
20.0	50			12	6 12 17
	55		GRAY F/M SAND w/ trace of silt & coal - wet	13	12 27 32
10.0	60			14	5 16 37
0.0					

DELAWARE
DEPARTMENT OF HIGHWAYS & TRANSPORTATION
DIVISION OF HIGHWAYS

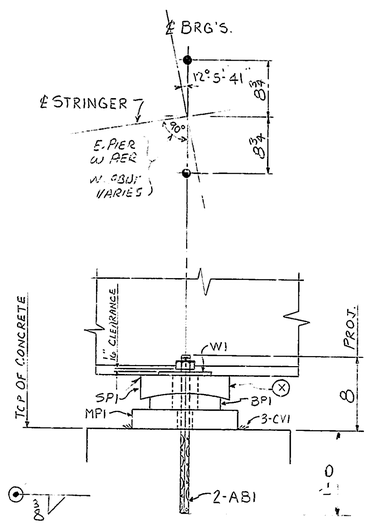
STRUCTURAL BORINGS

D. BGS T. BGS C.	SCALE VERTICAL: 1" = 5'-0	APPROVED BY: H. I. Wakefield BRIDGE ENGINEER

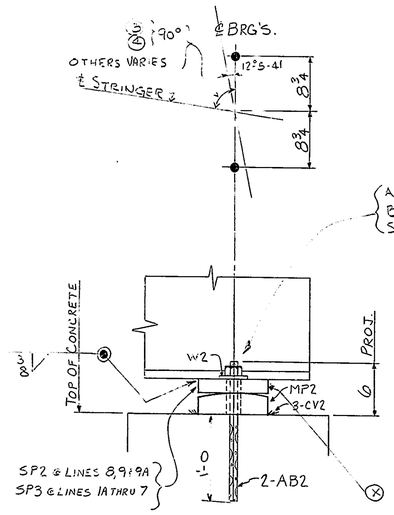


ANCHOR BOLT PLAN

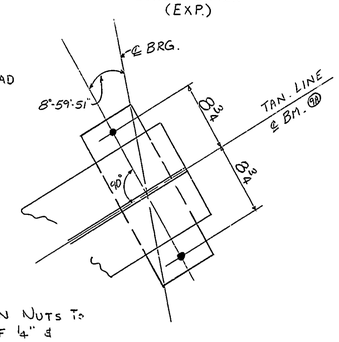
ELEVATIONS SHOWN ARE TO TOP OF CONCRETE PAD
DIMENSIONS SHOWN ARE HORIZONTAL



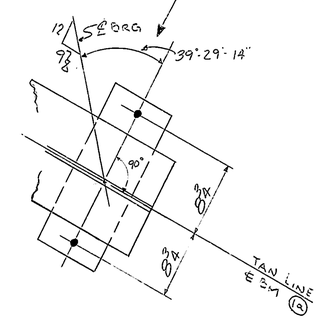
EXPANSION BEARINGS
(W. ABUT.)
(W. PIER.)
(E. PIER.)



FIXED BEARINGS
(E. ABUT.)



LINE 9A



LINE 1A

NOTE:
⊗ SOLE PL MARKINGS FOR LOCATION SEE SHT 1 OF 19

GENERAL NOTES

SPECIFICATION REFERENCES:

DELAWARE STATE HIGHWAY DEPT. STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, 1974. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AASHO 1977. CONTRACT SPECIAL PROVISIONS.

MATERIAL:

STRUCTURAL STEEL — — — ASTM A588
BRONZE — — — — — — B22 ALLOY A
ANCHOR BOLTS — — — — ASTM A588
CANVAS — — — — — — D230, NO. 10, 14 oz.
FIELD CONNECTIONS — — ⅞" ø A325 WEATH-R BOLTS AND FIELD WELDED AS NOTED.

PAINT:

NONE

WELDING:

IN ACCORDANCE WITH AWS D1.1-72 (INCLUDING REVISION 1-73) AS MODIFIED BY ASSHTO 1974 STD. SPEC. FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES.

WELD INSPECTION:

MAGNETIC PARTICLE IN ACCORDANCE WITH ASTM E109.

CLEANING:

WHERE INDICATED ON DETAIL DRAWINGS THE STEEL SHALL BE SANDBLAST CLEANED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL SURFACE PREPARATION SPEC. "NO. 6 COMMERCIAL BLAST CLEANING" SSPC-SP6-63. AFTER FABRICATION REMOVE ALL SHOP DETAIL MARKS & ANY OTHER FOREIGN MATTER BY HAND CLEANING.

FIELD SPLICE:

MAIN MATERIAL GREATER THAN ⅝ THICK ASSEMBLED & REAMED IN THE SHOP AS NOTED ⊠ ON THE DRAWINGS. HOLES SUB-DRILLED 11/16" ø & REAMED TO 13/16" ø OR DRILLED 15/16" ø FROM THE SOLID WITH CONNECTING PARTS ASSEMBLED.

NOTCH TOUGHNESS:

NOTCH TOUGHNESS OF STRINGERS & SPLICE PLATES TO BE IN ACCORDANCE WITH DELAWARE D.O.T. SPECIAL PROVISIONS SECT 606

SHEAR CONNECTORS:

TO BE FURNISHED AND INSTALLED BY OTHERS.

EXPANSION DAMS:

TO BE FURNISHED AND INSTALLED BY OTHERS.

STIFFENERS:

BRG STIFF MILLED @ BOTT FLG (NO WELD) & TIGHT FIT @ TOP FLG.
INTERIOR STIFFENERS TO HAVE A TIGHT FIT @ TOP & BOTT. FLG.

NOTE:
SOLE PLATES SP1, SP2 & SP3 ARE FIELD WELDED TO STRINGERS.

76-12-005

ANC. BOLTS MAY BE CAST IN PLACE, USING TEMP. FOR POSITIONING. IMMEDIATELY AFTER THE CONC. HAS ATTAINED ITS INITIAL SET THE ANC BOLTS SHALL BE THOROUGHLY COATED WITH AN APPROVED HVY GREASE & SECURELY WRAPPED IN BURLAP

NO.	DATE	REVISIONS	BY
1	3-8-78	REVISED LOCATION OF SOLE PL @ LINES 9A & 1A, ELEV. CHANGES & WEST PIER LINE 5 & 6	D.D.

STATE CONTRACT #76-12-005 SHEETS 1 THRU 29

ANCHOR BOLT PLAN

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I-BEAM BRIDGE ROUTE 7 RE-ALIGNMENT AND BRIDGE NO. 233 NEW CASTLE COUNTY, DELAWARE

APPROVED

CONTRACTOR: NESHAMINY CONSTRUCTORS, INC.

ARCHITECT: DEL. DEPT. OF HIGHWAYS & TRANSPORTATION

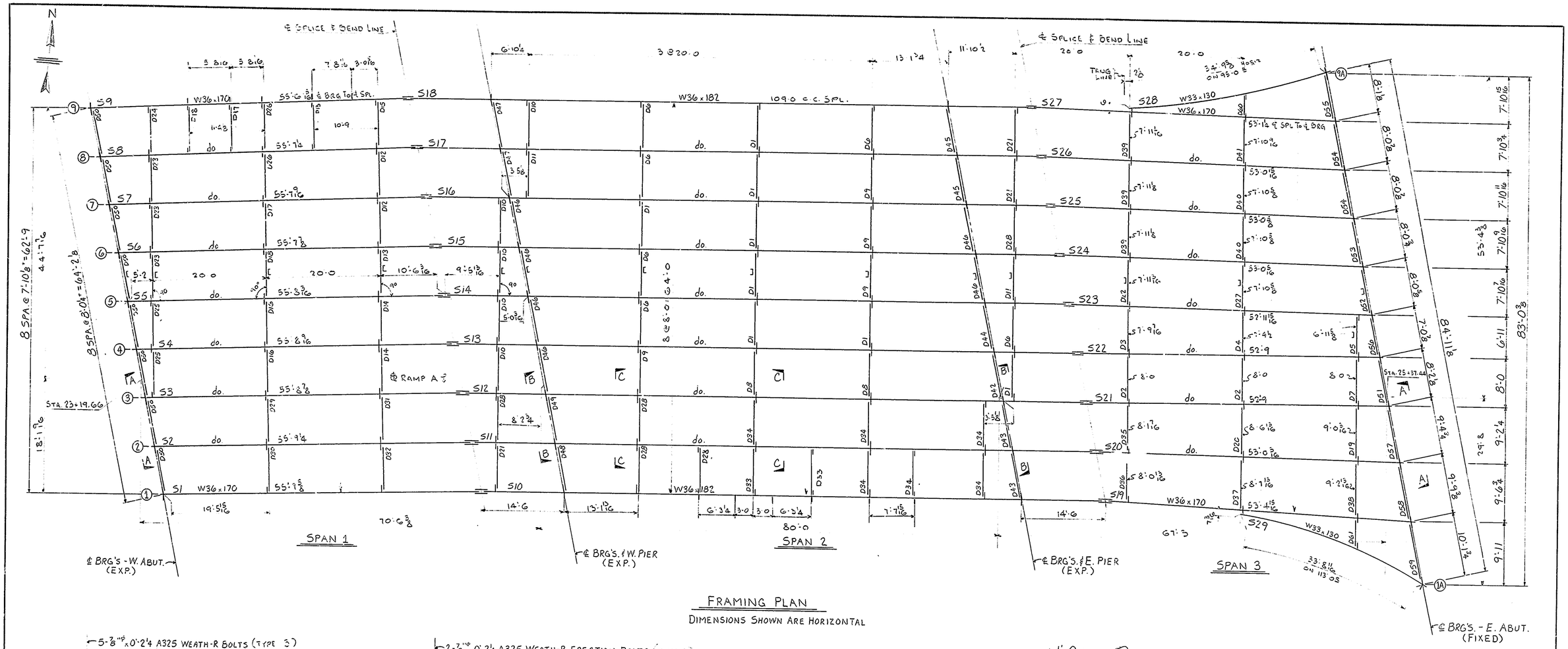
CONTRACT NO. 557

DRAWN BY: D. D. DATE 8-31-77

CHECKED BY: T DATE 11-11-77

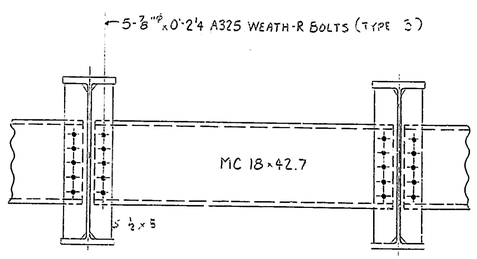
DRAWING NO. E1

Capitol Blue Print Co. 19 1153-0010

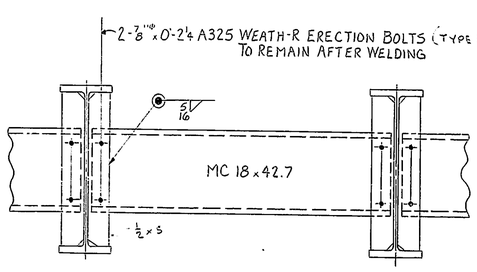


FRAMING PLAN

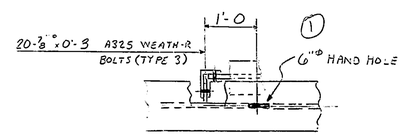
DIMENSIONS SHOWN ARE HORIZONTAL



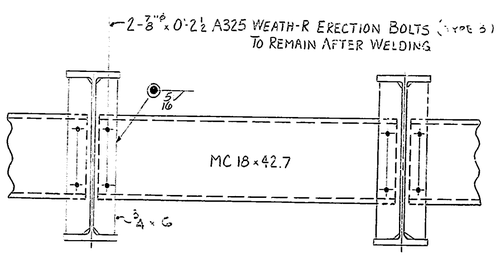
SECTION A-A



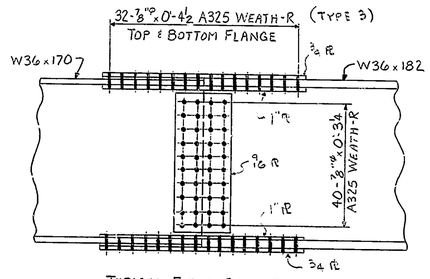
SECTION C-C



TYP CURVED BM. CONN



SECTION B-B



TYPICAL FIELD SPLICE

SEE SHEET E1 FOR GENERAL NOTES

NO.	DATE	REVISIONS	BY
1	5-8-78	REVISED TYP CURVED BEAM CONN. ADDED 6" HAND HOLE FOR ERECTION.	D.D

STATE CONTRACT # 76-12-005 SHEETS 1 THRU 29

FRAMING PLAN

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I-BEAM BRIDGE ROUTE 7 RE-ALIGNMENT AND BRIDGE NO. 233 NEW CASTLE COUNTY, DELAWARE

APPROVED: [illegible]

CONTRACTOR: NESHAMINY CONSTRUCTORS, INC.

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HIGHWAYS & TRANSPORTATION

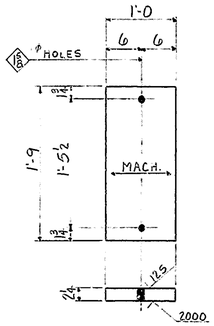
DRAWN BY: D.D. DATE 8-30-77

CHECKED BY: T DATE [illegible]-77

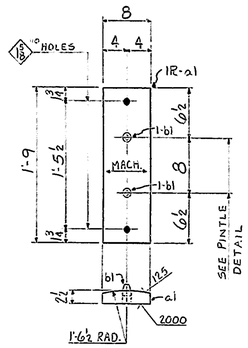
DRAWING NO. E2

IO	
BC	
F	
C	

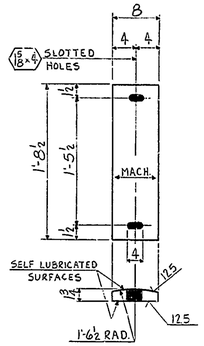
Capitol Blue Print Co. 19 1153-9010



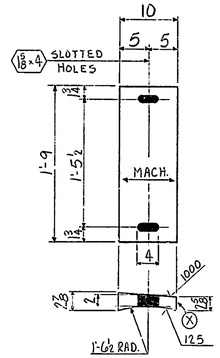
27 MASONRY PLATES - MP1



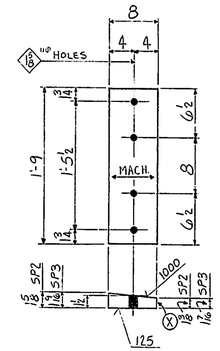
11 MASONRY PLATES - MP2



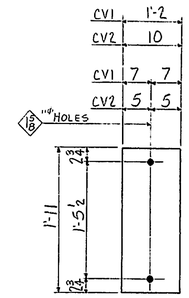
27 BRONZE PLATES - BP1



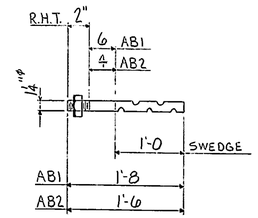
27 SOLE PLATES - SP1



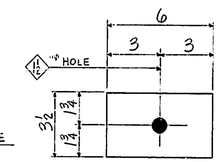
3 SOLE PLATES - SP2
8 SOLE PLATES - SP3



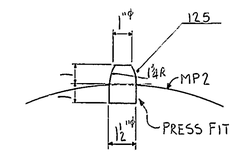
81 PCS. CANVAS - CV1
33 PCS. CANVAS - CV2



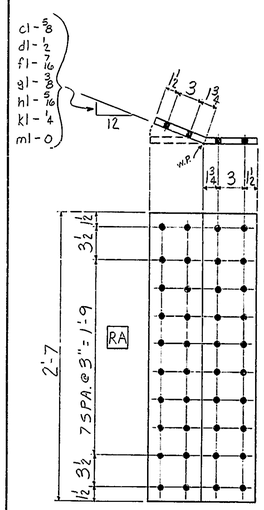
54 ANCHOR BOLTS - AB1
22 ANCHOR BOLTS - AB2



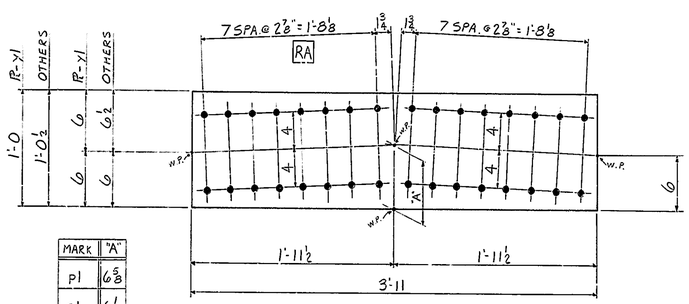
54 WASHERS - W1



DETAIL OF PINTLE - b1

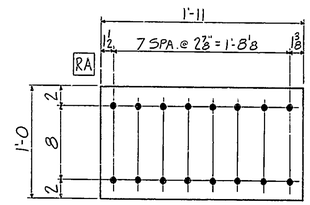


2 PLATES - c1
4 PLATES - d1
4 PLATES - f1
6 PLATES - g1
6 PLATES - h1
10 PLATES - k1
4 PLATES - m1

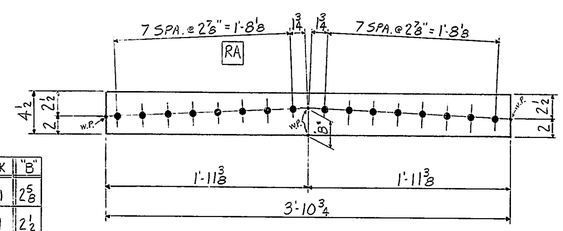


MARK	"A"
p1	6⅝
s1	6½
t1	6 7/16
v1	6⅜
w1	6 5/16
x1	6¼
y1	6

2 PLATES - p1
4 PLATES - t1
8 PLATES - w1
2 PLATES - s1
6 PLATES - v1
10 PLATES - x1
4 PLATES - y1

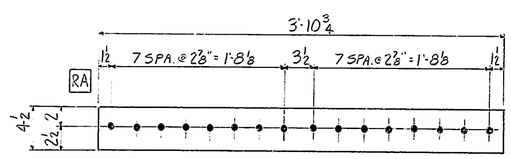


36 PLATES - ak1



MARK	"B"
aa1	2⅝
ab1	2½
ac1	2 7/16
ad1	2⅜
af1	2 5/16
ag1	2¼

4 PLATES - aa1
8 PLATES - ac1
16 PLATES - af1
4 PLATES - ab1
12 PLATES - ad1
20 PLATES - ag1



8 PLATES - ah1

4	PL's 1 x 4½ x 3'-10¾	aa1			1/27
4	PL's	ab1			1/27
8	PL's	ac1			1/27
12	PL's	ad1			1/27
16	PL's	af1			1/27
20	PL's	ag1			1/27
8	PL's 1 x 4½ x 3'-10¾	ah1			1/27
36	PL's ⅜ x 12 x 1'-11	ak1			1/29

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	MASONRY PLATES			1/25
27	PL's 2¼ x 12 x 1'-9	MP1	(M15)	2/1
	11 MASONRY PLATES - MP2			
11	PL's 2½ x 8 x 1'-9	a1	(M15)	2/5
22	PINTLES 1½" φ x 0'-2	b1		2/11
	BRONZE PLATES			
27	PL's 1¾ x 8 x 1'-8½	BP1	(M25) BRONZE 222 ALLOY B	2/9
	SOLE PLATES			
27	PL's 2⅞ x 10 x 1'-9	SP1	(M25)	2/7
3	PL's 1⅜ x 8 x 1'-9	SP2	(M25)	2/3
8	PL's 1 9/16 x 8 x 1'-9	SP3	(M25)	2/3
	CANVAS - D230, 14 oz.			
81	PCS. 14 x 1'-11	CV1		2/22
33	PCS. 10 x 1'-11	CV2		2/21
	54 ANCHOR BOLTS - AB1			
54	1¼" φ x 1'-8 SWEDGE BOLTS	AB1	SWEDGE 1'-0 RHT 2"	2/14
54	PL's ¼ x 3½ x 0'-6	W1		2/16
54	1¼" φ H.H. NUTS			2/14
	22 ANCHOR BOLTS - AB2			
22	1¼" φ x 1'-6 SWEDGE BOLTS	AB2	SWEDGE 1'-0 R.H.T. 2"	2/15
22	2½" O.D. x 1½" I.D. x ¼" THK. WASHER	W2		2/17
22	1¼" φ H.H. NUTS			2/15
5	GAL. RED LEAD PAINT		(FOR CANVAS)	2/27
	SPLICE PLATES			
2	PL's 9/16 x 12½ x 2'-7	c1		1/25
4	PL's	d1		1/25
4	PL's	f1		1/25
6	PL's	g1		1/25
6	PL's	h1		1/25
10	PL's	k1		1/25
4	PL's 9/16 x 12½ x 2'-7	m1		1/25
2	PL's ¾ x 12½ x 3'-11	p1		1/23
2	PL's	s1		1/23
4	PL's	t1		1/23
6	PL's	v1		1/23
8	PL's	w1		1/23
10	PL's ¾ x 12½ x 3'-11	x1		1/23
4	PL's ¾ x 12 x 3'-11	y1		1/23
	CONTINUED ABOVE			
	MAT'L. SPECS. ASTM A588 U.N.			

BEARINGS & SPLICE PLATES

PAINT NOTE:

MACHINED SURFACES SHALL BE COATED WITH RUST PREVENTATIVE COMPOUND HOUGHTON'S COSMOLINE #1060, CLASS 1.

SHOP NOTE:

MARK (X) ON SOLE PLATES AS INDICATED.

OPEN HOLES: 15/16" φ HOLES U.N.

SHOP CONN: NONE

SHOP PAINT: NONE - SEE PAINT NOTE

ERECTION: BY OTHERS

SEE SHEET E1 FOR GENERAL NOTES

STATE CONTRACT #76-12-005 SHEETS 1 THRU 29

NO.	DATE	REVISIONS	BY

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I-BM. BRIDGE ROUTE 7 RE-ALIGNMENT AND BRIDGE NO. 233 NEW CASTLE COUNTY, DELAWARE

APPROVED: 3-1-78

CONTRACTOR: NESHAMINY CONSTRUCTORS, INC.

CONTRACT NO. 557

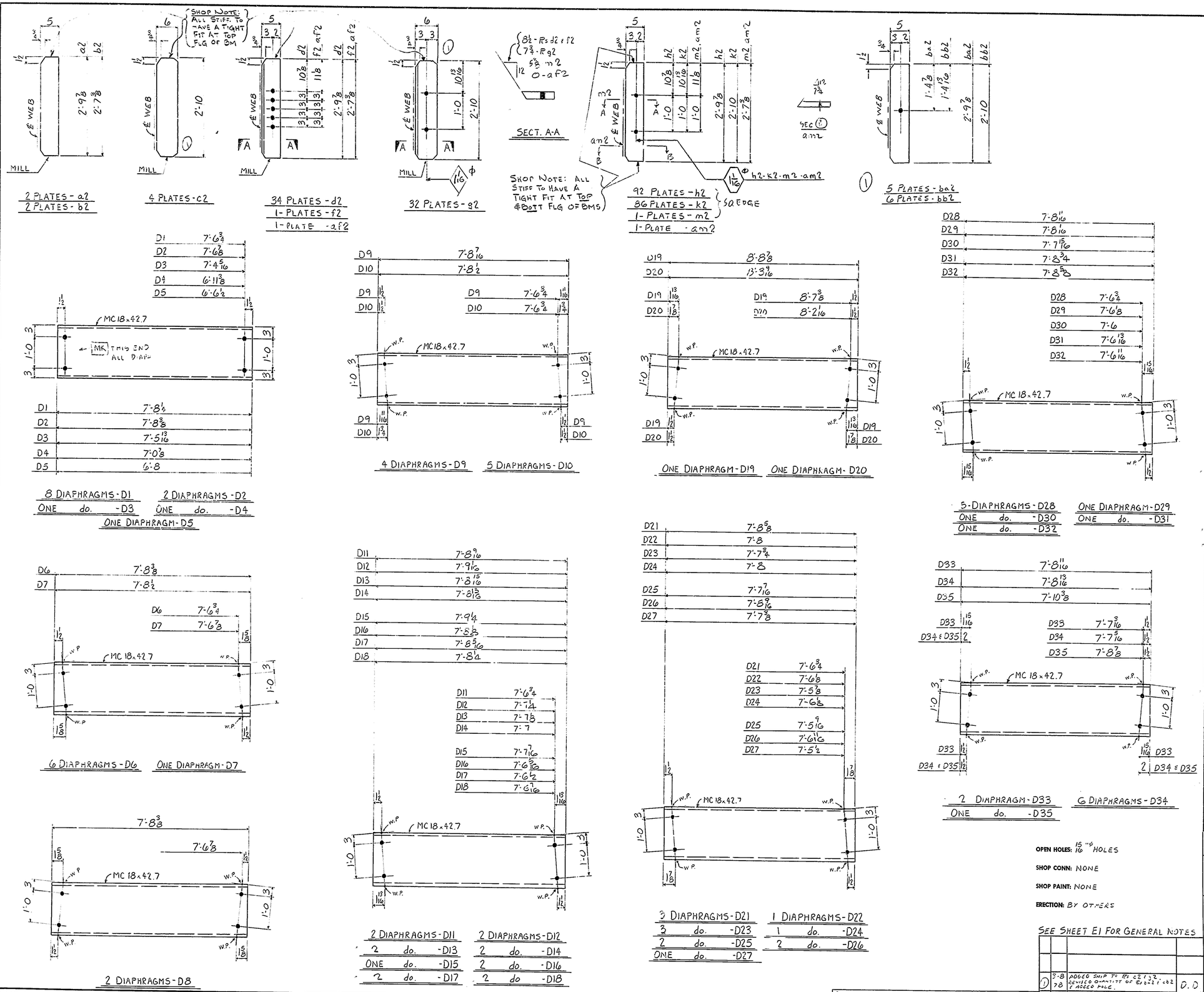
ARCHITECT: DEL. DEPT. OF HIGHWAYS & TRANSPORTATION

DRAWN BY: D.D. DATE 9-1-77

CHECKED BY: T DATE 9-1-77

DRAWING NO. 1 of 19

Capital Blue Print Co. 19 1157-9010



BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	PLATES			
2	PL ½ x 5 x 2'-9⅞	a2		1/20
2	PL ½ x 5 x 2'-7⅜	b2		1/20
4	PL ¾ x 6 x 2'-10	c2		1/22
34	PL ½ x 5 x 2'-9⅞	d2		1/20
1	PL ½ x 5 x 2'-7⅜	f2		1/20
32	PL ¾ x 6 x 2'-10	g2		1/22
92	PL ½ x 5 x 2'-9⅞	h2		1/20
86	PL ½ x 5 x 2'-10	k2		1/20
1	PL ½ x 5 x 2'-7⅜	m2		1/20
1	⊥	af2		1/20
1	⊥	am2		1/20
5	PL ½ x 5 x 2'-9⅞	ba2		
6	PL ½ x 5 x 2'-10	bb2		
	DIAPHRAGMS			
8	MC 18 x 42.7 x 7'-8¼	D1		1/13
2	x 7'-8⅜	D2		1/13
ONE	x 7'-5 13/16	D3		1/13
ONE	x 7'-0⅞	D4		1/13
ONE	x 6'-8	D5		1/13
6	x 7'-8⅜	D6		1/13
ONE	x 7'-8½	D7		1/13
2	x 7'-8⅜	D8		1/13
4	x 7'-8 7/16	D9		1/13
5	x 7'-8½	D10		1/13
2	x 7'-8 9/16	D11		1/13
2	x 7'-9 1/16	D12		1/13
2	x 7'-8 15/16	D13		1/13
2	x 7'-8 13/16	D14		1/13
ONE	x 7'-9¼	D15		1/13
2	x 7'-8⅝	D16		1/13
2	x 7'-8 5/16	D17		1/13
2	x 7'-8¼	D18		1/13
ONE	x 8'-8⅞	D19		1/15
ONE	x 8'-3 9/16	D20		1/15
3	x 7'-8⅝	D21		1/13
1	x 7'-8	D22		1/13
3	x 7'-7¾	D23		1/13
1	x 7'-8	D24		1/13
2	x 7'-7 7/16	D25		1/13
2	x 7'-8 9/16	D26		1/13
ONE	x 7'-7⅜	D27		1/13
5	x 7'-8 11/16	D28		1/13
ONE	x 7'-8 1/16	D29		1/13
ONE	x 7'-7 15/16	D30		1/13
ONE	x 7'-8¾	D31		1/13
ONE	x 7'-8⅝	D32		1/13
2	x 7'-8 11/16	D33		1/13
6	x 7'-8 13/16	D34		1/13
ONE	MC 18 x 42.7 x 7'-10⅜	D35		1/13
	MAT'L. SPECS. ASTM A588			

PLATES & DIAPHRAGMS

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I-BEAM BRIDGE
ROUTE 7 RE-ALIGNMENT AND BRIDGE NO. 233
NEW CASTLE COUNTY, DELAWARE

APPROVED: [illegible]

CONTRACTOR: NESHAMINY CONSTRUCTORS, INC.

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HIGHWAYS & TRANSPORTATION

DRAWN BY: D. D. DATE 10-4-77

CHECKED BY: T DATE [illegible]-77

DRAWING NO. 2 of 19

OPEN HOLES: 15/16" HOLES

SHOP CONN: NONE

SHOP PAINT: NONE

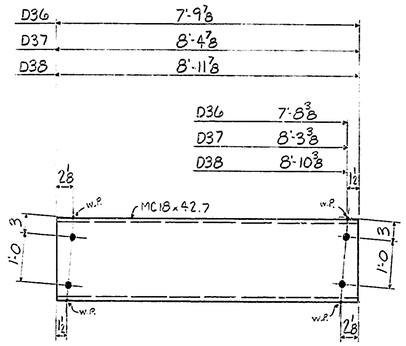
ERECTION: BY OTHERS

SEE SHEET E1 FOR GENERAL NOTES

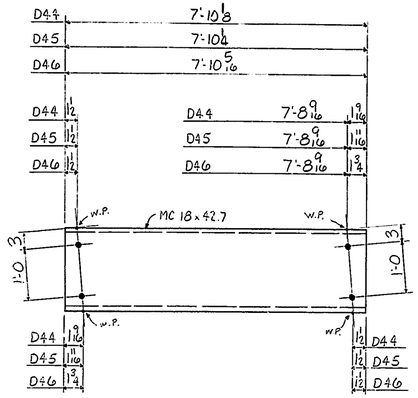
NO.	DATE	REVISIONS	BY
D	3-8-78	ADDED SHIP TO PL C2 & F2. REVISED QUANTITY OF PL b2 & f2 & ADDED HOLE.	D. D

STATE CONTRACT #76-12-005 SHEETS 1 THRU 29

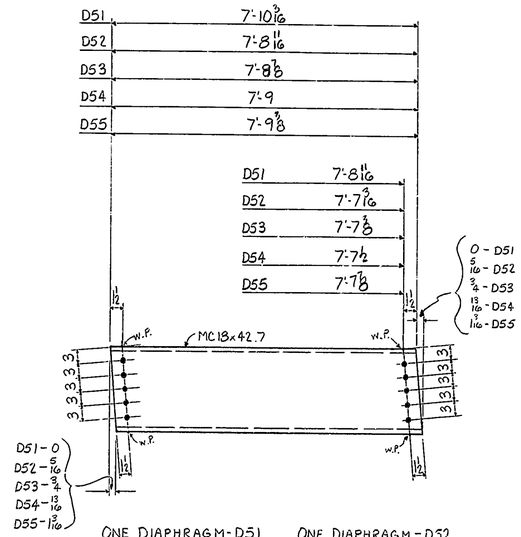
Capitol Blue Print Co. 19 1153-9010



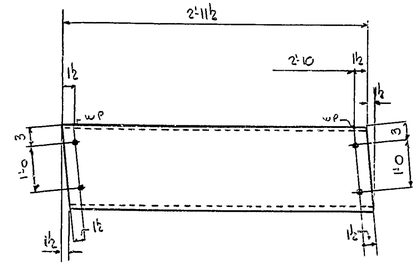
ONE DIAPHRAGM-D36
ONE do. -D38
ONE DIAPHRAGM-D37



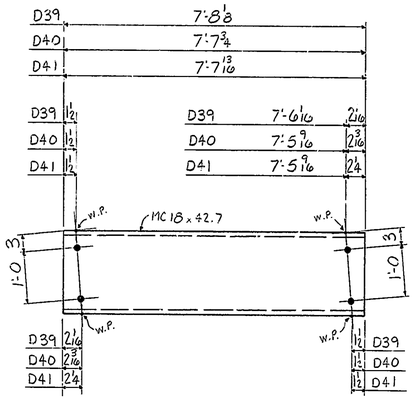
ONE DIAPHRAGM-D44
6 do. -D46
2 DIAPHRAGMS-D45



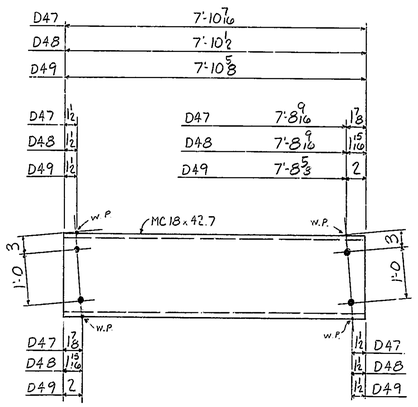
ONE DIAPHRAGM-D51
ONE do. -D53
ONE do. -D55
ONE DIAPHRAGM-D52
2 do. -D54



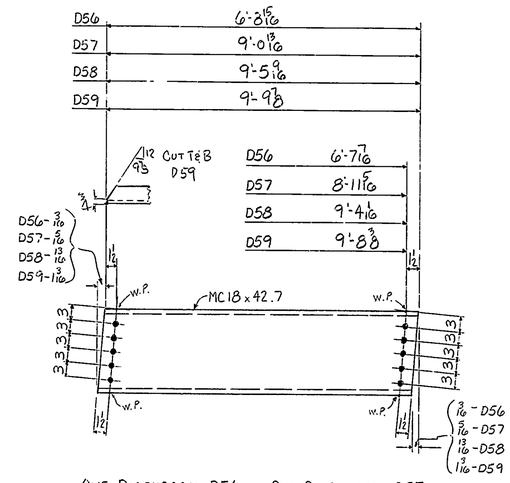
ONE- DIAPHRAGM- DG0



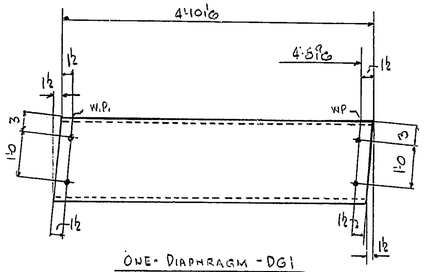
3 DIAPHRAGMS-D39
ONE do. -D41
2 DIAPHRAGMS-D40



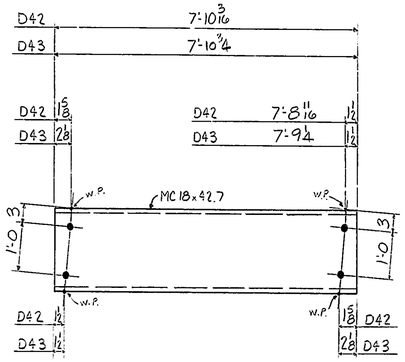
2 DIAPHRAGMS-D47
ONE -D49
ONE DIAPHRAGM-D48



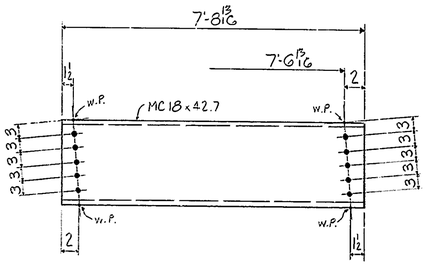
ONE DIAPHRAGM-D56
ONE do. -D58
ONE DIAPHRAGM-D57
ONE do. -D59



ONE- DIAPHRAGM -DG1



ONE DIAPHRAGM-D42
2 DIAPHRAGMS-D43



8 DIAPHRAGMS-D50

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	DIAPHRAGMS			
ONE	MC 18 x 42.7 x 7'-9 7/8	D36		1/13
ONE	x 8'-4 7/8	D37		1/16
ONE	x 8'-11 7/8	D38		1/16
3	x 7'-8 3/8	D39		1/13
2	x 7'-7 3/4	D40		1/13
ONE	x 7'-7 13/16	D41		1/13
ONE	x 7'-10 5/16	D42		1/14
2	x 7'-10 3/4	D43		1/14
ONE	x 7'-10 1/8	D44		1/14
2	x 7'-10 1/4	D45		1/14
6	x 7'-10 5/16	D46		1/14
2	x 7'-10 7/16	D47		1/14
ONE	x 7'-10 1/2	D48		1/14
ONE	x 7'-10 5/8	D49		1/14
8	x 7'-8 13/16	D50		1/14
ONE	x 7'-10 3/16	D51		1/14
ONE	x 7'-9	D52		1/14
ONE	x 7'-9 5/8	D53		1/14
2	x 7'-9 13/16	D54		1/14
ONE	x 7'-10 7/8	D55		1/14
ONE	x 6'-9 7/8	D56		1/12
ONE	x 9'-1 7/8	D57		1/16
ONE	x 9'-6 3/8	D58		1/17
ONE	MC 18 x 42.7 x 9'-11 1/16	D59		1/18
ONE	x 3'-1	DG0		1/10
ONE	x 4'-11 9/16	DG1		
	MAT'L. SPECS. A.S.T.M. A588			

DIAPHRAGMS

OPEN HOLES: 15/16" HOLES

SHOP CONN: NONE

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHEET E1 FOR GENERAL NOTES

STATE CONTRACT #76-12-005 SHEETS 1 THRU 29

NO.	DATE	REVISIONS	BY

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I-BEAM BRIDGE ROUTE 7 RE-ALIGNMENT AND BRIDGE NO. 233 NEW CASTLE COUNTY, DELAWARE

APPROVED: [illegible] 3-1-78

CONTRACTOR: NESHAMINY CONSTRUCTORS, INC.

ARCHITECT: DEL. DEPT. OF HIGHWAYS & TRANSPORTATION

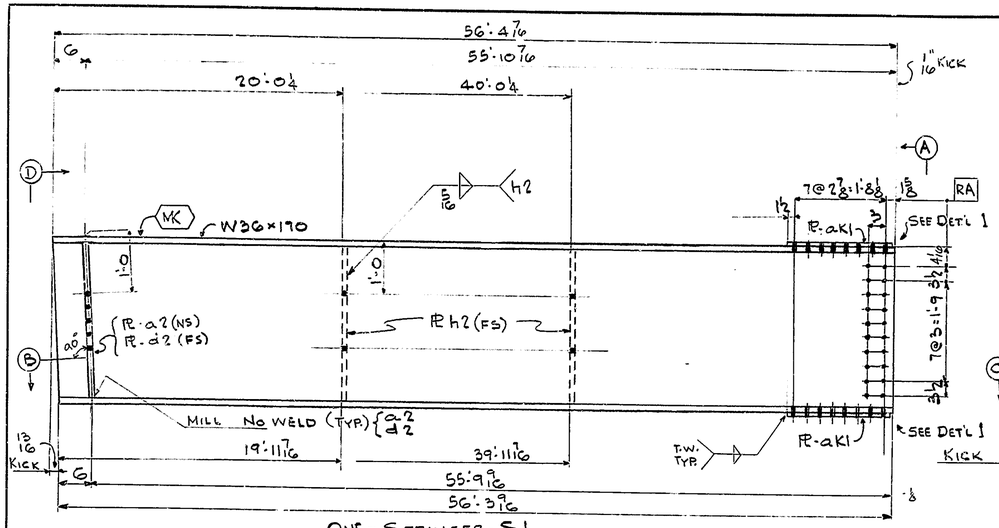
CONTRACT NO. 557

DRAWN BY: D. D. DATE 10-6-77

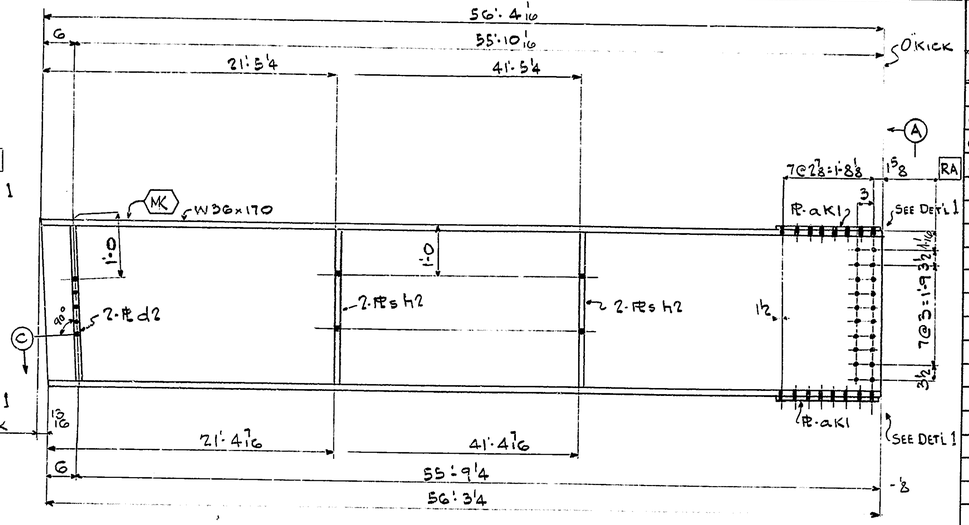
CHECKED BY: T DATE 11-11-77

DRAWING NO. 3 of 19

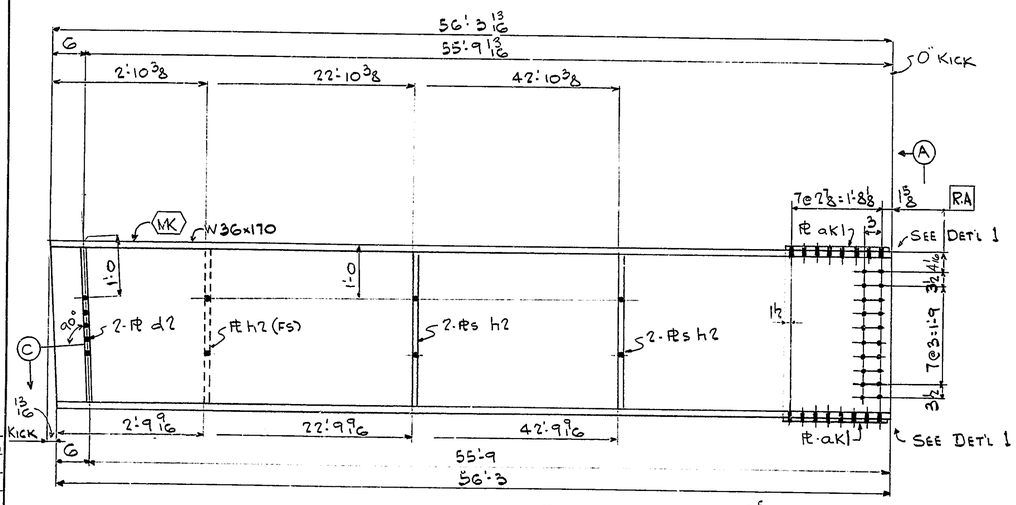
Capital Blue Print Co. 17 1153-9919



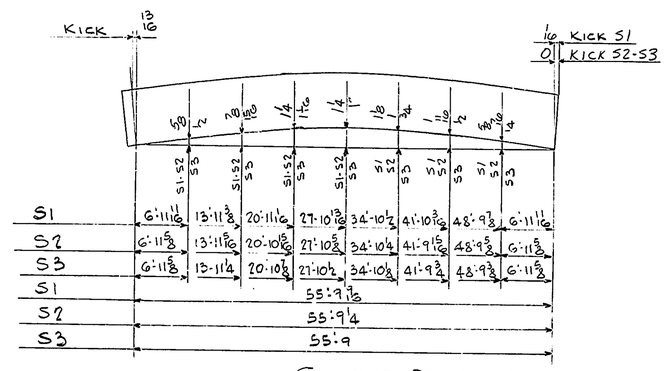
ONE-STRINGER-S1



ONE-STRINGER-S2

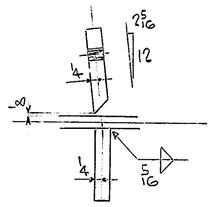


ONE STRINGER-S3

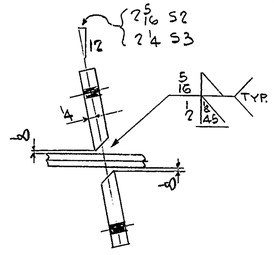


CAMBER DIAGRAM

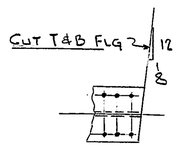
SECT. (A)



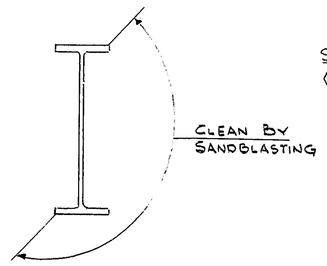
SECT. (B)



SECT. (C)



DET'L 1
aK1 (NOT SHOWN)



SECT. (D)

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ϕ

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHER'S

SEE SHT E1 FOR GEN. NOTES

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER-S1			
ONE	W 36 x 170 x 56'-4 1/2			1/4
ONE	PL	a2		
ONE	PL } ORD. & DET. ON SHT. 2	d2		
2	PLs	h2		
2	PLs (ORD. & DET. ON SHT 1)	aK1		
16	L.F 5/16 ✓ WELD			
5	L.F 1/2 ⊠ BEV. WELD			
	ONE STRINGER-S2			
ONE	W 36 x 170 x 56'-4 1/8			1/4
2	PLs } ORD & DET. ON SHT 2	d2		
4	PLs	h2		
2	PLs ORD & DET. ON SHT. 1	aK1		
26	L.F. 5/16 ✓ WELD			
5	L.F 1/2 ⊠ BEV. WELD			
	ONE STRINGER-S3			
ONE	W36x170 x 56'-3 7/8			1/4
2	PLs } ORD & DET. ON SHT 2	d2		
5	PLs	h2		
2	PLs ORD & DET. ON SHT 1	aK1		
31	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 ⊠ BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGERS S1, S2, S3

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: [illegible] 5-1-78

CONTRACTOR: NESHAMINY CONST., INC.

ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

CONTRACT NO. 557

DRAWN BY: STESKO DATE

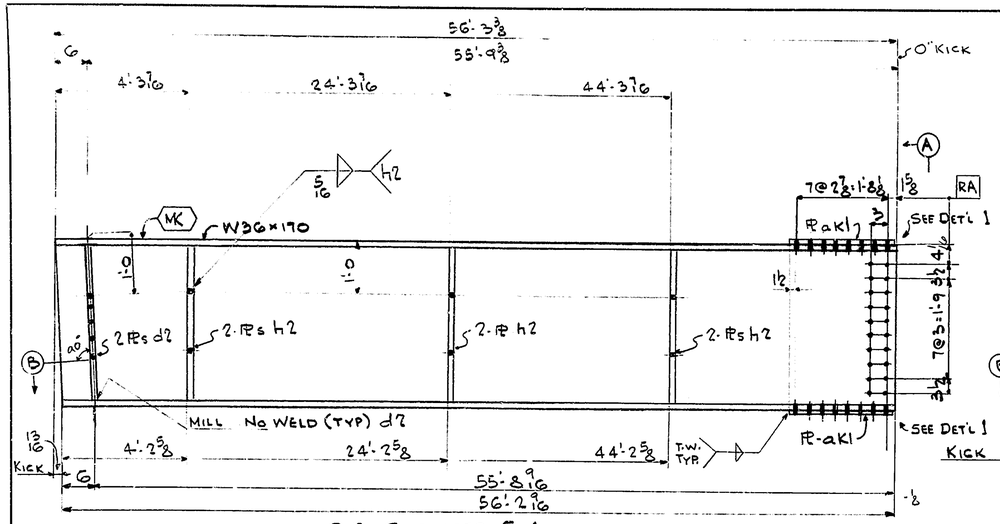
CHECKED BY: JB DATE 11-11-77

DRAWING NO. 4 OF 19

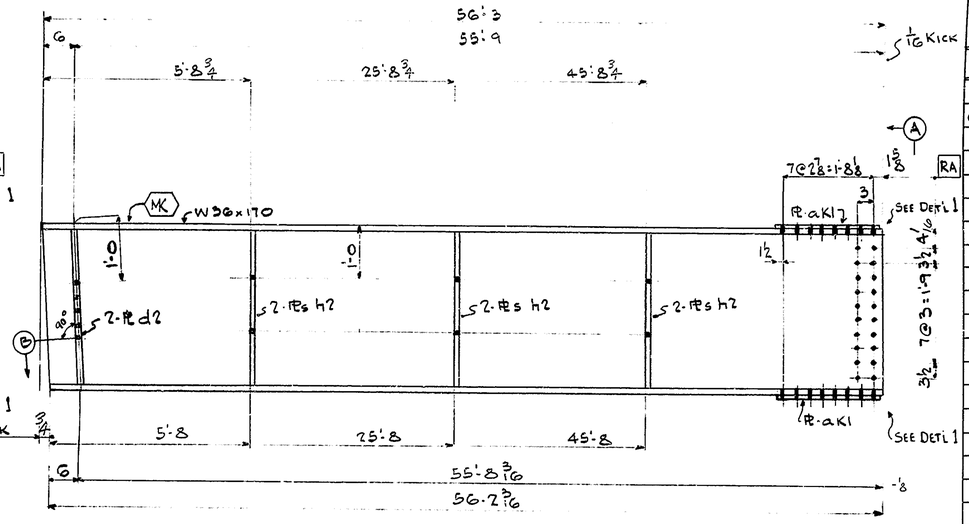
NO.	DATE	REVISIONS	BY
D	2-22-78	REVISED CAMBER ORDINATES & END KICKS	D.D.

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

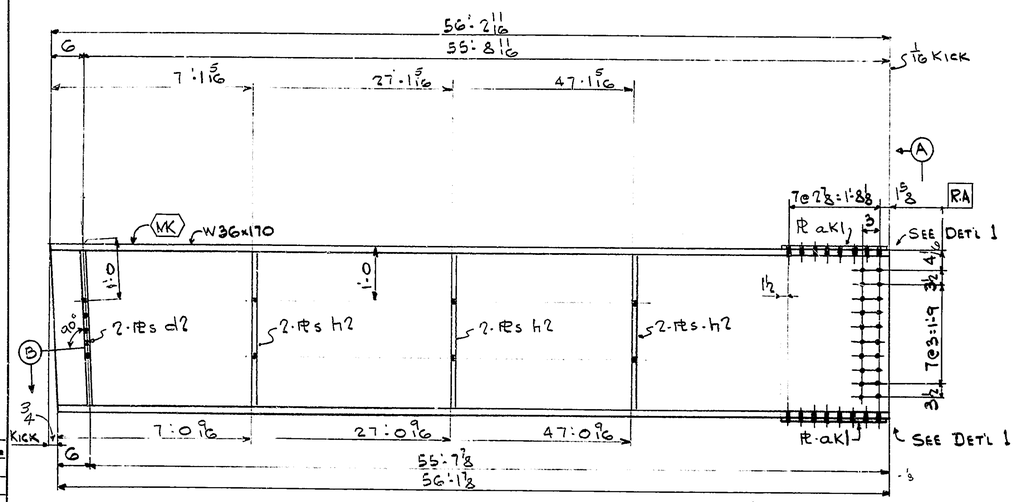
Capitol Blue Prints Co. 19 1153-9010



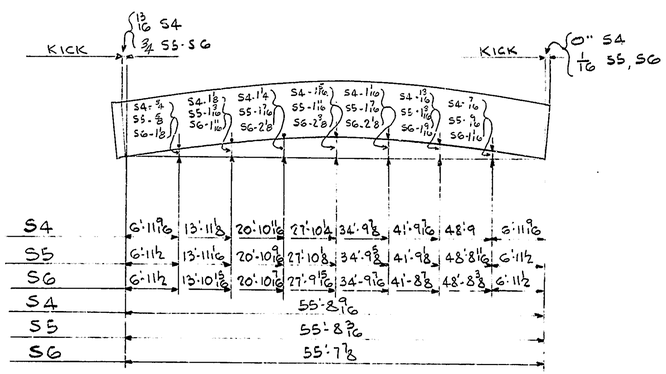
ONE-STRINGER-S4



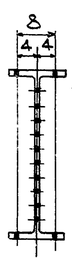
ONE-STRINGER-S5



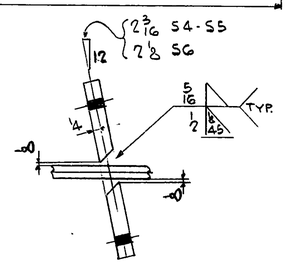
ONE STRINGER-S6



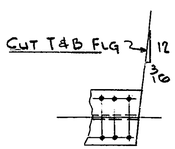
CAMBER DIAGRAM



SECT. (A)



SECT. (B)



DET'L 1
aK1 (NOT SHOWN)

SHOP NOTE
(MK) INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ϕ
SHOP CONN: WELDED
SHOP PAINT: NONE
ERECTION: BY OTHERS

SEE SHT E1 FOR GEN. NOTES

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER-S4			
ONE	W36x170 x 56'-3 1/2			1/4
2	PLs } ORD. & DET. ON SHT. 2	d2		
6	PLs }	h2		
2	PLs (ORD. & DET. ON SHT 1)	aK1		
37	L.F 5/16 WELD			
5	L.F 1/2 BEV. WELD			
	ONE STRINGER-S5			
ONE	W36x170 x 56'-3 3/8			1/4
2	PLs } ORD & DET. ON SHT 2	d2		
6	PLs }	h2		
2	PLs ORD & DET. ON SHT. 1	aK1		
37	L.F. 5/16 WELD			
5	L.F 1/2 BEV. WELD			
	ONE STRINGER-S6			
ONE	W36x170 x 56'-2 13/16			1/4
2	PLs } ORD & DET ON SHT 2	d2		
6	PLs }	h2		
2	PLs ORD & DET. ON SHT 1	aK1		
37	L.F. 5/16 WELD			
5	L.F. 1/2 BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGERS S4, S5, S6

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 235 NEW CASTLE COUNTY, DEL.

APPROVED

CONTRACTOR: NESHAMINY CONST., INC.

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

DRAWN BY: STESKO DATE

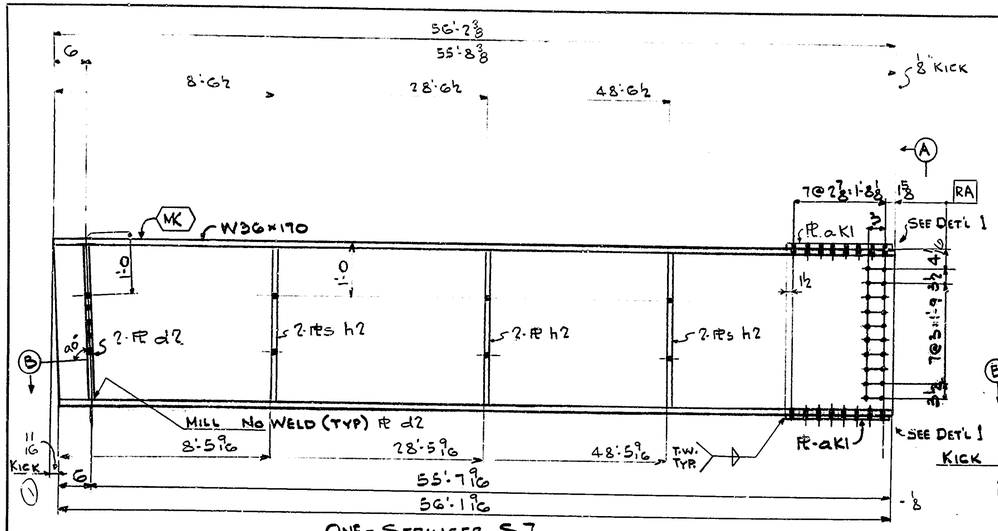
CHECKED BY: DATE

DRAWING NO. 5 OF 19

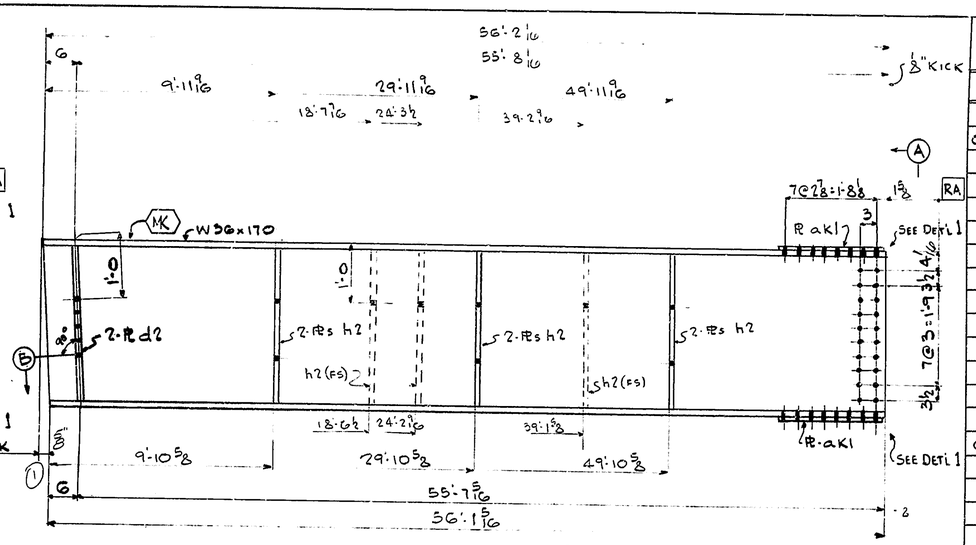
NO.	DATE	REVISIONS	BY
1	2-27-78	REVISED CAMBER ORDINATES & END PICK OF S5 & S6	D.D.

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

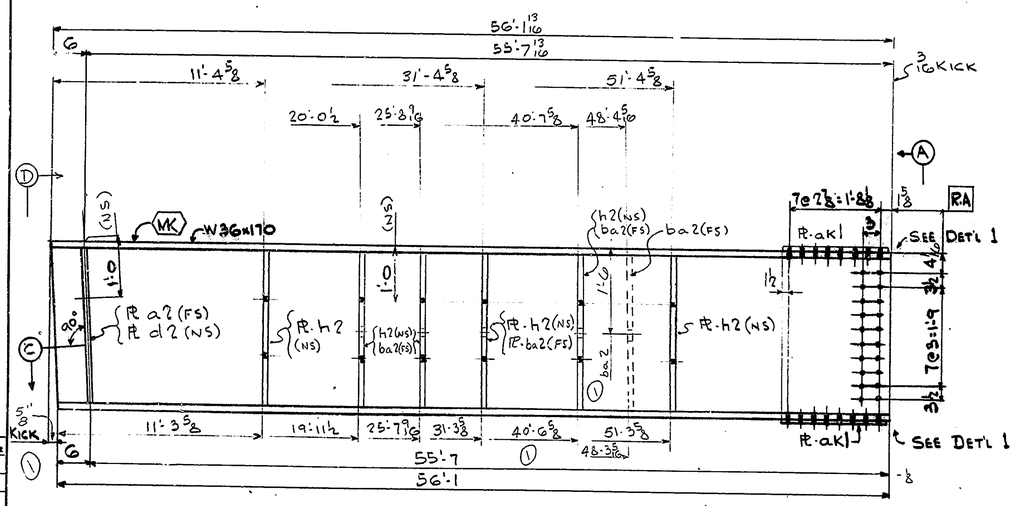
Capital Blue Print Co. 19 1153-9010



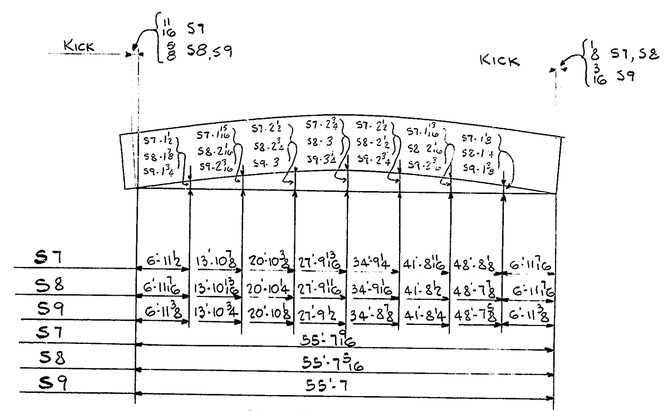
ONE-STRINGER-S7



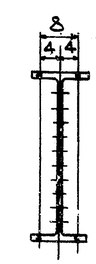
ONE-STRINGER-S8



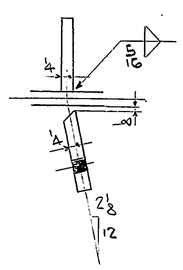
ONE STRINGER-S9



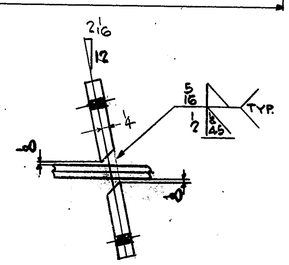
1 CAMBER DIAGRAM



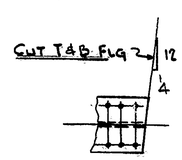
SECT. A



SECT. C

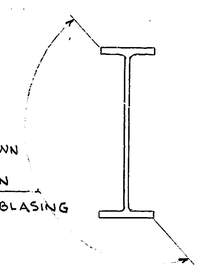


SECT. B



DET'L 1
PL aK1 NOT SHOWN

CLEAN
BY SAND BLASING



SECT. D

SHOP NOTE
MK INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ϕ
SHOP CONN: WELDED
SHOP PAINT: NONE
ERECTION: BY OTHERS

SEE SHT E1 FOR GEN. NOTES

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER-S7			
ONE	W36x170x56'-2 1/2			1/4
2	PLs } ORD. & DET. ON SHT. 2	d2		
6	PLs	h2		
2	PLs (ORD. & DET. ON SHT 1)	aK1		
37	L.F 5/16 WELD			
5	L.F 1/2 BEV. WELD			
	ONE STRINGER-S8			
ONE	W36x170x56'-2 9/16			1/4
2	PLs } ORD & DET. ON SHT 2	d2		
9	PLs	h2		
2	PLs ORD & DET. ON SHT. 1	aK1		
37	L.F. 5/16 WELD			
5	L.F 1/2 BEV. WELD			
	ONE STRINGER-S9			
ONE	W36x170x56'-1 15/16			1/4
ONE	PL	a2		
ONE	PLs } ORD & DET. ON SHT 2	d2		
—	PLs	h2 / ba2		
2	PLs ORD & DET. ON SHT 1	aK1		
21	L.F. 5/16 WELD			
5	L.F. 1/2 BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGERS S7, S8 S9

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. NE 233 NEW CASTLE COUNTY, DEL.

APPROVED

CONTRACTOR: NESHAMINY CONST., INC.

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

DRAWN BY: STESKO DATE

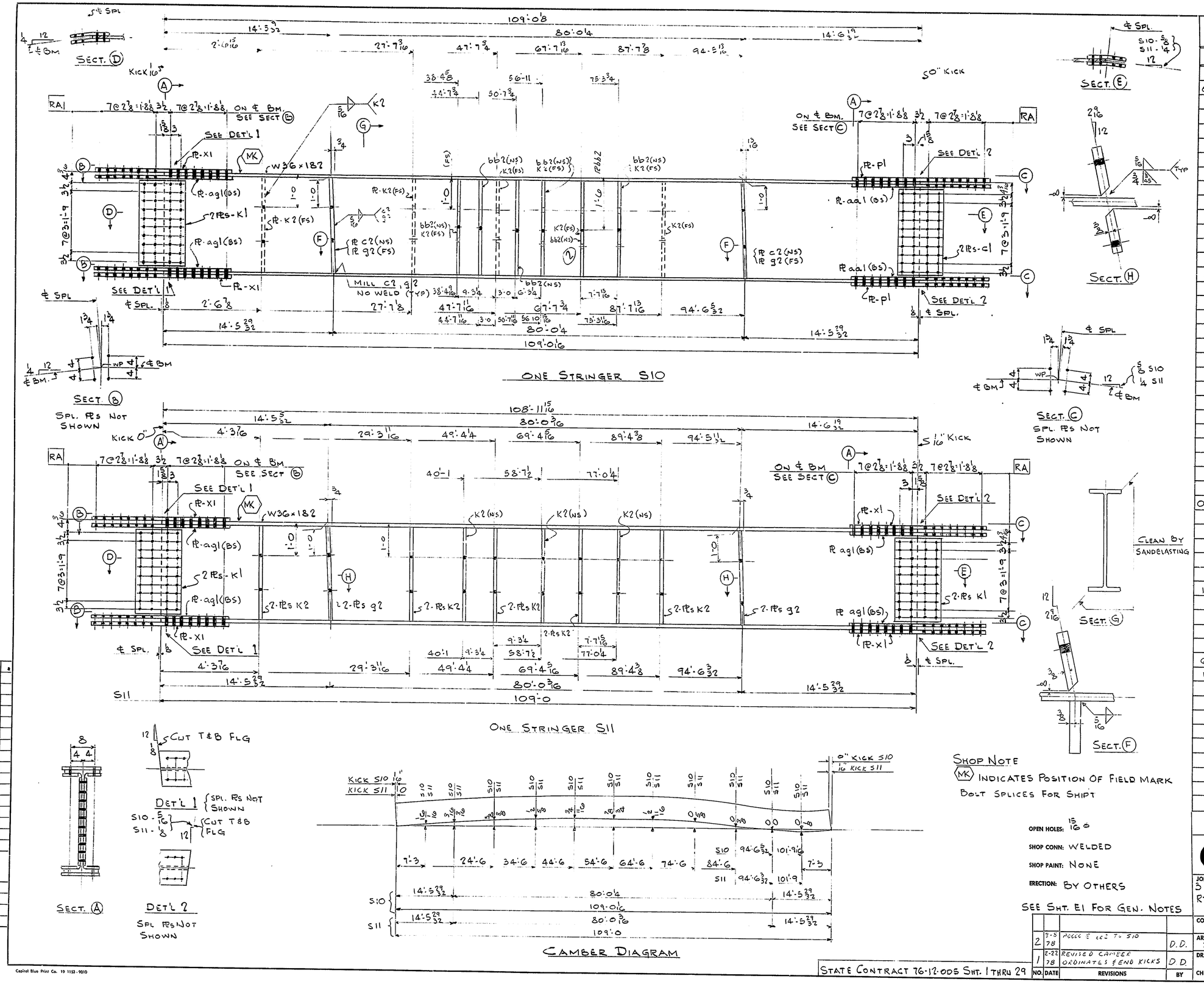
CHECKED BY: DATE

DRAWING NO. 6 OF 19

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

NO.	DATE	REVISIONS	BY
1	2-9-78	EL. REV. CAMBER DIAGRAM S7 & S8 EL. REV. ADED E DET. TO S9 REFERENCED EXT. 2 GIRDERS	D.D

Capitol Blue Print Co. 19 1152-9010



BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER S10			
ONE	W36 × 182 × 109'-0 3/8			1/1
2	PLS	x1		
2	PLS	p1		
4	PLS	aa1		
4	PLS DET. & ORD ON SHT 1	ag1		
2	PLS	c1		
2	PLS	K1		
2	PLS DET. & ORD ON SHT 2	c2		
2	PLS	g2		
8	PLS	K2		
6	PLS	bb2		
41	L.F. 5/16 ✓ WELD			
5	L.F 3/4 BEV. WELD			
	ONE STRINGER S11			
ONE	W36 × 182 × 109'-0 1/16			1/1
4	PLS	x1		
3	PLS DET'L & ORD ON SHT 1	ag1		
4	PLS	K1		
13	PLS DET'L & ORD ON SHT 2	K2		
4	PLS	g2		
62	L.F. 5/16 ✓			
10	L.F. 3/4 BEV.			
	MAT'L SPECS ASTM-A588			

STRINGERS S10, S11

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK

BOLT SPLICES FOR SHIPT

OPEN HOLES: 15/16 ⌀

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

NO.	DATE	REVISIONS	BY
2	2-5-78	POLLC & LCL TO S10	D.D.
1	2-22-78	REVISED CAMBER ORDINATES & END KICKS	D.D.

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: Sept 26 [illegible]

CONTRACTOR: NESHAMINY CONST., INC.

CONTRACT NO. 557

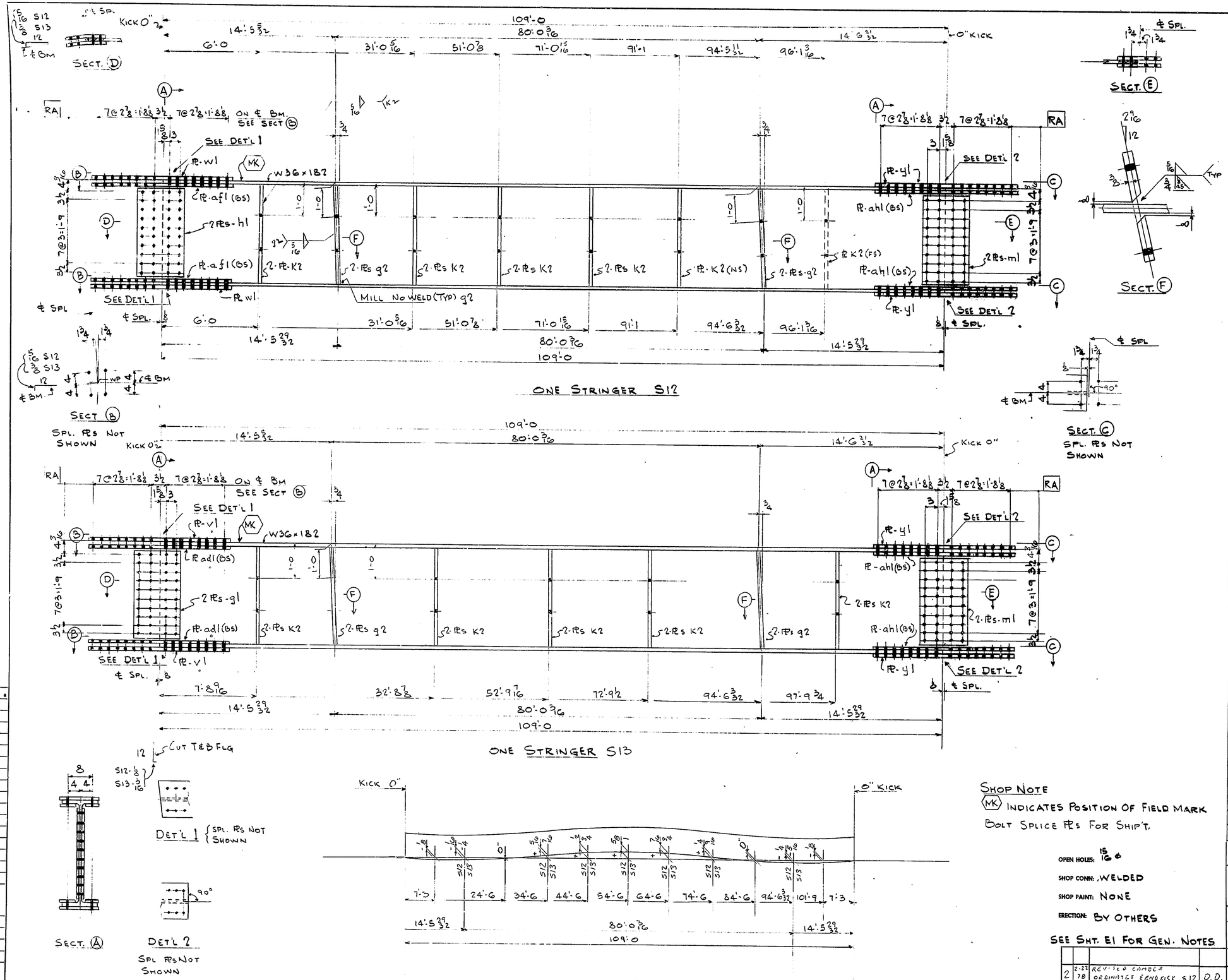
ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

DRAWN BY: STESKO DATE

CHECKED BY: JB DATE 11-11-77

DRAWING NO. 7 OF 19

Capitol Blue Print Co. 19 1153 - 9010



BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER S12			
ONE	W36 × 182 × 109'-0 1/16			1/1
2	PLs	w1		
2	PLs	h1		
4	PLs DET. & ORD ON SHT 1	a f1		
2	PLs	y1		
2	PLs	m1		
10	PLs DET. & ORD ON SHT 2	k2		
4	PLs	g2		
4	PLs DET. & ORD ON SHT 1	a h1		
62	L.F. 5/16 ✓ WELD			
10	L.F 3/4 BEV. WELD			
	ONE STRINGER S13			
ONE	W36 × 182 × 109'-0 3/32			1/1
2	PLs	v1		
2	PLs	g1		
4	PLs DET'L & ORD ON SHT 1	a d1		
2	PLs	y1		
2	PLs	m1		
10	PLs DET'L & ORD ON SHT 2	k2		
4	PLs	g2		
4	PLs DET'L & ORD ON SHT 1	a h1		
62	L.F. 5/16 ✓ WELD			
10	L.F 3/4 BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGERS S12, S13

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND DR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: 3-1-78

CONTRACTOR: NESHAMINY CONST., INC.

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

DRAWN BY: STESKO DATE

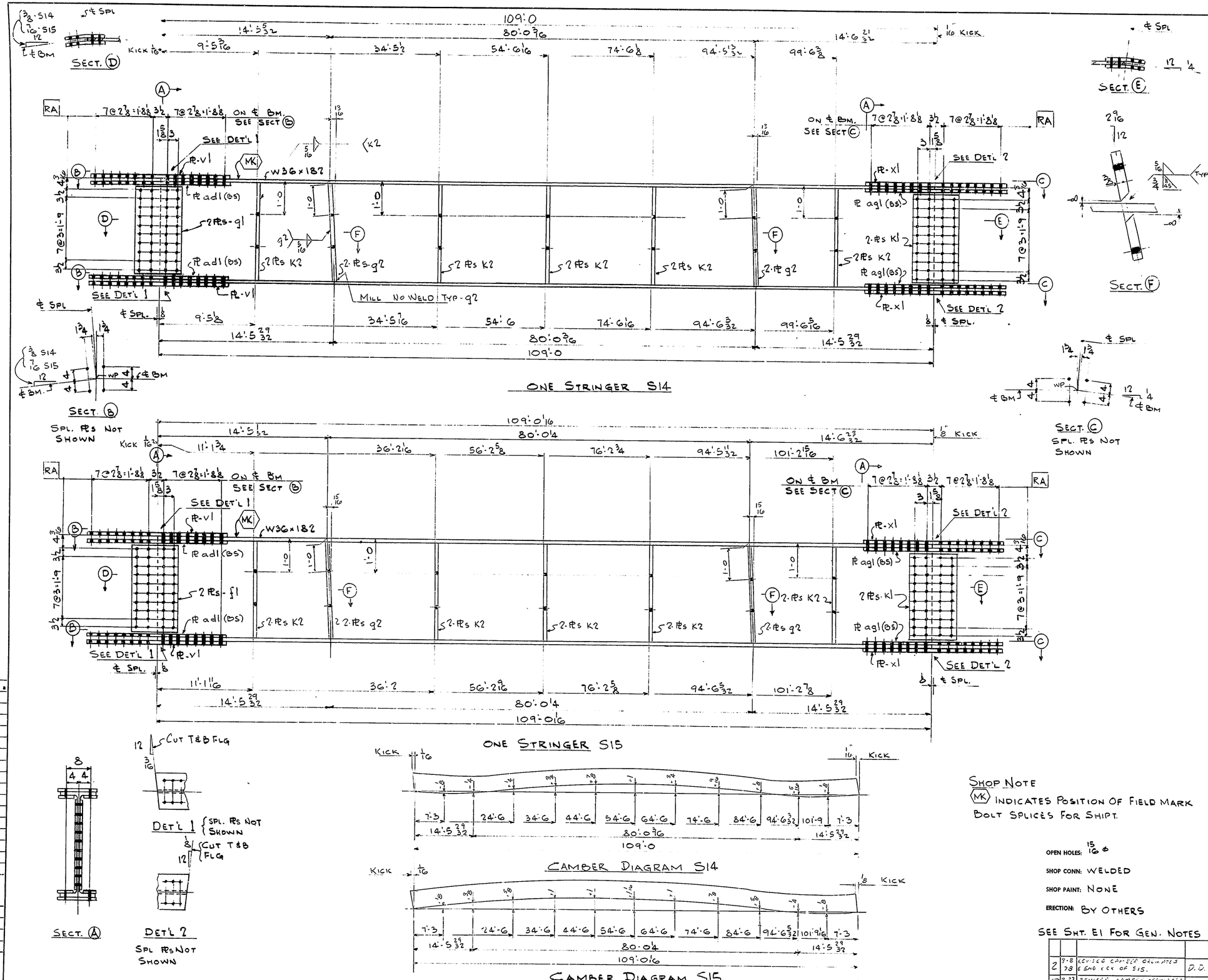
CHECKED BY: JB DATE

DRAWING NO. 8 OF 19

NO.	DATE	REVISIONS	BY
2	2-22-78	REVISED CAMBER ORDINATES & END KICK S12	D.D.
1	5/2/78	CHANGE RAILS IN BILL OF MAT'L	P.L.

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

Capitol Blue Print Co. 19 1153 9010



BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER S14			
ONE	W36×182×109'-0 9/16			1/1
2	PLS }	v1		
2	PLS } DET. & ORD ON SHT 1	g1		
4	PLS }	ad1		
10	PLS } DET. & ORD ON SHT 2	K2		
4	PLS }	g2		
2	PLS }	x1		
2	PLS } DET. & ORD ON SHT 1	K1		
4	PLS }	ag1		
62	L.F. 5/16 ✓ WELD			
10	L.F. 3/4 ⊿ BEV. WELD			
	ONE STRINGER S15			
ONE	W36×182×109'-0 1/4			1/1
2	PLS }	v1		
2	PLS } DET'L & ORD ON SHT 1	f1		
4	PLS }	ad1		
10	PLS } DET'L & ORD ON SHT 2	K2		
4	PLS }	g2		
2	PLS }	x1		
2	PLS } DET'L & ORD ON SHT 1	K1		
4	PLS }	ag1		
62	L.F. 5/16 ✓ WELD			
10	L.F. 3/4 ⊿ BEV. WELD			
	MAT'L SPECS ASTM-A588			

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK BOLT SPLICES FOR SHIPT.

OPEN HOLES: 15/16 ϕ

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

NO.	DATE	REVISIONS	BY
2	9-8-78	REVISED CAMBER ORDINATES & END KICK OF S15.	D.D.
1	2-27-78	REVISED CAMBER ORDINATES & END KICK OF S14	D.D.

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

STRINGERS S14, S15

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED

CONTRACTOR: NESHAMINY CONST., INC.

ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

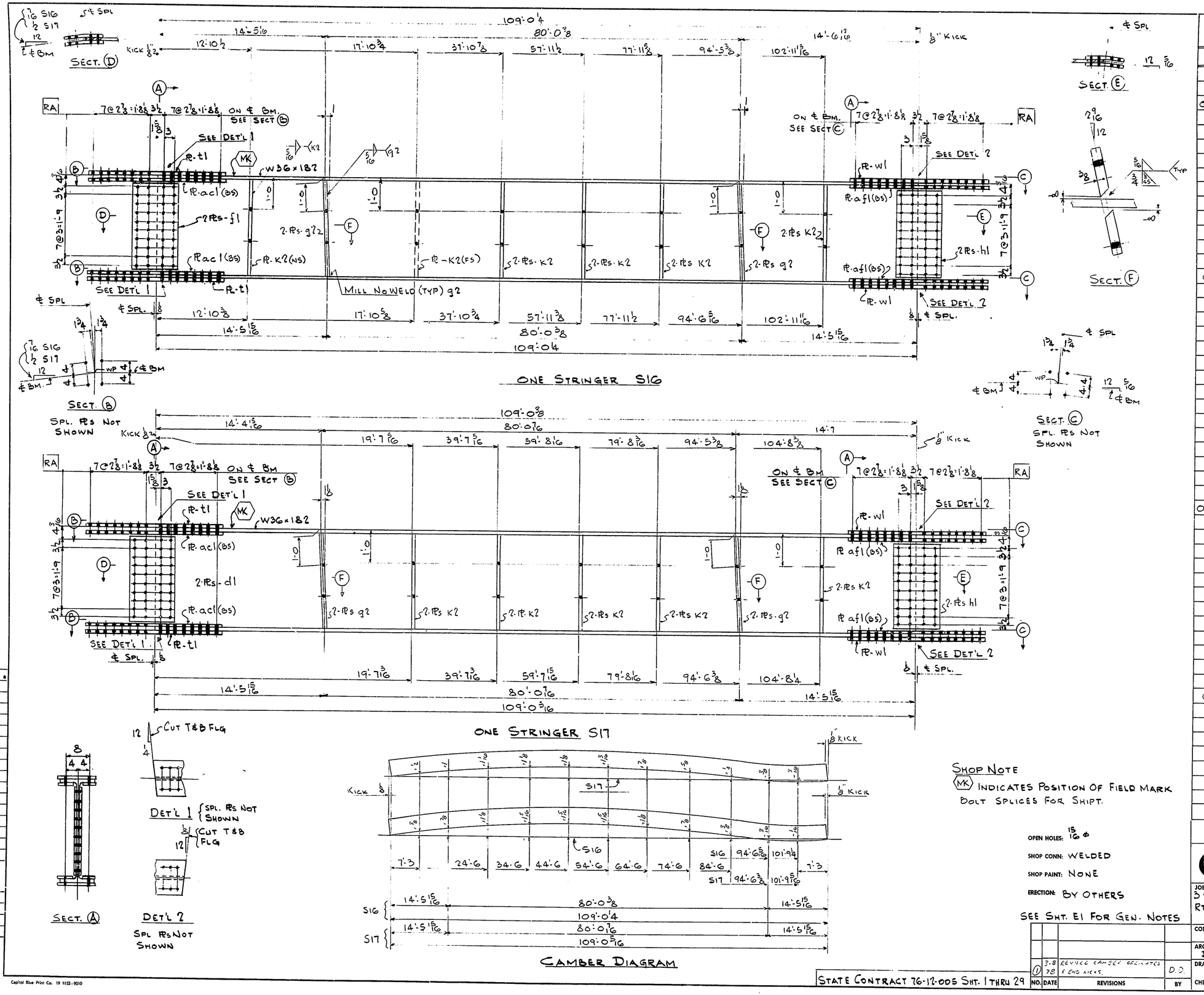
CONTRACT NO. 557

DRAWN BY: STESKO DATE

CHECKED BY: DATE

DRAWING NO. 9 OF 19

Capital Blue Print Co. 19 1153-9010



BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER S16			
ONE	W36 × 182 × 109'-0 7/16			1/1
2	PLs } DET. & ORD ON SHT 1	t1		
2	PLs } DET. & ORD ON SHT 1	f1		
4	PLs	ac1		
10	PLs } DET. & ORD ON SHT 2	K2		
4	PLs	g2		
2	PLs } DET. & ORD ON SHT 1	w1		
2	PLs } DET. & ORD ON SHT 1	h1		
4	PLs	af1		
62	L.F. 5/16 WELD			
10	L.F. 3/4 BEV. WELD			
	ONE STRINGER S17			
ONE	W36 × 182 × 109'-0 9/16			1/1
2	PLs } DET. & ORD ON SHT 1	t1		
2	PLs } DET. & ORD ON SHT 1	d1		
4	PLs	ac1		
10	PLs } DET. & ORD ON SHT 2	K2		
4	PLs	g2		
2	PLs } DET. & ORD ON SHT 1	w1		
2	PLs } DET. & ORD ON SHT 1	h1		
4	PLs	af1		
62	L.F. 5/16 WELD			
10	L.F. 3/4 BEV. WELD			
	MAT'L SPECS ASTM-A588			

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK

BOLT SPLICES FOR SHIPT.

OPEN HOLES: 15/16 ϕ

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

NO.	DATE	REVISIONS	BY
1	3-8-78	REVISED CAMBER ORDINATES & END KICKS.	D.D.

STRINGERS S16, S17

cumberland bridge co.

FABRICATED STRUCTURAL STEEL

ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: [illegible]

CONTRACTOR: NESHAMINY CONST., INC.

CONTRACT NO. 557

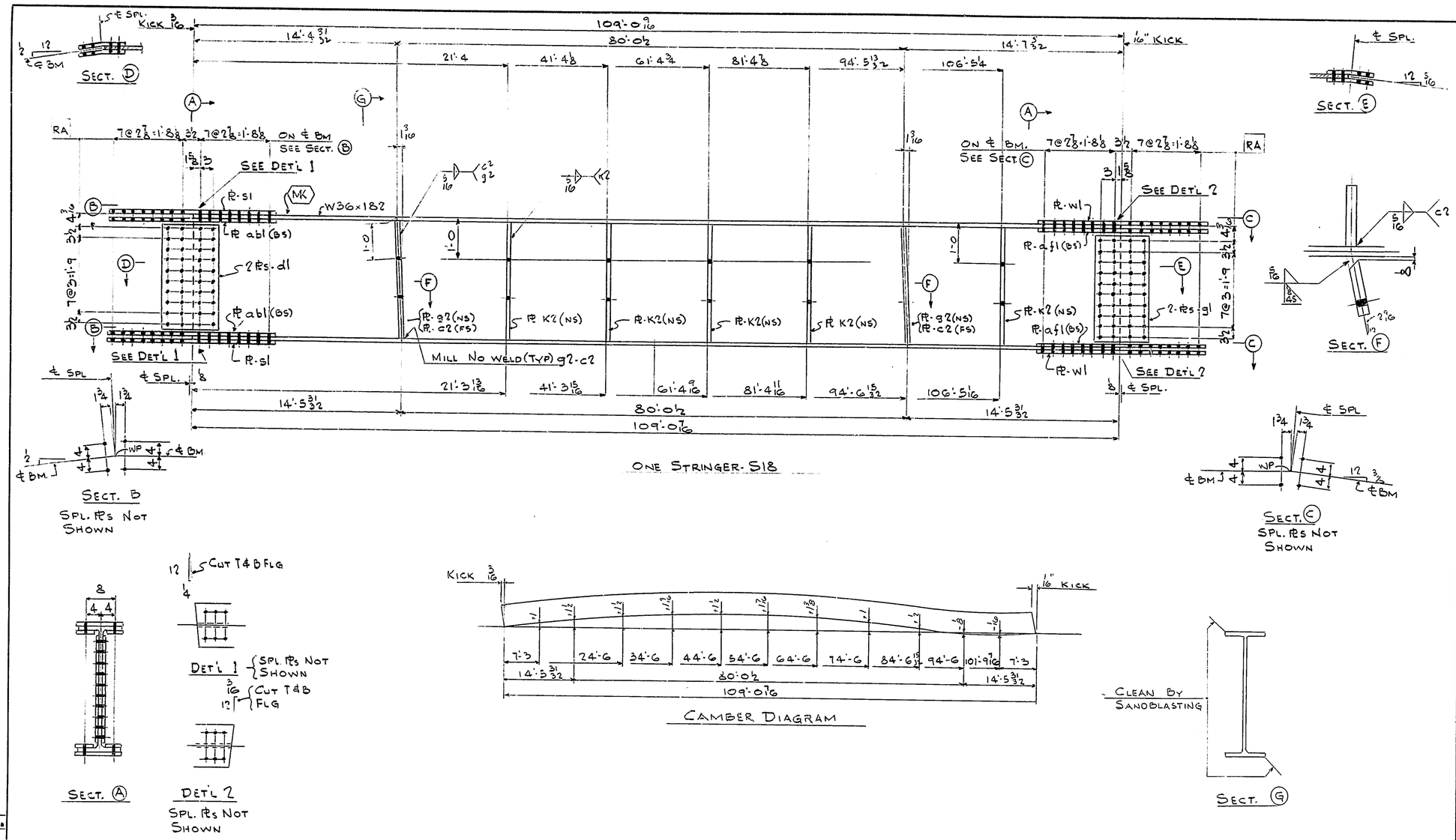
ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

DRAWN BY: STESKO DATE [illegible]

CHECKED BY: JB DATE 11-11-77

DRAWING NO. 10 OF 19

Capitol Blue Print Co. 19 1153-9010



BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER S18			
ONE	W36×182×109'-0 3/4			1/1
2	PLs	s1		
2		d1		
4	DET. & ORD ON SHT. 1	ab1		
2		w1		
2		g1		
4		af1		
2	PLs	c2		
2	DET. & ORD ON SHT. 2	g2		
5		K2		
41	L.F. 5/16 ◸ WELD			
5	L.F. 3/4 ◸ BEV. WELD			
	MAT'L SPECS ASTM-A588			

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK
BOLT SPLICES FOR SHIPT.

OPEN HOLES: 15/16 ϕ
SHOP CONN: WELDED
SHOP PAINT: NONE
ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

NO.	DATE	REVISIONS	BY
1	3-8-78	REVISED CAMBER ORDINATES & END KICK	D.D.

STRINGER S18

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: Sel 20.- 3-1-78

CONTRACTOR: NESHAMINY CONST., INC.

CONTRACT NO.: 557

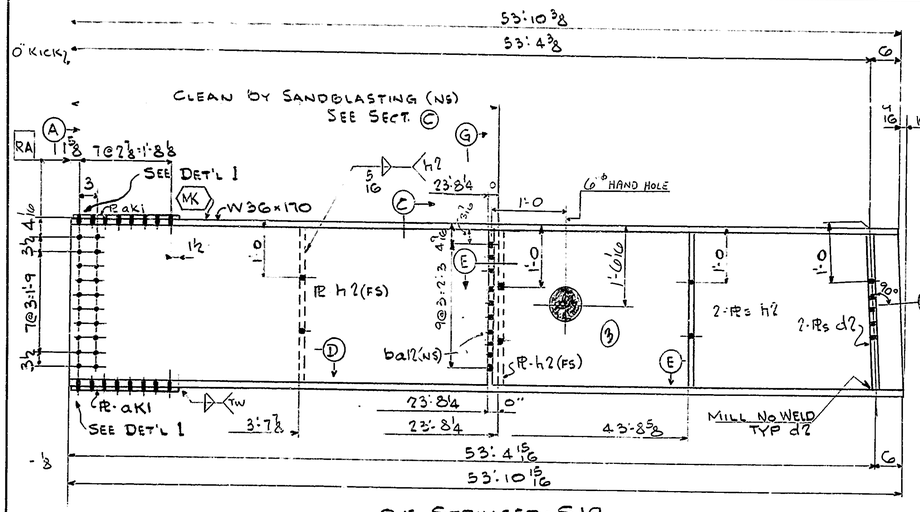
ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

DRAWN BY: STESKO DATE

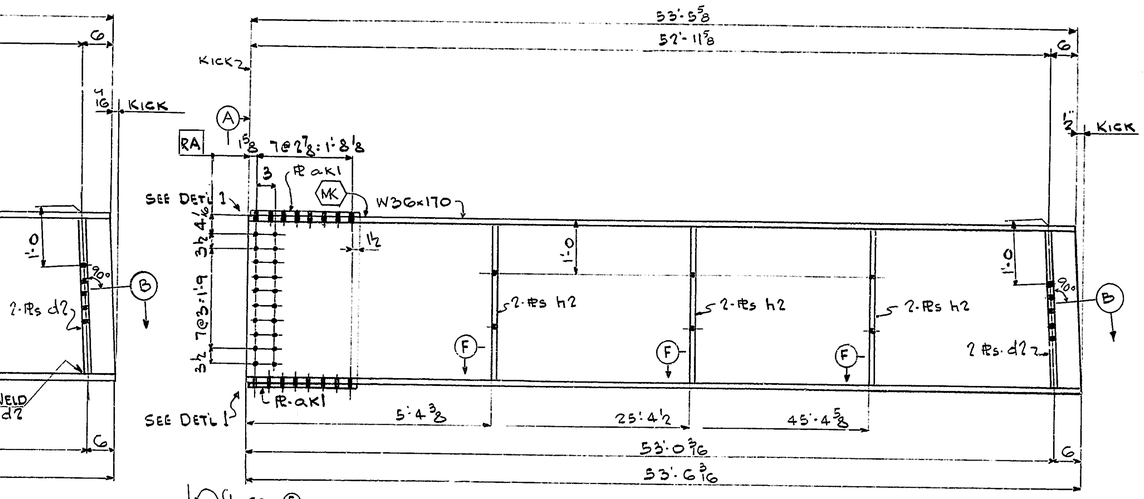
CHECKED BY: JB DATE 11-11-77

DRAWING NO.: 11 of 19

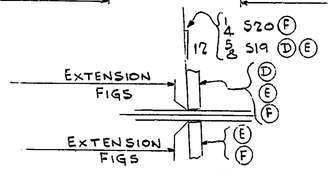
Capitol Blue Print Co. 19 1153-9010

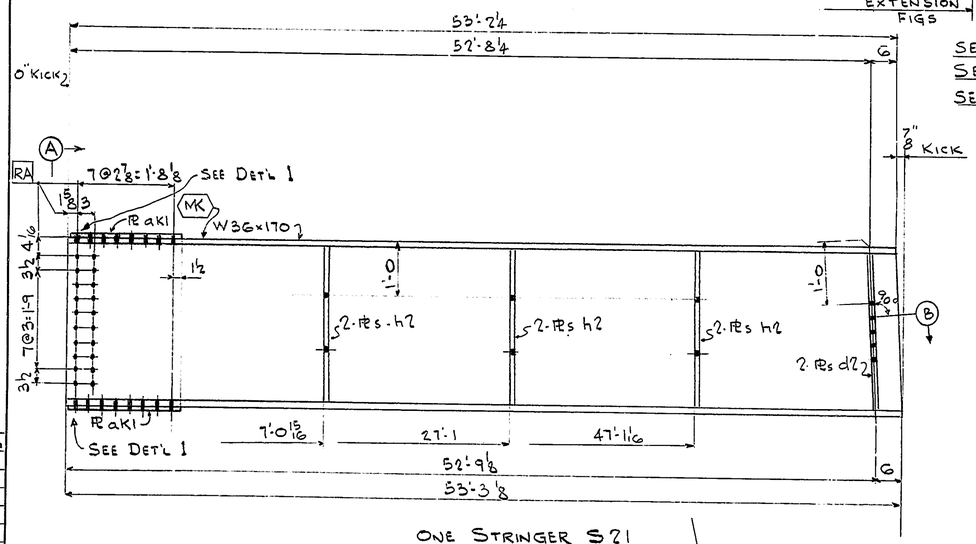


ONE STRINGER - S19

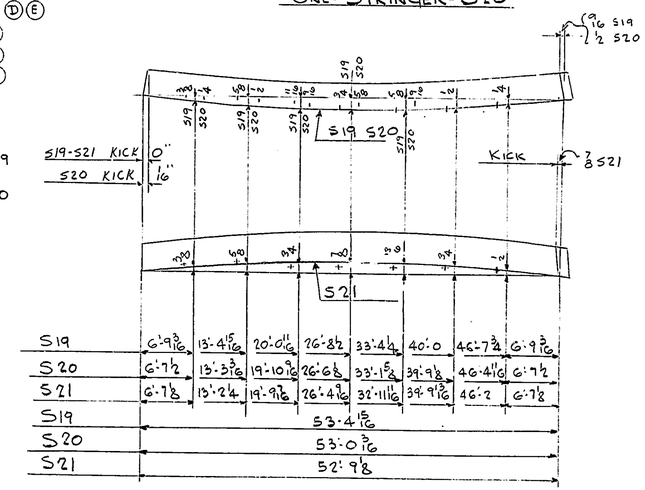


ONE - STRINGER - S20

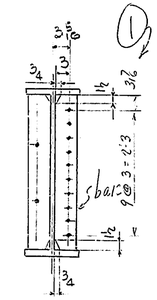




ONE STRINGER S21



CAMBER DIAGRAM

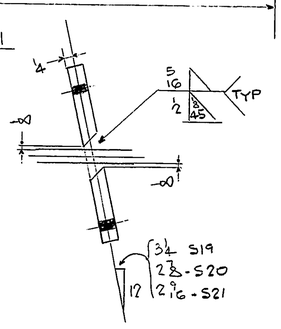


SECT. (G)

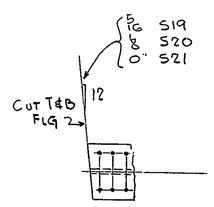
SECT. (A)

SECT. (C)

CLEAN BY SANDBLASTING



SECT. (B)



DET'L 1

PL a K1 NOT SHOWN

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ø

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER - S19			
ONE	W36x170 x 53'-11 1/16			1/3
2	PLs } DET. & ORD ON SHT 2	d2		
4	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
1	PL 5 x 1/2 x 2'-9 7/8	bar2		
31	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 ◺ BEV. WELD			
	ONE STRINGER - S20			
ONE	W36x170 x 53'-6 1/4			1/3
2	PLs } DET. & ORD ON SHT 2	d2		
6	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
37	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 ◺ BEV. WELD			
	ONE STRINGER - S21			
ONE	W36x170 x 53'-3 1/2			1/3
2	PLs } DET. & ORD ON SHT 2	d2		
6	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
37	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 ◺ BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGERS S19, S20, S21

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: Del DOH 3-1-78 5-5-78

CONTRACTOR: NESHAMINY CONST., INC

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS

DRAWN BY: STESKO DATE

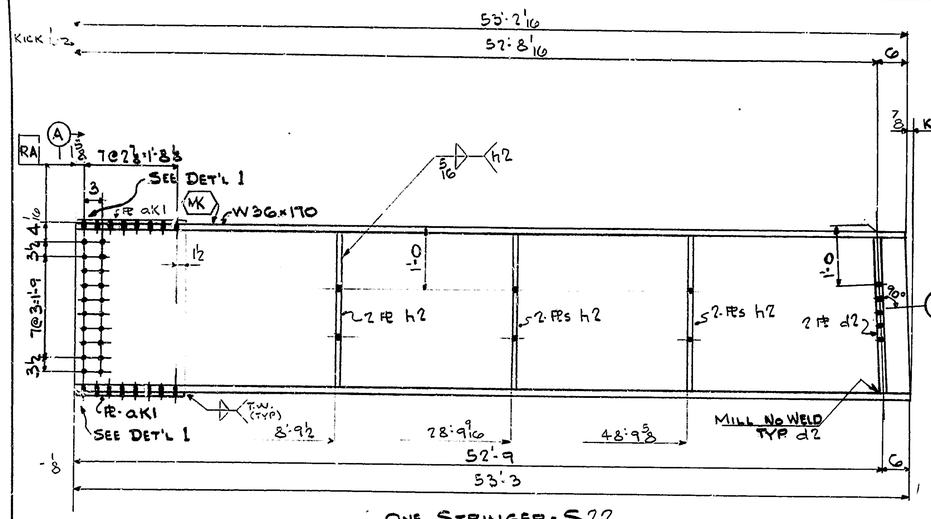
DRAWING NO. 12 OF 19

CHECKED BY: JB DATE 11-11-77

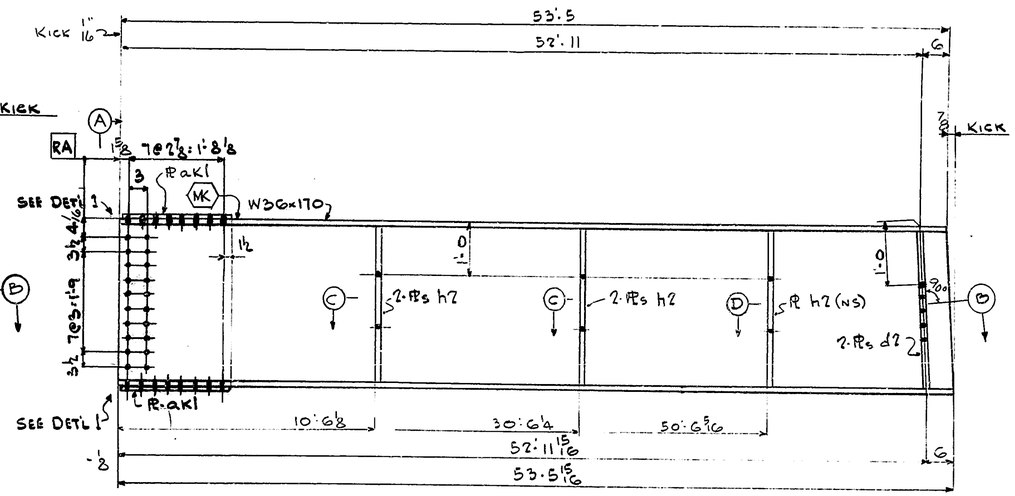
NO.	DATE	REVISIONS	BY
3	3-8 78	ADDED 6" HAND HOLE TO S19	D.D
2	2-22 78	REVISED CAMBER ORDINATES & END KICK S21	D.D.
1	7/1/75	DIMENSIONS FOR PL bar2	RR

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

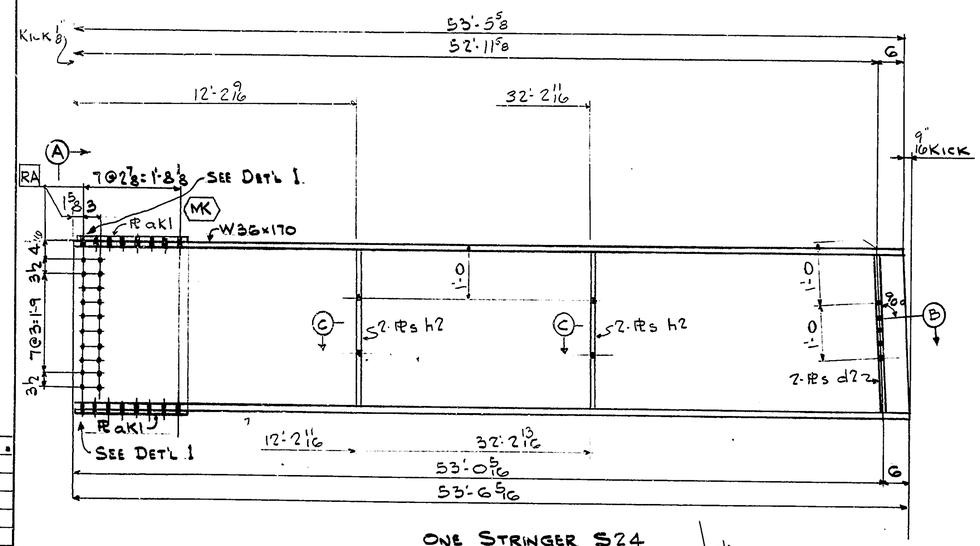
Capitol Blue Print Co. 19 1153-9010



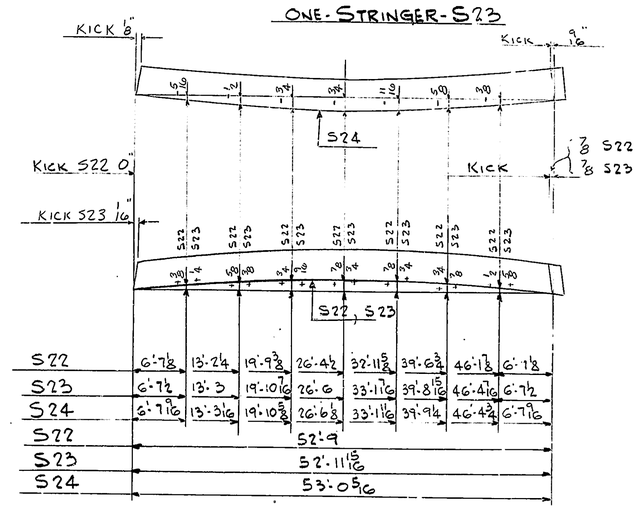
ONE STRINGER - S22



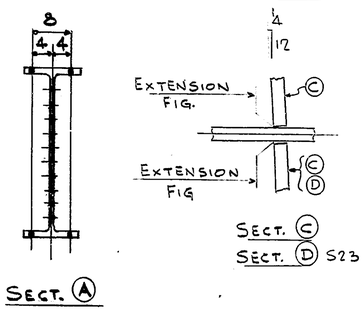
ONE-STRINGER-S23



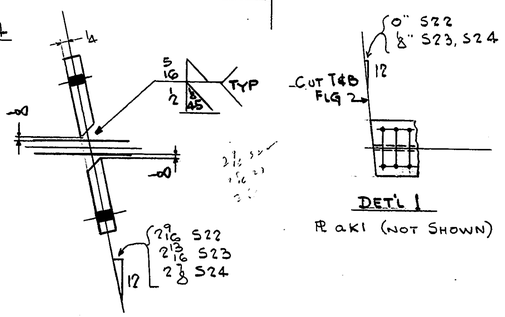
ONE STRINGER S24



CAMBER DIAGRAM



SECT. A



SECT. B

DET'L 1

PL aK1 (NOT SHOWN)

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ϕ

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER-S22			
ONE	W36x170x53'-3			1/3
2	PLs } DET. & ORD ON SHT 2	d2		
6	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
37	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 ◺ BEV. WELD			
	ONE STRINGER-S23			
ONE	W36x170x53'-6			1/3
2	PLs } DET. & ORD ON SHT 2	d2		
5	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
31	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 ◺ BEV. WELD			
	ONE STRINGER-S24			
ONE	W36x170x53'-6 3/8			1/3
2	PLs } DET. & ORD ON SHT 2	d2		
4	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
26	L.F 5/16 ✓ WELD			
5	L.F 1/2 ◺ BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGERS S22, S23, S24

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. № 233 NEW CASTLE COUNTY, DEL.

APPROVED

CONTRACTOR: NESHAMINY CONST., INC

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS

DRAWN BY: STESKO DATE

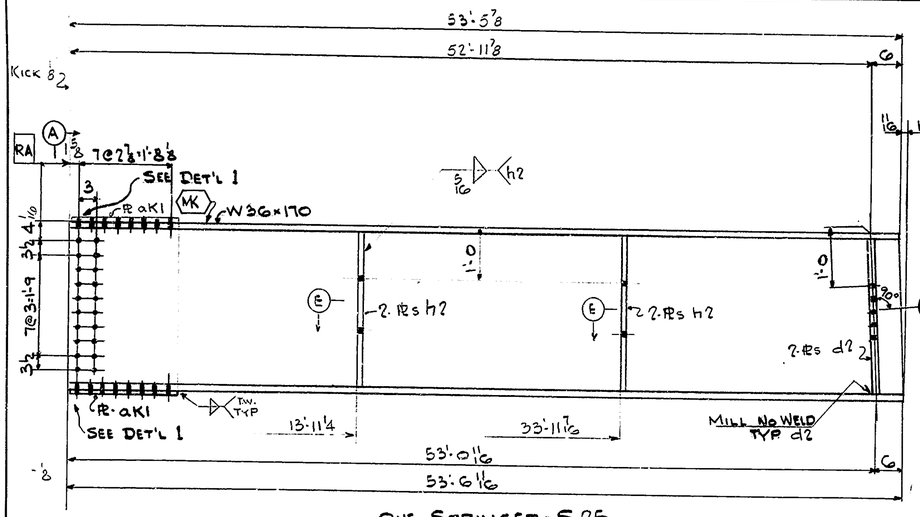
DRAWING NO. 13 OF 19

CHECKED BY: DATE

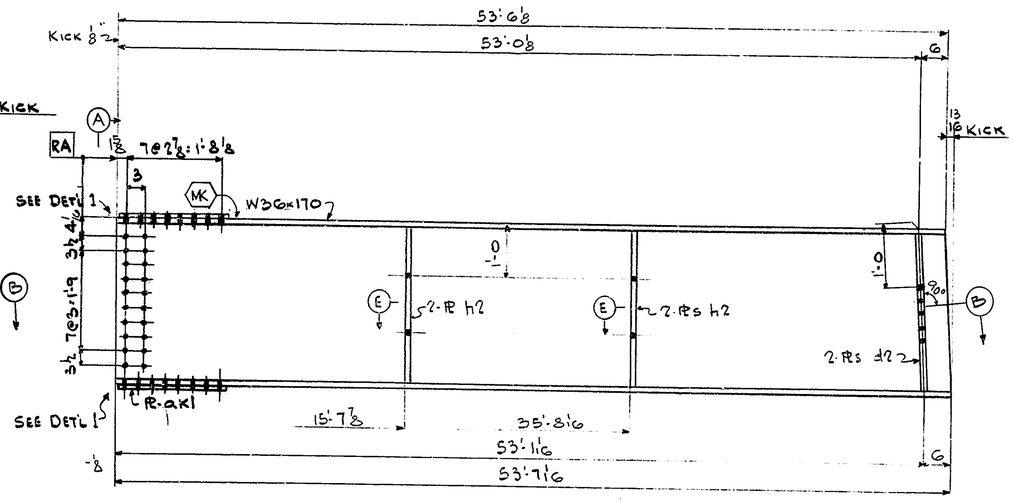
NO.	DATE	REVISIONS	BY
D	2-27-78	REVISED CAMBER ORDINATES & END KICKS	D.D.

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

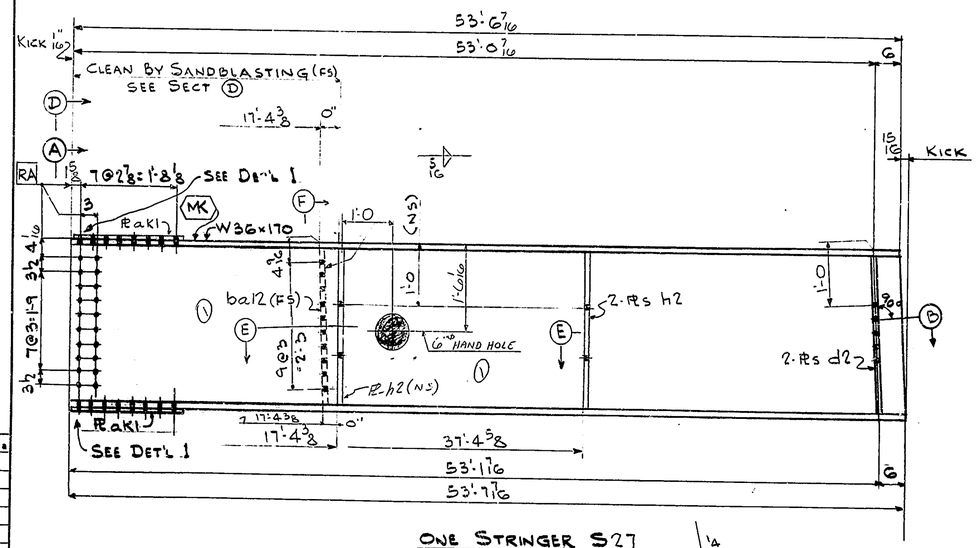
Capital Blue Print Co. 19 1153-9010



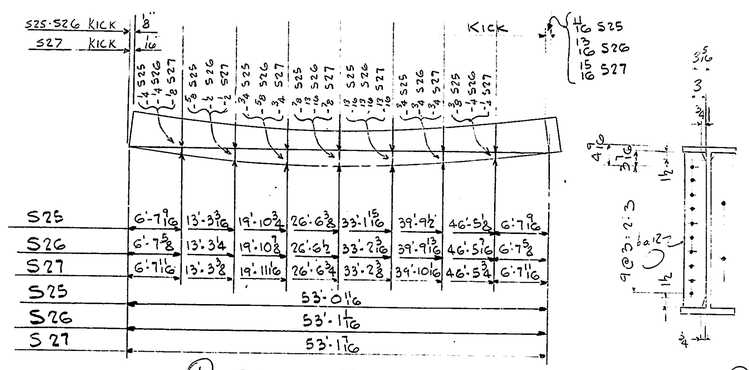
ONE STRINGER - S25



ONE-STRINGER-S26



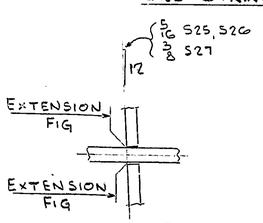
ONE STRINGER S27



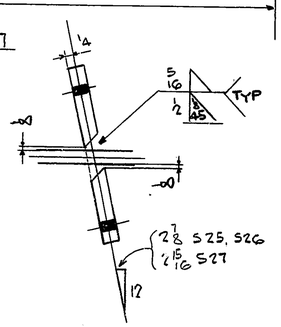
① CAMBER DIAGRAM

SECT. F

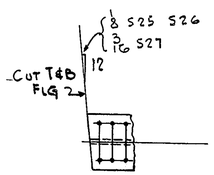
SECT. A



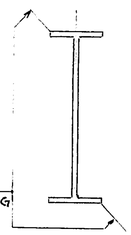
SECT. E



SECT B



DET'L 1
PL aK1 (NOT SHOWN)



CLEAN BY SANDBLASTING

SECT. D

SHOP NOTE
MK INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ϕ
SHOP CONN: WELDED
SHOP PAINT: NONE
ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

NO.	DATE	REVISIONS	BY
1	9-8-78	REVISED CAMBER DIAGRAM & ENGINEERS, MODEL & DWGS. MOD TO S27, CHANGED PL SIZE 7-0x12	L.C.

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER-S25			
ONE	W36x170x53'-6 3/4			1/3
2	PLs } DET. & ORD ON SHT 2	d2		
4	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
26	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 BEV. WELD			
	ONE STRINGER-S26			
ONE	W36x170x53'-7 7/8			1/3
2	PLs DET. & ORD ON SHT 2	d2		
4	PLs	h2		
2	PL DET. & ORD ON SHT 1	aK1		
26	L.F. 5/16 ✓ WELD			
5	L.F. 1/2 BEV. WELD			
	ONE STRINGER-S27			
ONE	W36x170x53'-7 9/16			1/3
2	PLs 3/4 } DET. & ORD ON SHT 2	d2		
3	PLs }	h2		
2	PL DET. & ORD ON SHT 1	aK1		
1	PL 5 x 1/2 x 2'-9 7/8	bal2		1/20
26	L.F 5/16 ✓ WELD			
5	L.F 1/2 BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGERS S25, S26, S27

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED

CONTRACTOR: NESHAMINY CONST., INC

CONTRACT NO. 557

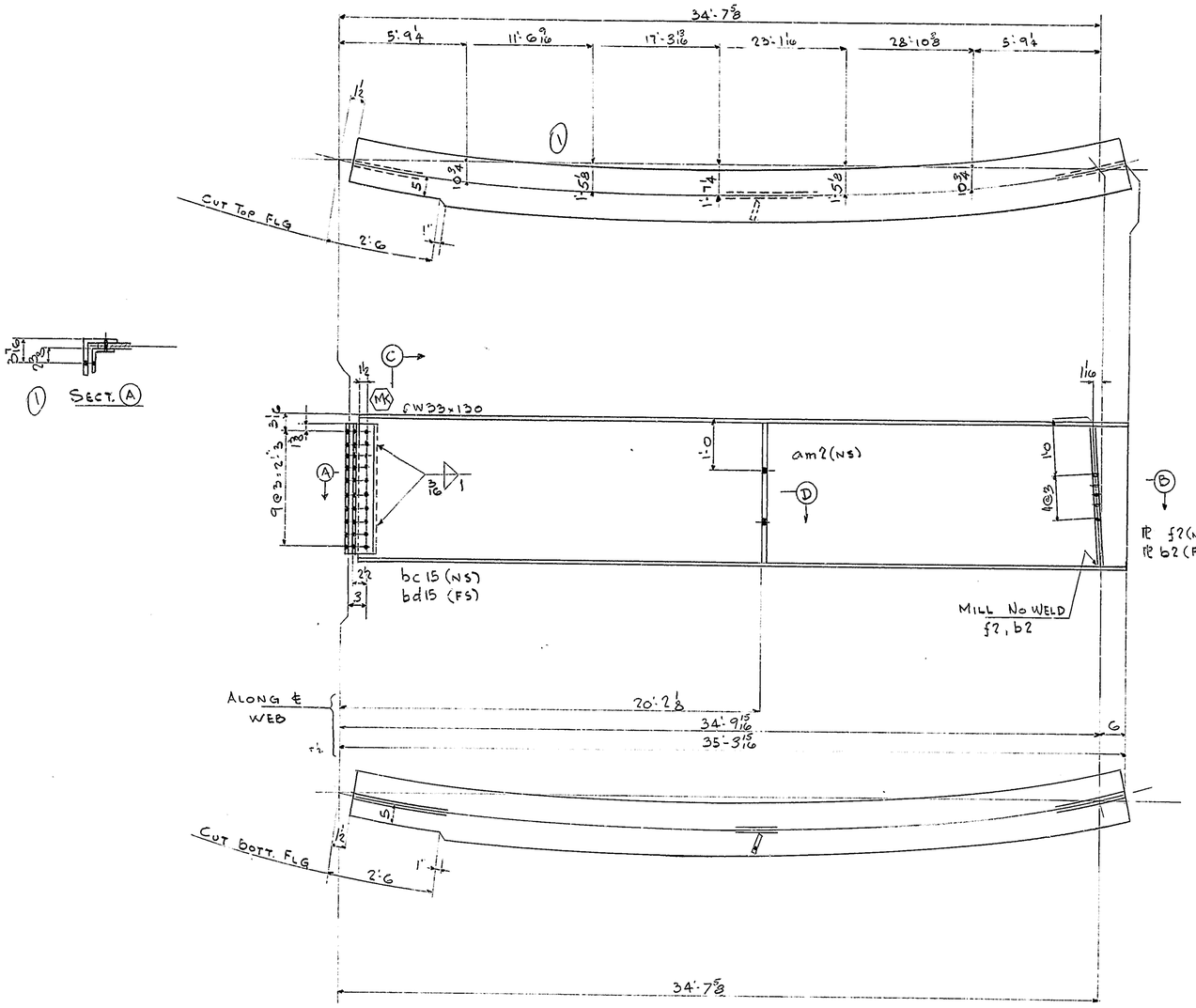
ARCHITECT: DEL. DEPT. OF HWY. & TRANS

DRAWN BY: STESKO DATE

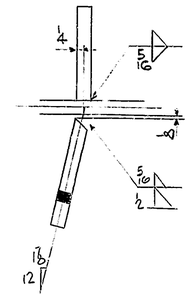
CHECKED BY: DATE

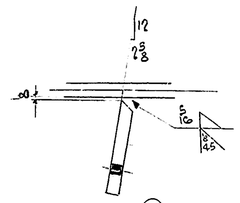
DRAWING NO. 14 OF 19

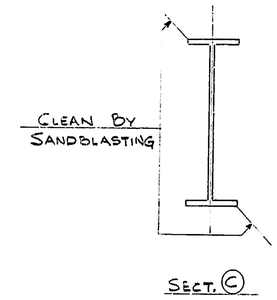
Capitol Blue Print Co. 19 1153-9010

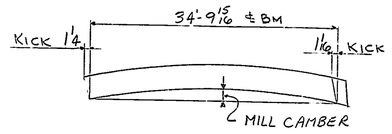


ONE STRINGER S28









CAMBER DIAGRAM

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ϕ

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER S28			
ONE	W33x130x35'-2 7/16			1/1
1	PL	b2		
1	PL } DET. & ORD ON SHT 2	am2		
1	PL	f2		
1	L 4x4x1/2x2'-5 3/4	bc15		1/31
1	L 6x6x1/2x2'-5 3/4	bd15		1/32
1	L.F. 3/16 WELD			
10	L.F. 3/16 WELD			
5	L.F 1/2 BEV. WELD			
	MAT'L SPECS ASTM-A588			

STRINGER S28

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: Del DOH 3-1-76

CONTRACTOR: NESHAMINY CONST. INC

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS

DRAWN BY: STESKO DATE

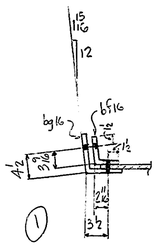
CHECKED BY: JB DATE 11-11-77

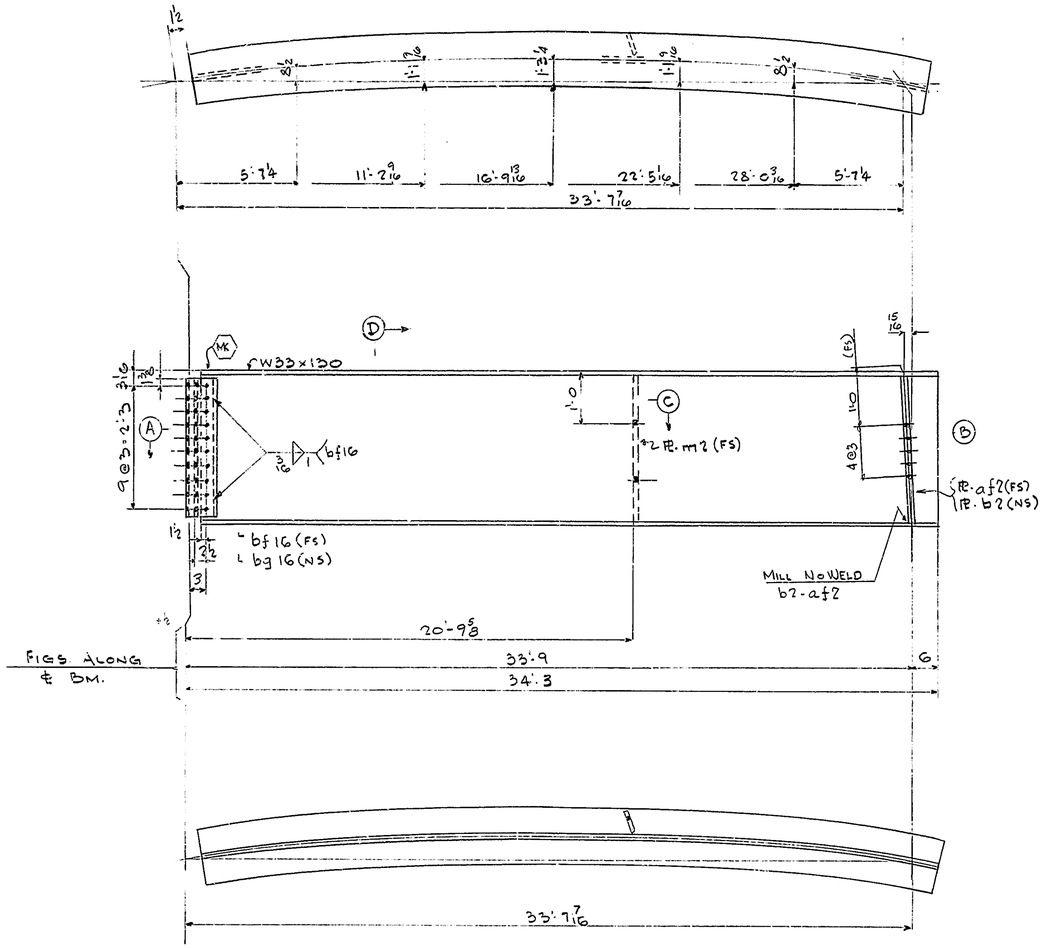
DRAWING NO. 15 OF 19

NO.	DATE	REVISIONS	BY
1	3-8-78	REVISED CAMBER ORDINATES REVISED L CONN. @ LEFT END.	D.D.

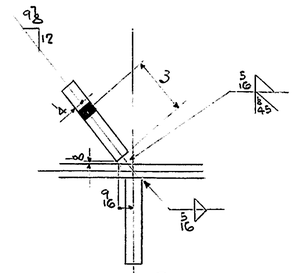
STATE CONTRACT 76-12-005 SHT. 1 THRU 29

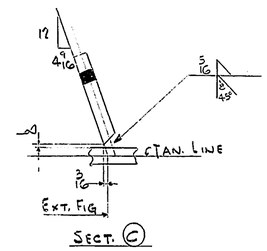
Capital Blue Print Co. 19 1153-9010

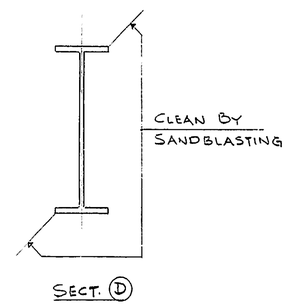


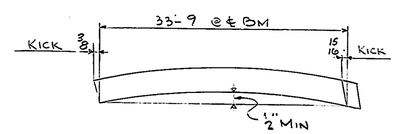


ONE STRINGER S29









CAMBER DIAGRAM

SHOP NOTE

(MK) INDICATES POSITION OF FIELD MARK

OPEN HOLES: 15/16 ⌀

SHOP CONN: WELDED

SHOP PAINT: NONE

ERECTION: BY OTHERS

SEE SHT. E1 FOR GEN. NOTES

BILL OF MATERIAL

QT.	MATERIAL	MK.	REMARKS	ADV. BILL
	ONE STRINGER S29			
ONE	W33×130×34'-1½			
1	PL	b2		
1	PL DET. & ORD ON SHT 2	m2		
1	PL	af2		
1	L 5 1/16×4 3/16×½×2'-5¾	bf16	CUT FROM 16.6.½	1/32
1	L 6×6×½×2'-5¾	bg16		1/32
1	LF 3/16 ▽ WELD			
10	L.F. 5/16 ▽ WELD			
5	L.F ½ ◺ DEV WELD			
	FIELD BOLTS - ¾ ADDED			
555	7/8" BOLTS × 0'-2¼		A325 WEATHER TYPE 3	
70	× 0'-2½			
45	× 0'-3			
735	× 0'-3¼			
1180	7/8" BOLTS × 0'-4½			
2585	7/8" H.S. WASHERS			
	MAT'L SPECS ASTM-A588			

FIELD BOLTS

STRINGER S29

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM. BR. RT. 7 RE-ALIGNMENT AND BR. Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: Del Co 5-1-78

CONTRACTOR: NESHAMINY CONST. INC

ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

CONTRACT NO. 557

DRAWN BY: STESKO DATE

CHECKED BY: JB DATE 11-11-77

DRAWING NO. 16 OF 19

NO.	DATE	REVISIONS	BY
1	3-8-78	REVISED CAMBER DIAGRAM & Ls bf16, bg16	D.D.

STATE CONTRACT 76-12-005 SHT. 1 THRU 29

		a
a		
b		
c		
d		
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g		
h		
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LO	
BC	
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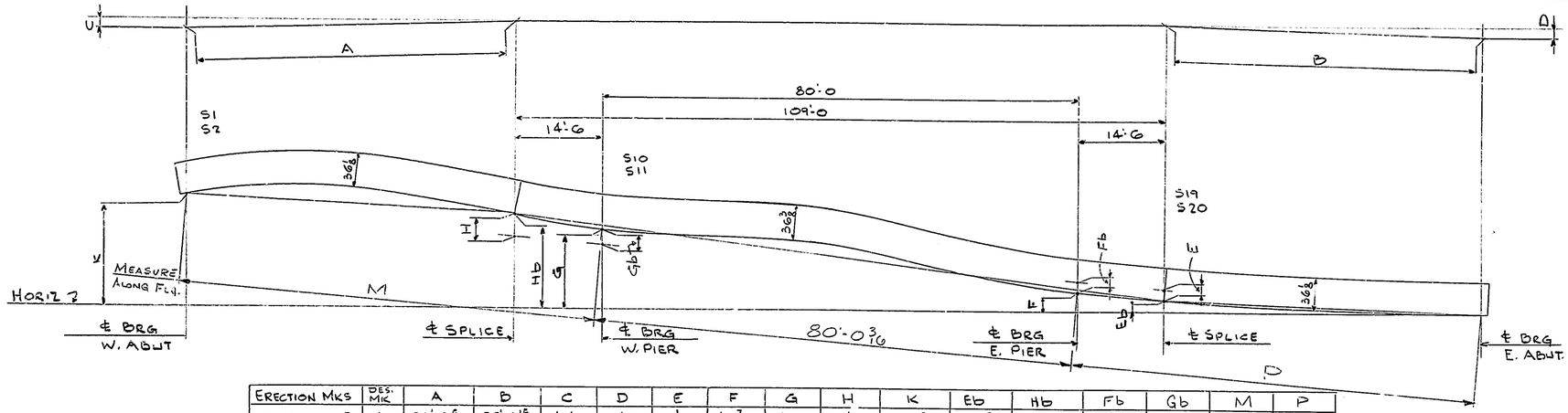
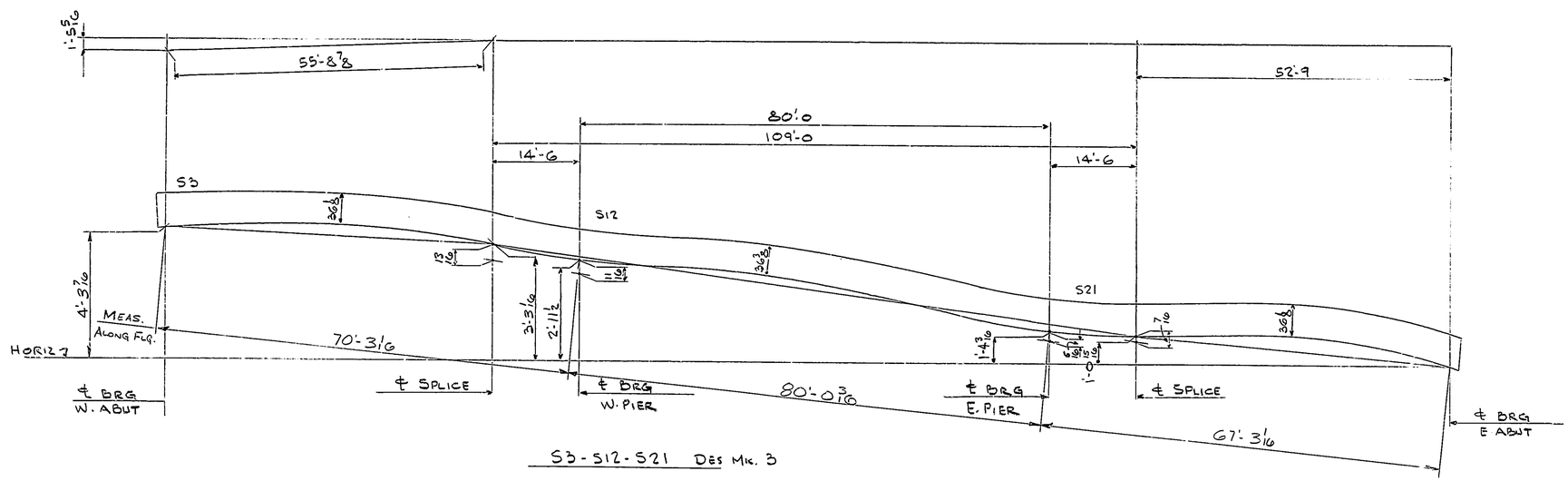
C	

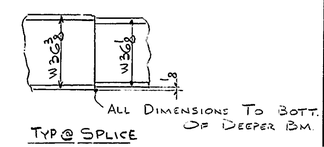
Capital Blue Print Co. 19 1153-9010



ERECTION MKS	DES. MK	A	B	C	D	E	F	G	H	K	Eb	Hb	Fb	Gb	M	P
S1-S10-S19	1	55'-9 5/8	53'-4 15/16	1'-1 1/2	2'-9	1/8	1'-4 7/16	3'-1	1 1/8	4'-4 1/8	1'-0 3/16	3'-4 1/2	0	1 1/8	70'-3 13/16	67'-11 1/16
S2-S11-S20	2	55'-9 1/4	53'-0 3/16	1'-3 7/16	1'-2 1/4	1 3/8	1'-2 1/16	2'-10 1/8	3/16	4'-2 3/16	10 7/8	3'-1 1/2	1 1/2	1/8	70'-3 3/8	67'-6 5/16



S3-S12-S21 DES MK. 3



MAT'L SPECS ASTM-A588

OPEN HOLES:

SHOP CONN:

SHOP PAINT:

ERECTION:

SEE SHT E1 FOR GEN NOTES

SHOP ASSEMBLY DWG

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM BR RT 7 RE-ALLIGNMENT & BR Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: Del DoH 3-1-78

CONTRACTOR: NESHAMINY CONST INC.

CONTRACT NO. 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS

DRAWN BY: STESKO DATE

CHECKED BY: JB DATE 1-10-78

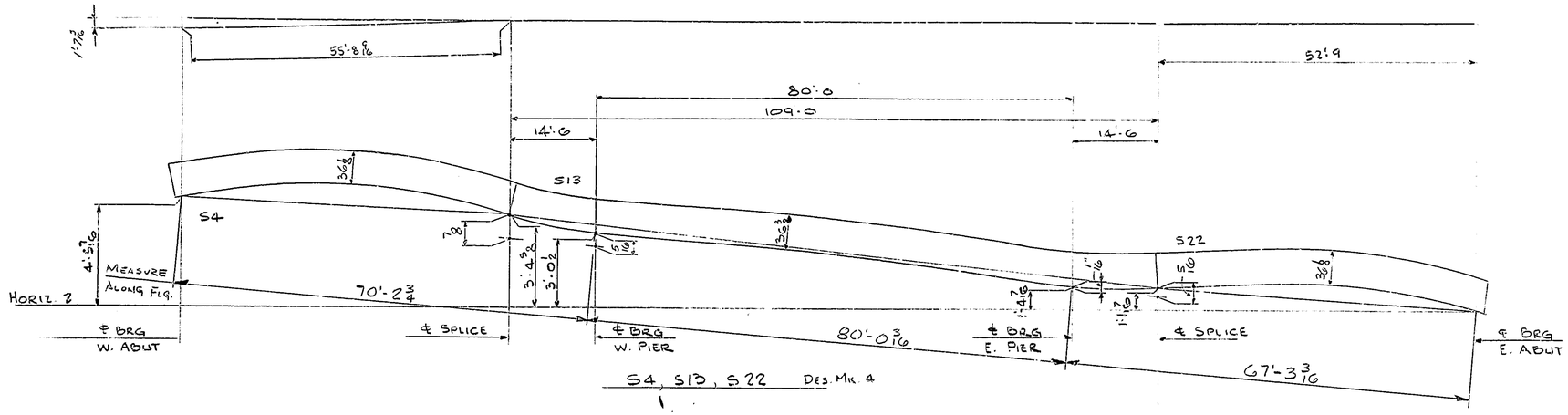
DRAWING NO. 17 OF 19

NO.	DATE	REVISIONS	BY
D	8-8-78	REVISED DIMENSIONS AS PER APPROVAL DRAWINGS	D.D.

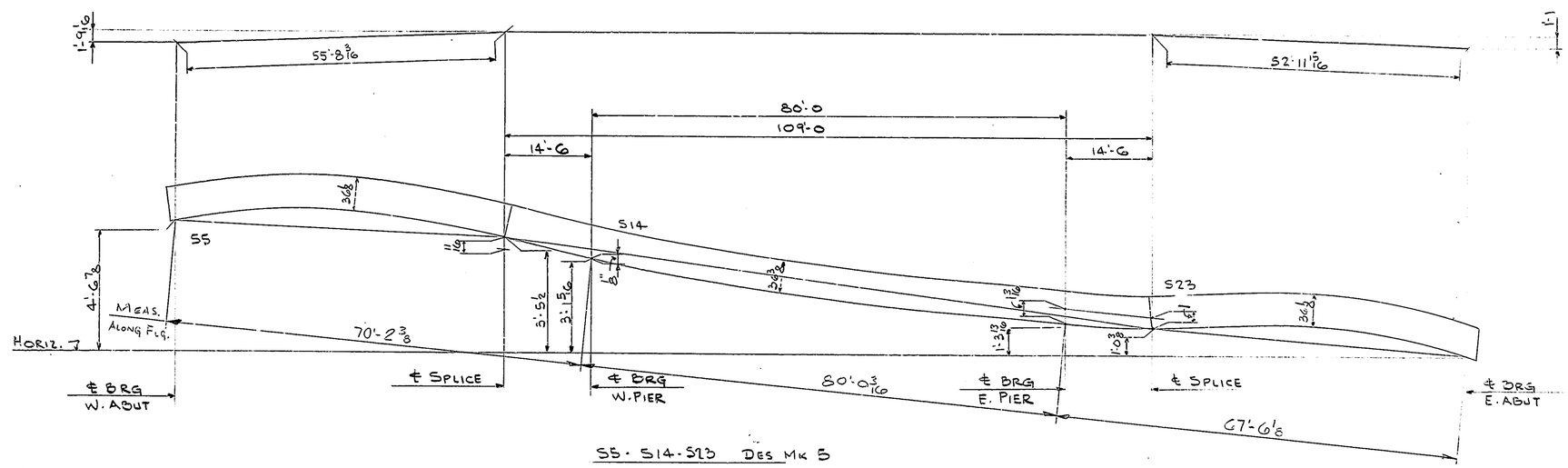
STATE CONTRACT 76-12-005 SHT. 1 THRU 29

TO	
BC	
F	
C	

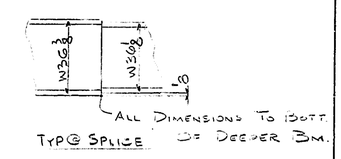
Capitol Blue Print Co. 19 1153-9010



S4, S13, S22 DES. MK. 4



S5 · S14 · S23 DES MK 5



MAT'L SPECS ASTM. A588

OPEN HOLES:

SHOP CONN:

SHOP PAINT:

ERECTION:

SEE SHT E1 FOR GEN. NOTES

NO.	DATE	REVISIONS	BY
1	8-8-78	REVISED DIMENSIONS AS PER APPROVAL DRAWINGS	D.D

STATE CONTRACT 76-17-005 SHT 1 THRU 29

SHOP ASSEMBLY DWG

cumberland bridge co.
FABRICATED STRUCTURAL STEEL
ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM BR RT 7 RE-ALLIGNMENT AND BR Nº 233 NEW CASTLE COUNTY, DEL.	APPROVED: DEL DOH 3-1-78
CONTRACTOR: NESHAMINY CONST INC	CONTRACT NO. 557
ARCHITECT: DEL. DEPT. OF HWY. & TRANS	
DRAWN BY: STESKO / DATE	DRAWING NO. 18 OF 19
CHECKED BY: JB / DATE 1-10-78	

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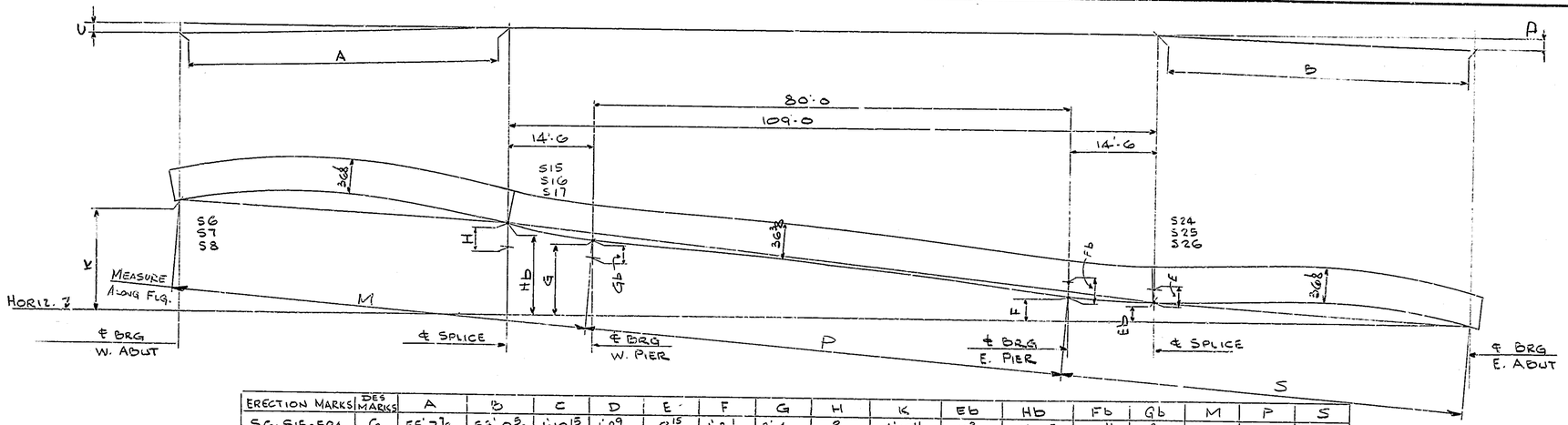
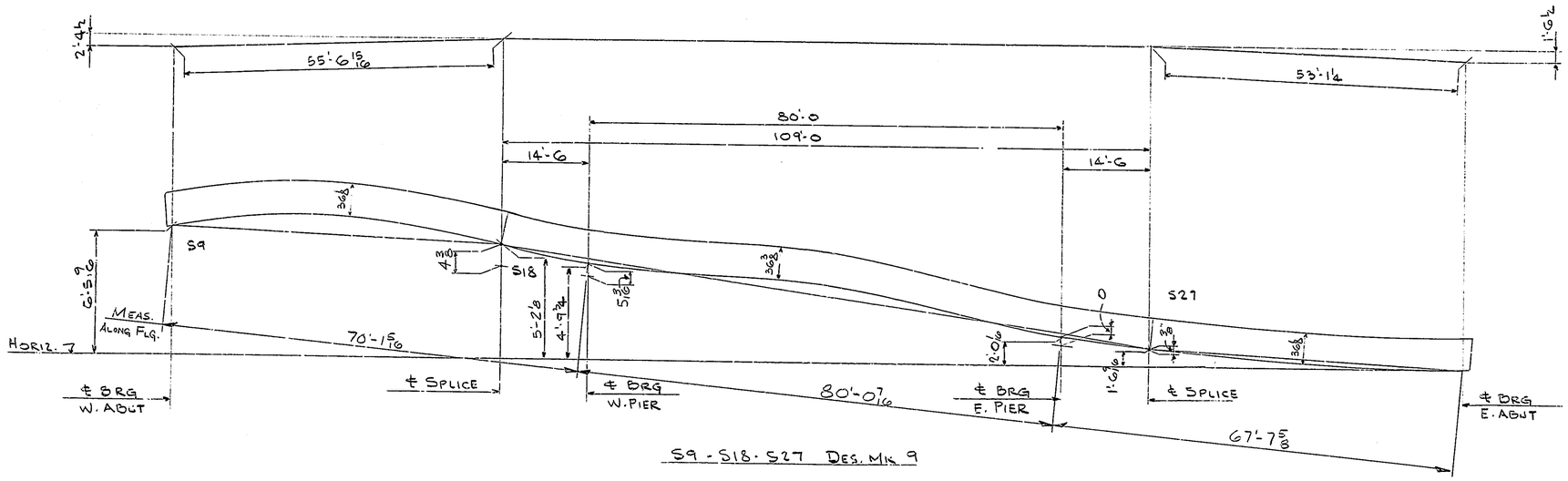
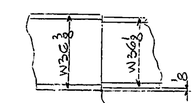
Capital Blue Print Co. 19 1153-9010



ERECTION MARKS	DES MARKS	A	B	C	D	E	F	G	H	K	Eb	HD	Fb	Gb	M	P	S
S6-S15-S24	6	55'-7 7/8	53'-0 5/16	1'-10 15/16	1'-2 9/16	2 15/16	1'-3 1/2	3'-4	3/4	4'-10 11/16	11 3/8	3'-8 7/16	2 11/16	9/16	70'-2 1/16	80'-0 1/4	67'-6 1/2
S7-S16-S25	7	55'-7 9/16	53'-0 5/8	2'-0 13/16	1'-4	2 1/16	1'-6 5/16	3'-10 1/16	1 5/8	5'-4 13/16	1'-1 3/4	4'-1 7/8	1 13/16	2 1/8	70'-1 13/16	80'-0 5/16	67'-6 7/8
S8-S17-S26	8	55'-7 1/4	53'-0 15/16	2'-2 11/16	1'-5 5/16	1 5/16	1'-9 3/16	4'-3 3/4	2 7/8	5'-11 1/16	1'-4	4'-7 13/16	7/8	3 9/16	70'-1 9/16	80'-0 3/8	67'-7 1/4



S9 - S18 - S27 DES. MK 9



ALL DIMENSIONS TO BOTT. OF DEEPER BM.

TYP @ SPLICE

OPEN HOLES:

SHOP CONN:

SHOP PAINT:

ERECTION:

SEE SHT E1 FOR GEN. NOTES

NO.	DATE	REVISIONS	BY
1	3-8-78	REVISED DIMENSIONS AS PER APPROVAL DRAWINGS	D.D.

STATE CONTRACT 76-17-005 SHT 1 THRU 79

MAT'L SPECS ASTM-A588

SHOP ASSEMBLY DWG

cumberland bridge co.

FABRICATED STRUCTURAL STEEL

ST. JOHN'S ROAD & READING R. R. CAMP HILL, PA.

JOB: 3 SPAN CONTINUOUS COMPOSITE I BM BR RT 7 RE-ALLIGNMENT AND BR Nº 233 NEW CASTLE COUNTY, DEL.

APPROVED: Del Dept 3-1-78

CONTRACTOR: NESHAMINY CONST INC

CONTRACT NO.: 557

ARCHITECT: DEL. DEPT. OF HWY. & TRANS.

DRAWN BY: STESKO DATE

CHECKED BY: JB DATE 1-10-78

DRAWING NO.: 19 OF 19

LO	
BC	
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Capitol Blue Print Co. 19 1153-9010