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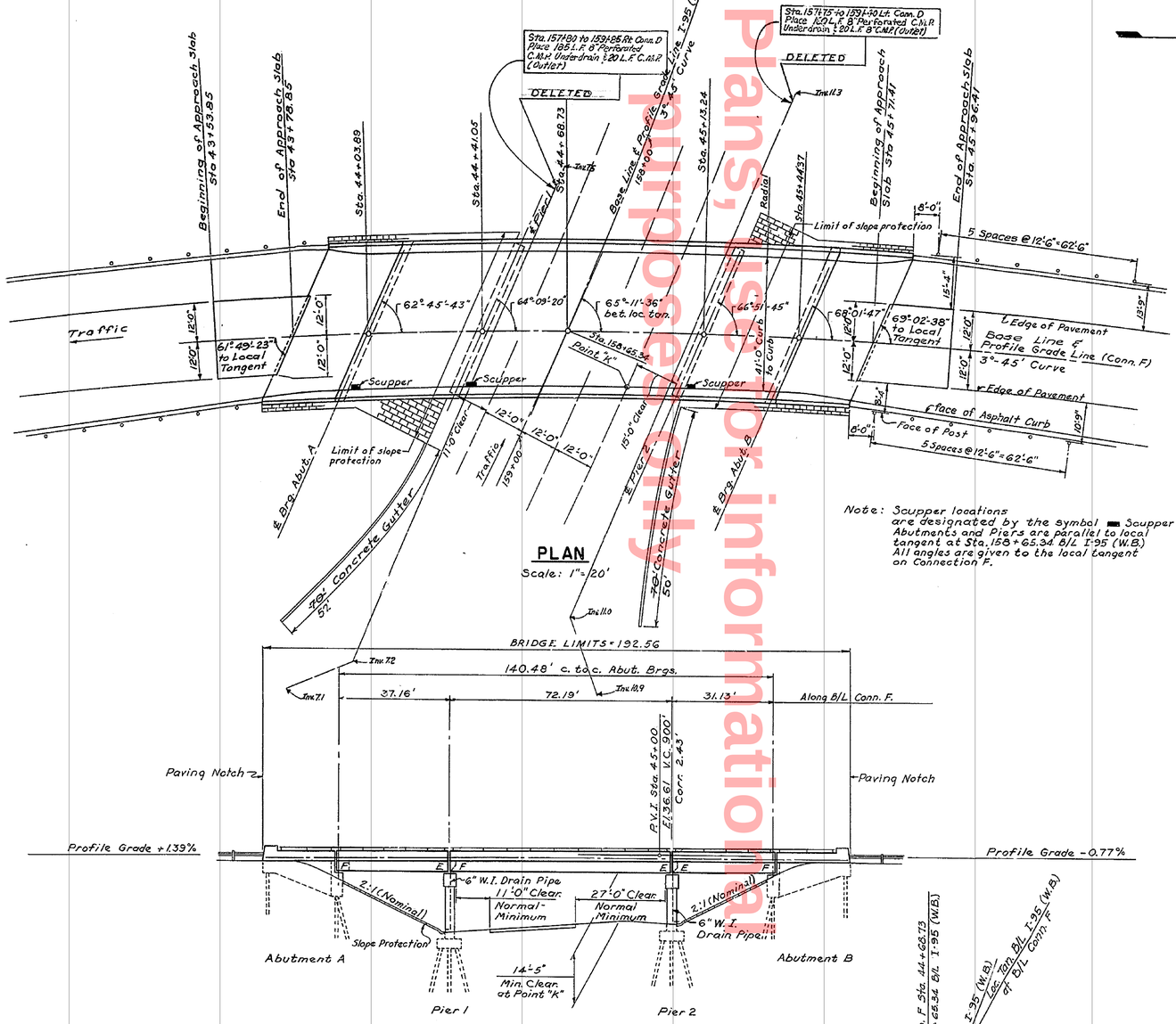
COUNTY	CONTRACT	P.R.A. REQ. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	6A01106321	2	DEL.	I-95-1(13)		15	26

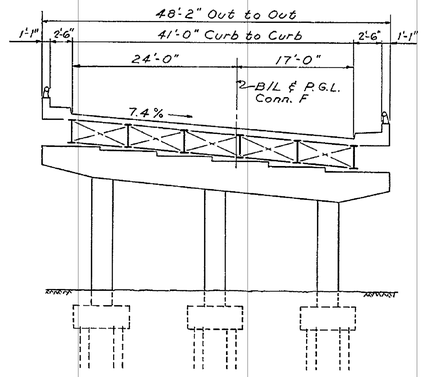
24-(4-4)

"AS-BUILT" PLAN
3-7-66

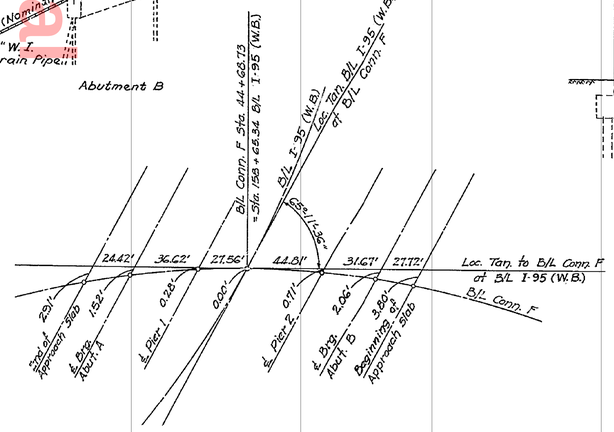


PLAN
Scale: 1"=20'

Note: Scupper locations are designated by the symbol ■ Scupper Abutments and Piers are parallel to local tangent at Sta. 158+65.34 B/L I-95 (W.B.) All angles are given to the local tangent on Connection F.



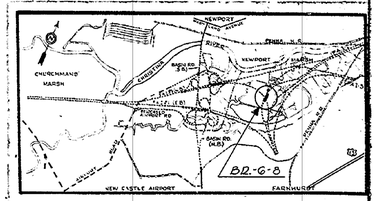
SECTION
Scale: 1"=10'



B/L CONN. F FROM TANGENT AT B/L I-95 (W.B.)
No Scale

ELEVATION
Scale: 1"=20'

4746



DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE

CONNECTION F- BRIDGE 6-8
SITE PLAN

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: J.M.M. CHECKED: R.C.C., J.M.M. DATE: 2/19/63
DRAWN: P.L.M. IN CHARGE: C.P.M. SCALE: As Shown.

APPROVED _____ BRIDGE ENGINEER

SURVEY
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

REVISIONS
Added Underdrain Information - 6-15-64

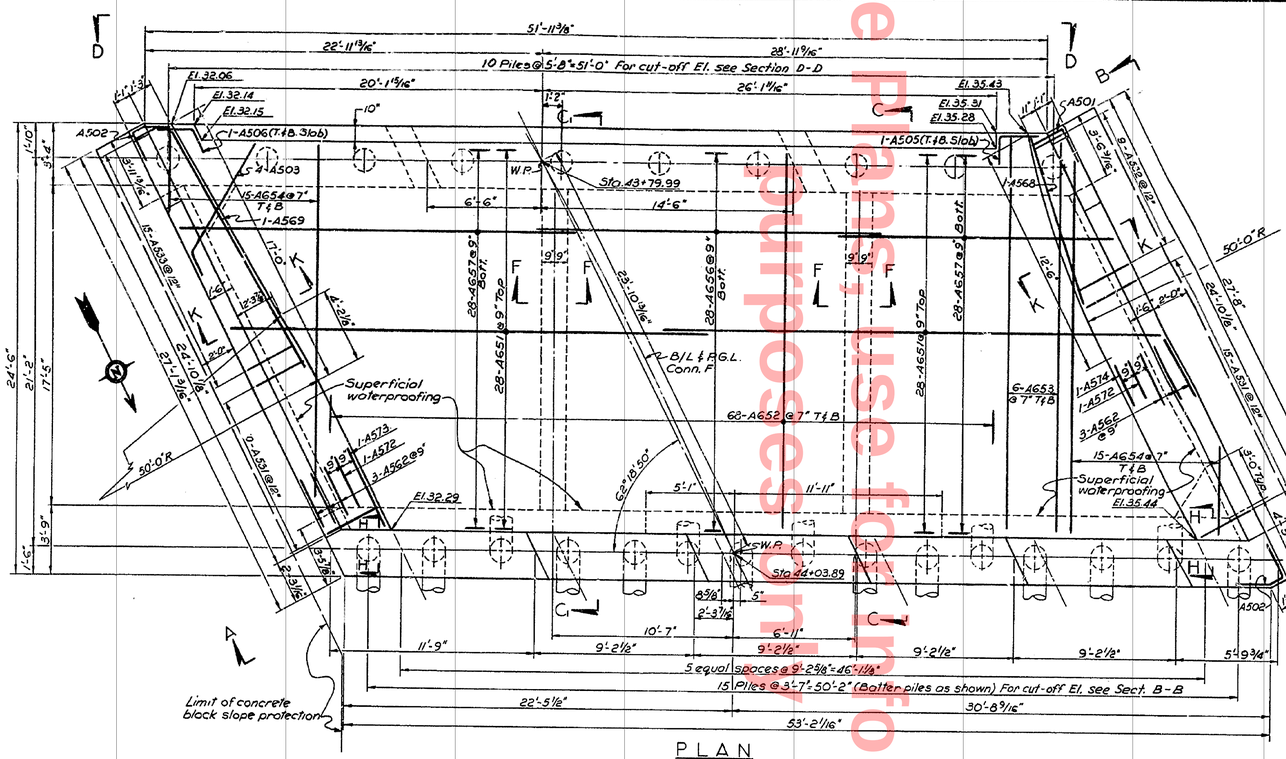
"Imperial" 136 W. B. & E.

COUNTY	CONTRACT	F. A. PROJ. NOS.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	6A0106321	S	DEL.	I-95-1(13)		16	26

REMOVAL
TREE REMOVAL
BENCH MARKS
EARTHWORK
DRAINAGE

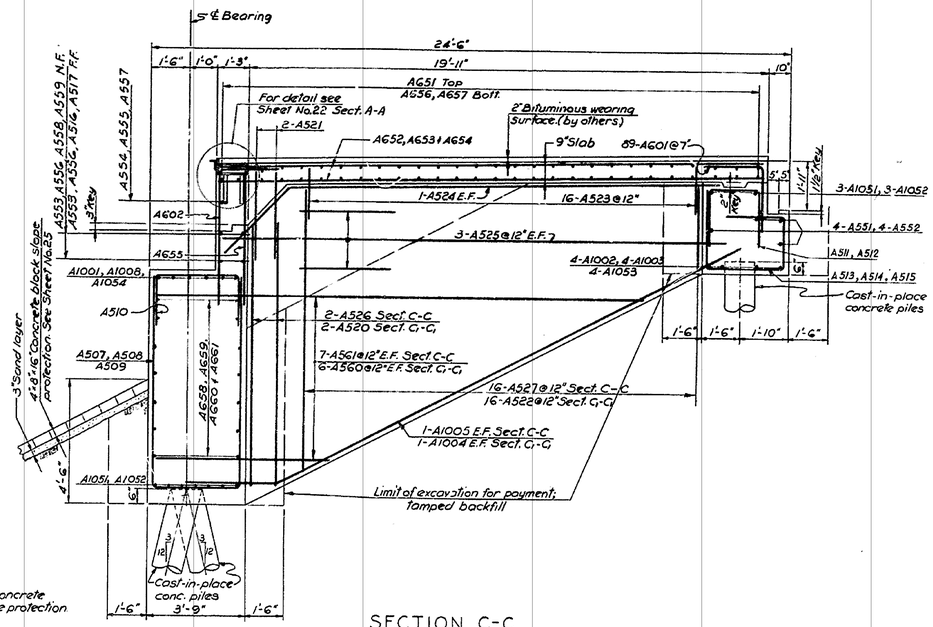
REVISIONS

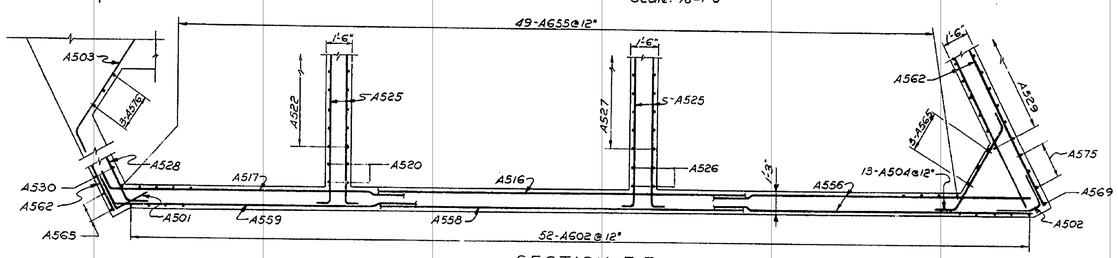
PLAN



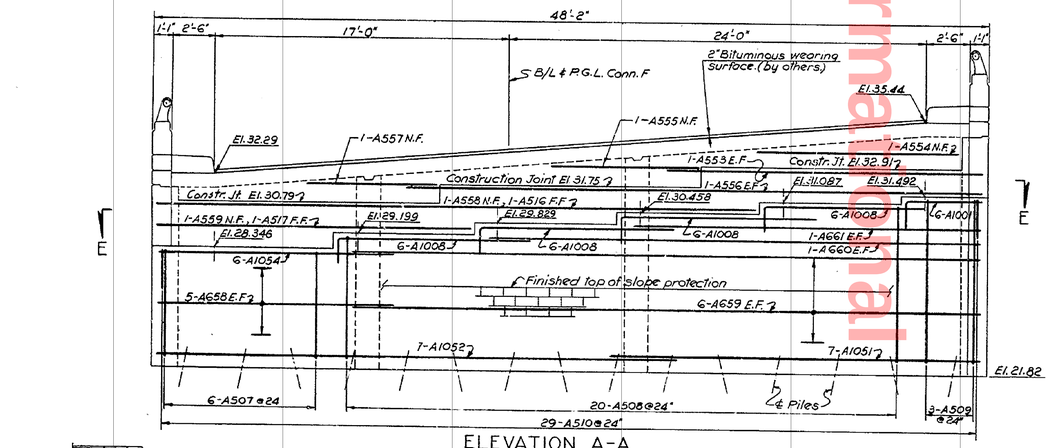
SECTION C-C
SECTION C-C

Scale: ⅜"=1'-0"

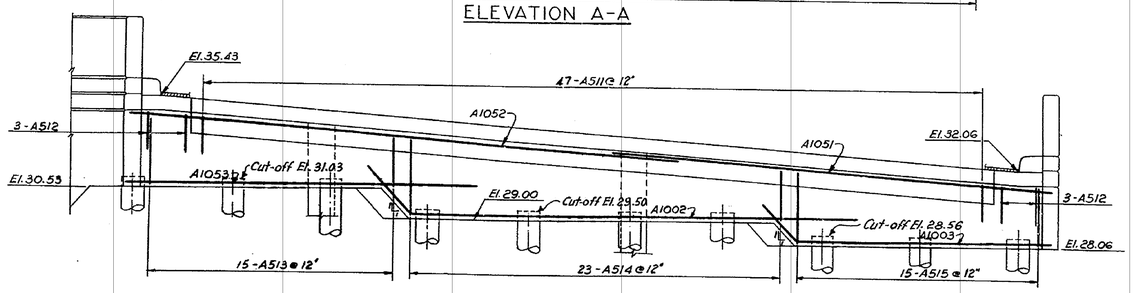




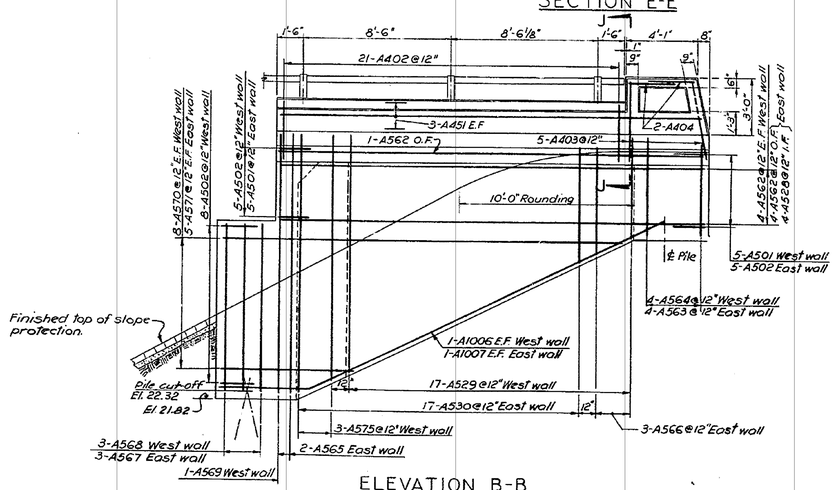
SECTION E-E



ELEVATION A-A



ELEVATION D-D



ELEVATION B-B

NOTES:

1. For General Notes see Sheet No. 2
2. For Sections F-F, H-H, J-J & K-K, Grillage Under Bearing Plates & Reinforcing Schedule see Sheet No. 18
3. Elevations shown at beam bearings are finished top of masonry elevations. See Section G-G on Sheet No. 18
4. For additional notes see Sheet No. 18
5. For Pile Details see Sheet No. 5

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE

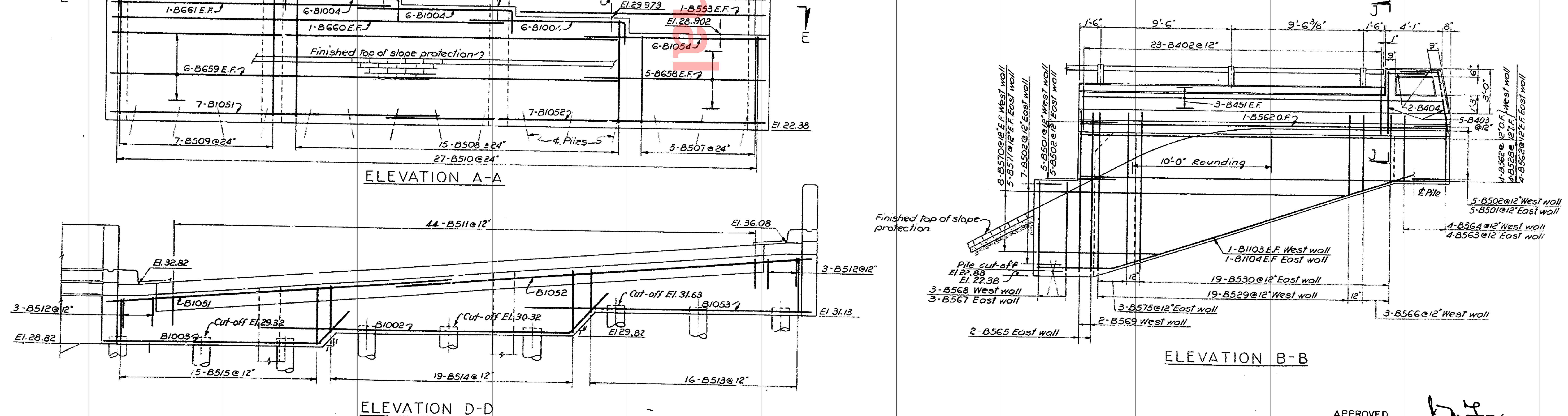
CONNECTION "F"- BRIDGE NO. 6-8
ABUTMENT "A"

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: D.H. CHECKED: M.A.G. DATE: 7/31/53
DR. WN: P.F. IN CHARGE: N.W.K. SCALE: AS NOTED

16

COUNTY	CONTRACT	F.A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	6401063211	2	DEL.	I-95-1(13)		17	26



NOTES:

1. For General Notes see Sheet No. 2
2. For Sections F-F, H-H, J-J & K-K, Grillage Under Bearing Plates & Reinforcing Schedule see Sheet No. 18
3. Elevations shown at beam bearings are finished top of masonry elevations. See Section G-G on Sheet No. 18
4. For additional notes see Sheet No. 18
5. For Pile Details see Sheet No. 5

APPROVED ______ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

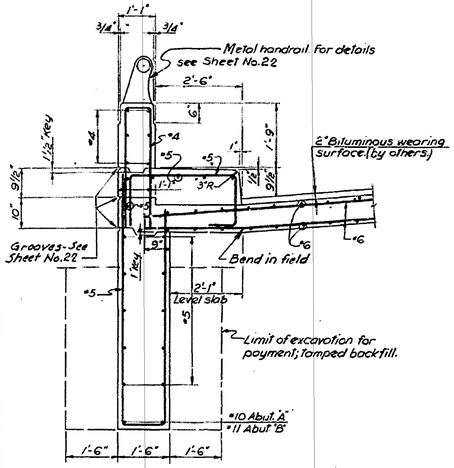
INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE

CONNECTION "F" – BRIDGE NO. 6-8
ABUTMENT "B"

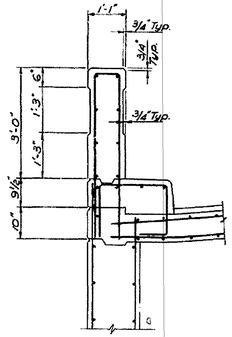
J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: M.A.G. CHECKED: D.H. DATE: 7/31/59
DRAWN: P.E. IN CHARGE: N.W.K. SCALE: AS NOTED

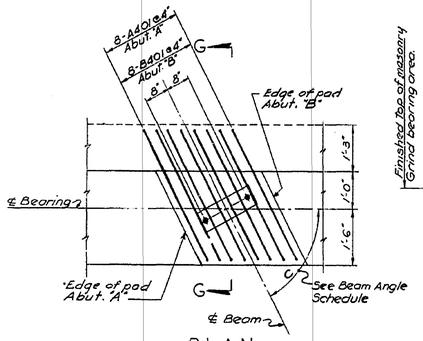
COUNTY	CONTRACT	P.E. & R. AGRE. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	6401063211	2	DEL.	I-95-1(13)		16	26



SECTION K-K

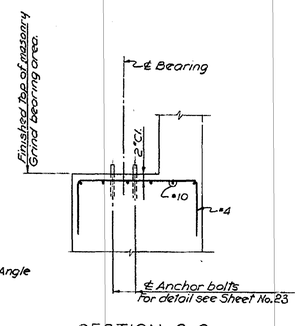


SECTION J-J



PLAN

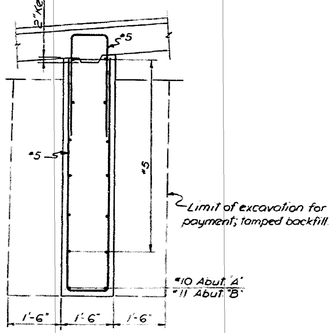
GRILLAGE UNDER BEARING PLATES



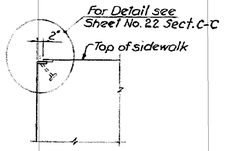
SECTION G-G

ABUT.	BEAM NO.	ANGLE C
A	1 thru 5	63°53'06"
A	6	63°07'13"
B	1 thru 5	67°49'43"
B	6	67°11'37"

BEAM ANGLE SCHEDULE



SECTION F-F



SECTION H-H

REINFORCING SCHEDULE FOR ABUTMENT "A"

BENT BARS (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	REMARKS
A401	48	#4	6-11	1	1-6	3-11	1-6					
A402	42	↑	7-0	1	3-2	0-8	3-2					
A403	10	↓	9-6	1	4-5	0-8	4-5					
A404	4	#4	6-3	1	2-10	0-7	2-10					
A501	20	#5	4-0	1	2-0	2-0						
A502	18	↓	4-11	6	2-0	0-11	2-0	1-9	0-11			
A503	4		8-6	2	6-9	1-9				1-7	10"	
A504	13		6-9	5	5-3	0-9	0-9	8"	5"	8"	5"	
A505	2		5-0	1	2-0	3-0						
A506	2		5-0	2	3-0	2-0				1-9	11"	
A507	6		15-1	1	5-10	3-5	5-10					
A508	30		16-9 to 20-9	1	6-8 to 8-8	3-5	6-8 to 8-8					Increment 8" 5 bars each
A509	3		21-5	1	9-0	3-5	9-0					
A510	29		7-1	1	1-10	3-5	1-10					
A511	47		6-2	1	2-0	2-2	2-0					
A512	6		7-0	1	2-0	3-0	2-0					
A513	15		9-5 to 11-2	4	2-3	1-7 to 2-5½	3-0	2-7 to 3-5½				Increment = 3/4"
A514	23		9-5 to 12-2	4	2-3	1-7 to 2-11½	3-0	2-7 to 3-11½				Increment = 3/4"
A515	15		9-5 to 11-2	4	2-3	1-7 to 2-5½	3-0	2-7 to 3-5½				Increment = 3/4"
A516	1		39-10	2	0-9	39-1	-			8"	5"	
A517	1		21-5	2	0-9	20-8	-			8"	5"	
A520	2		18-6	1	8-8	1-2	8-8					
A521	4		8-6	1	3-8	1-2	3-8					
A522	16		8-5 to 19-8	1	3-7½ to 9-3	1-2	3-7½ to 9-3					Increment 4½"
A523	32		7-2	1	3-0	1-2	3-0					
A524	4		19-10	2	17-0	2-10				2-0	2-0	
A525	12		20-4	1	0-9	19-7	-					
A526	2		20-6	1	9-8	1-2	9-8					
A527	16		7-9 to 21-6	1	3-3½ to 10-2	1-2	3-3½ to 10-2					Increment 5½"
A528	4		25-3	2	0-9	24-6				8"	5"	
A529	17		12-3 to 25-7	1	5-2 to 11-10	1-2	5-11 to 12-7					Increment 5"
A530	17		11-11 to 28-7	1	5-0 to 10-4	1-2	5-9 to 11-2					Increment 4"
A531	25		6-6	4	0-9	1-3	3-1	1-5				
A532	9		5-1 to 6-5	4	0-9	1-3	1-8 to 3-0	1-5				Increment 2"
A533	15	#5	5-3 to 6-5	4	0-9	1-3	1-10 to 3-0	1-5				Increment 1"
A601	89	#6	5-0	1	2-6	2-6	-					
A602	52	#6	8-9	1	2-3	6-6	-					
A1001	6	#10	6-11	1	1-6	5-5	-					
A1002	4	↑	29-6	2	25-9	3-9				2-8	2-8	
A1003	4		18-4	2	15-4	3-0				2-1	2-1	
A1004	2		22-4	2	19-0	3-4				1-4	3-1	
A1005	2		23-1	2	20-0	3-1				1-5	2-10	
A1006	2		28-0	2	22-9	5-3				2-1	4-9	
A1007	2	↓	26-0	2	21-0	5-0				1-7	4-9	
A1008	24	#10	14-4	1	1-6	12-10	-					

NOTE: All above marks are prefixed by 6-8

STRAIGHT BARS

MARK	NO	SIZE	LENGTH	REMARKS
A451	12	#4	24-3	
A551	4	#5	31-3	
A552	4	↑	24-9	
A553	2		20-4	
A554	1		13-9	
A555	1		9-3	
A556	2		37-4	
A557	1		8-3	
A558	1		39-1	
A559	1		20-8	
A560	12		7-5 to 19-6	Increment 2'-5" 2 bars each
A561	14		6-7 to 18-7	Increment 2'-0" 2 bars each
A562	20		24-7	
A563	4		4-9	
A564	4		5-6	
A565	5		11-0	
A566	3		4-9 to 5-5	Increment 4"
A567	3		6-2	
A568	4		9-3	
A569	1		14-0	
A570	16		8-0 to 23-9	Increment 2'-3" 2 bars each
A571	10		7-11 to 20-3	Increment 3'-1" 2 bars each
A572	2		21-0	
A573	1		12-3	
A574	1		16-0	
A575	3		13-0 to 13-10	Increment 5"
A576	3	#5	3-7	
A651	56	#6	27-6	
A652	136	↑	20-10	
A653	12		21-8	
A654	60		4-2 to 19-4	Increment 1'-1" 4 bars each
A655	49		6-6	
A656	28		20-0	
A657	56		14-0 to 25-3	Increment 5" 2 bars each
A658	10		16-3	
A659	12		40-0	
A660	2		31-9	
A661	2	#6	22-6	
A1051	10	#10	26-3	
A1052	10	↑	31-9	
A1053	4	↓	20-2	
A1054	6	#10	16-3	

REINFORCING SCHEDULE FOR ABUTMENT "B"

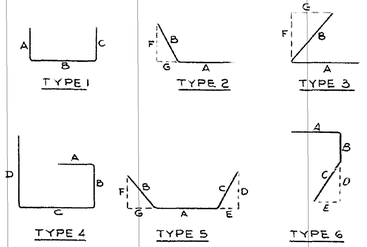
BENT BARS (All dimensions are out to out)

MARK	NO	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	REMARKS
B401	48	#4	6-8	1	1-6	3-8	1-6					
B402	46	↑	7-0	1	3-2	0-8	3-2					
B403	10	↓	9-6	1	4-5	0-8	4-5					
B404	4	#4	6-3	1	2-10	0-7	2-10					
B501	10	#5	4-0	1	2-0	2-0	-					
B502	17	↑	4-11	6	2-0	0-11	2-0	1-10	0-9			
B503	4		8-6	2	6-9	1-9				1-6	11"	
B504	10		7-4	5	5-10	0-9	0-9	7"	5"	7"	5"	
B505	2		5-0	1	2-0	3-0	-					
B506	2		5-0	2	3-0	2-0				1-10	9"	
B507	5		15-1	1	5-10	3-5	5-10					
B508	15		17-1 to 19-9	1	6-10 to 8-2	3-5	6-10 to 8-2					Increment 8" 5 bars each
B509	7		20-11	1	8-9	3-5	8-9					
B510	27		7-1	1	1-10	3-5	1-10					
B511	44		6-2	1	2-0	2-2	2-0					
B512	6		7-0	1	2-0	3-0	2-0					
B513	16		9-5 to 11-2	4	2-3	1-7 to 2-5½	3-0	2-7 to 3-5½				Increment = 3/4"
B514	15		9-5 to 11-8	4	2-3	1-7 to 2-8½	3-0	2-7 to 3-6½				Increment = 3/4"
B515	15		9-5 to 11-2	4	2-3	1-7 to 2-5½	3-0	2-7 to 3-5½				Increment = 3/4"
B516	1		20-9	2	0-9	20-0	-			8"	2"	
B517	1		36-9	2	0-9	36-0				8"	2"	
B520	1		22-8	1	10-9	1-2	10-9					
B521	2		7-8	1	3-3	1-2	3-3					
B522	20		9-5 to 23-8	1	4-1½ to 11-3	1-2	4-1½ to 11-3					Increment 4½"
B523	40		7-2	1	3-0	1-2	3-0					
B524	4		22-6	2	20-6	2-0				1-6	1-6	
B525	6		23-3	1	0-9	22-6	-					
B526	1		20-8	1	9-9	1-2	9-9					
B527	20		8-10 to 21-6	1	3-10 to 10-2	1-2	3-10 to 10-2					Increment 4"
B528	4		27-1	2	26-4	0-9				8"	2"	
B529	19		13-11 to 28-11	1	6-0 to 13-6	1-2	6-9 to 14-3					Increment 5"
B530	19		9-11 to 20-5	1	4-0 to 9-3	1-2	4-9 to 10-0					Increment 3½"
B531	29		6-6	4	0-9	1-3	3-1	1-5				
B532	9	↓	5-1 to 6-5	4	0-9	1-3	1-8 to 3-0	1-5				Increment 2"
B533	15	#5	5-3 to 6-5	4	0-9	1-3	1-10 to 3-0	1-5				Increment 1"
B601	60	#6	4-6	1	2-3	2-3	-					
B602	50	#6	7-9	1	2-3	5-6	-					
B1001	6	#10	15-3	1	1-6	13-9						
B1002	4	↑	26-4	2	22-7	3-9				2-8	2-8	
B1003	4		18-9	2	15-6	3-3				2-3	2-3	
B1004	18	#10	14-1	1	1-6	12-7						
B1101	2	#11	25-5	2	21-8	3-9				1-3	3-6	
B1102	2	↑	25-2	2	21-5	3-9				1-2	3-7	
B1103	2		28-10	2	23-9	5-1				2-0	4-8	
B1104	2	#11	28-9	2	23-3	5-6				1-8	5-6	

NOTE: All above marks are prefixed by 6-8

STRAIGHT BARS

MARK	NO	SIZE	LENGTH	REMARKS
B451	12	#4	26-2	
B551	4	#5	30-0	
B552	4	↑	23-5	
B553	2		19-6	
B554	2		37-3	
B555	4		9-0	
B556	1		36-0	
B557	1		9-6	
B558	1		20-0	
B559	1		10-0	
B560	12		8-3 to 22-0	Increment 2'-9" 2 bars each
B561	10		8-0 to 21-0	Increment 3'-3" 2 bars each
B562	20		26-6	
B563	7		4-8	
B564	4		5-3	
B565	2		11-0	
B566	3		5-9 to 6-7	Increment 5"
B567	3		6-2	
B568	3		9-2	
B569	2		14-2	
B570	16		7-9 to 24-8	Increment 2'-5" 2 bars each
B571	10		9-0 to 22-8	Increment 3'-5" 2 bars each
B572	1		24-0	
B573	1		12-3	
B574	1		19-3	
B575	3		10-2 to 10-9	Increment 3½"
B576	8		25-0	
B577	1	↑	21-6	
B578	1	#5	15-6	
B651	64	#6	26-3	
B652	92	↑	23-10	
B653	8		24-8	
B654	40		3-3 to 22-0	Increment 2'-1" 4 bars each
B655	47		5-6	
B656	32		19-3	
B657	64		13-6 to 23-10	Increment 4" 2 bars each
B658	10		14-7	
B659	12		39-1	
B660	2	↓	30-4	
B661	2	#6	21-5	
B1051	10	#10	25-3	
B1052	10	↑	30-2	
B1053	4	↓	20-9	
B1054	6	#10	14-7	



NOTES:

1. For key plan see Sheet No. 19
2. For slope protection and drainage details see Sheet No.25
3. Cast-in-place concrete piles shall be driven to develop minimum 35 tons actual bearing capacity.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE

CONNECTION "F" - BRIDGE NO. 6-8
ABUTMENTS - SECTIONS & SCHEDULES

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: M.A.G. CHECKED: A.K. DATE: 7/31/52
DRAWN: E.F. IN CHARGE: W.W.K. SCALE: AS SHOWN

TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

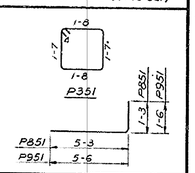
COUNTY	CONTRACT	F.A.P. OR S.R.D. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	G401063211	2	DEL.	I-95-1(13)		19	26

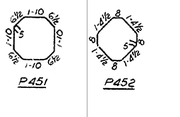
REINFORCING SCHEDULE FOR PIERS 1 & 2

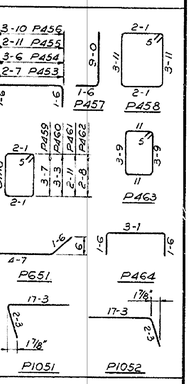
LOCATION	STRAIGHT BARS MARK	PIER	TOTAL REQ'D	SIZE	LENGTH	BENT BARS MARK	PIER	TOTAL REQ'D	SIZE	LENGTH
FOOTING	P601	1,2	24	#6	8-3	P351	1,2	20	#3	7-2
	P602	1,2	24	#6	9-6					
	P603	1,2	12	#6	13-6	P851	1,2	32	#8	6-6
	P901	1,2	60	#9	9-6	P951	1,2	64	#9	7-0
	P902	1,2	66	#9	8-6					
SHAFT	P801	1	16	#8	21-4	P451	1,2	100	#4	10-4
	P802	2	16	#8	19-5	P452	1,2	94	#4	9-0
	P903	1	16	#9	22-8					
	P904	2	16	#9	20-8					
	P905	1	16	#9	20-0					
	P906	2	16	#9	18-1					
CAP BEAM	P501	1,2	16	#5	25-5	P453	1	3	#4	5-7
						P454	1	3		6-6
	P1001	1,2	12	#10	40-0	P455	2	3		5-11
	P1002	1,2	12	#10	22-3	P456	2	3		6-10
						P457	1,2	60		10-6
						P458	1,2	96		12-10
						P459	1,2	8		12-2
						P460	1,2	8		11-6
						P461	1,2	8		10-10
						P462	1,2	8		10-4
						P463	1,2	4		10-2
						P464	1,2	96	#4	6-1
						P651	1,2	16	#6	6-1
						P1051	1,2	12	#10	19-6
						P1052	1,2	12	#10	19-6

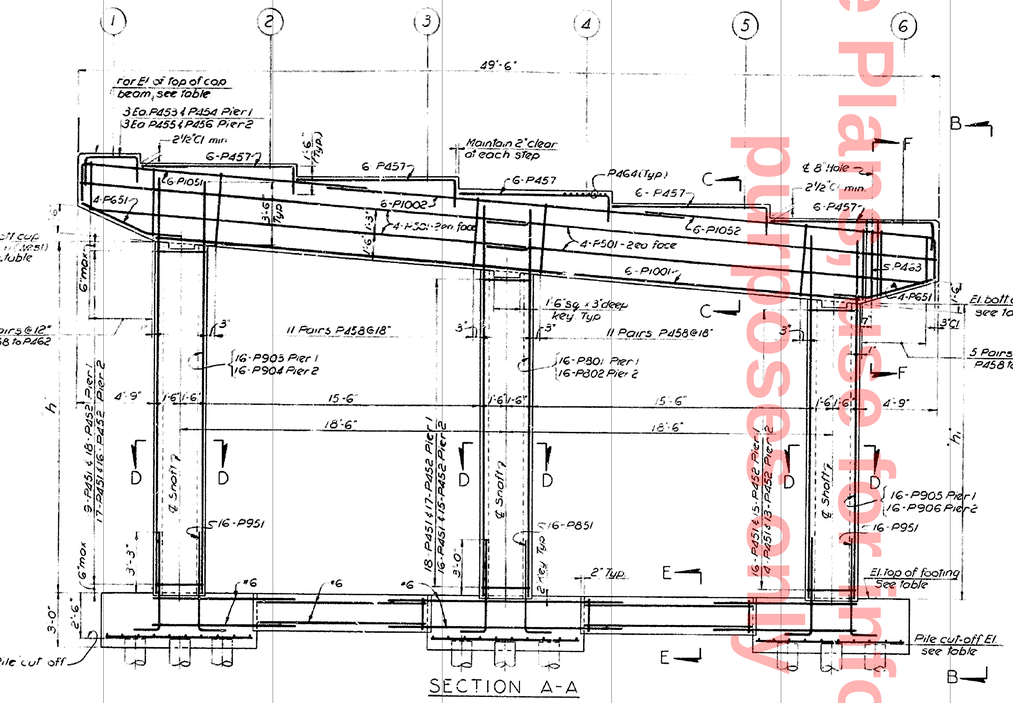
Note: All above marks are prefixed by 6-8

BENDING DIAGRAMS (All dimensions are out to out)

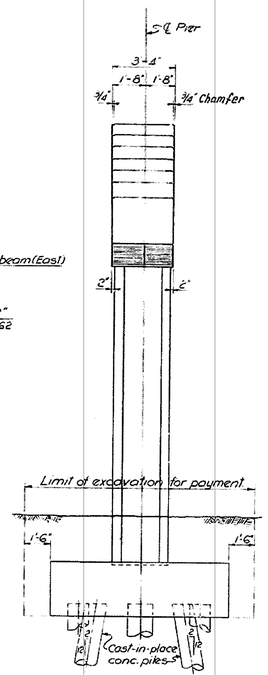




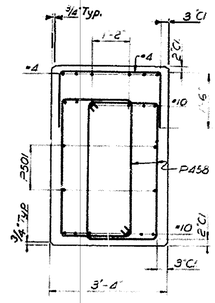




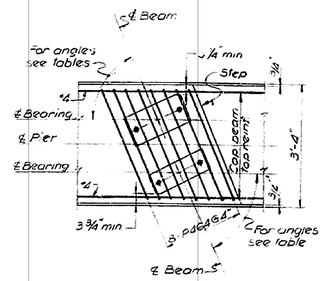
SECTION A-A



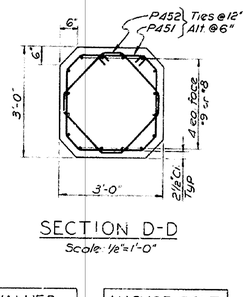
ELEVATION B-B



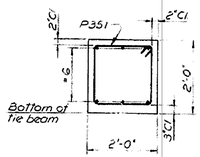
SECTION C-C
Scale: ½"=1'-0"



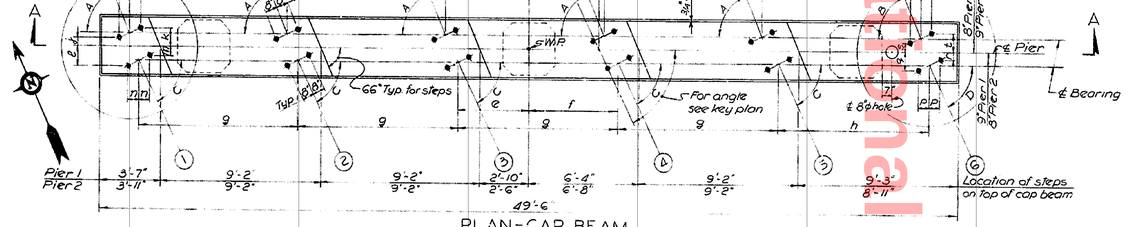
GRILLAGE UNDER BEARING PLATES
Note: Move reinforcing bar to clear drainage opening
Scale: 1½"=1'-0"



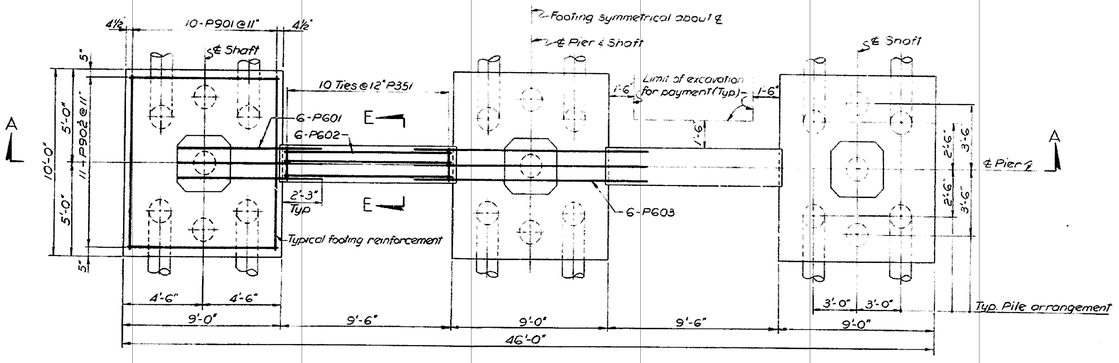
SECTION D-D
Scale: 1½"=1'-0"



SECTION E-E
Scale: 1½"=1'-0"



PLAN-CAP BEAM



PLAN OF FOOTING

ANGLE & DIMENSION VALUES FOR PLAN OF CAP BEAM

		Pier 1	Pier 2
Angle	A	65°54'45"	67°49'43"
	B	65°12'54"	67°11'37"
	C	63°53'06"	65°54'45"
	D	63°07'13"	65°12'54"
Dimension	a	9'-1¼"	8'-10⁵⁄₁₆"
	b	3'-9⅞"	3'-9⅞"
	c	2'-10⅛"	4'-9³⁄₁₆"
	d	4'-2⅜"	4'-1¾"
	e	4'-0⅛"	3'-9⅞"
	f	5'-2⁹⁄₁₆"	5'-3⅛"
	g	9'-2⅝"	9'-1¼"
	h	8'-8⅛"	8'-1⁵⁄₁₆"

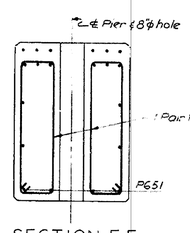
TABULATION OF ELEVATIONS & HEIGHTS OF PIERS

	Pier 1	Pier 2
El ①	31.659	31.755
El ②	31.041	31.126
El ③	30.417	30.496
El ④	29.793	29.867
El ⑤	29.168	29.237
El ⑥	28.536	28.673
El. bott. of cap beam (West)	26.672	26.779
El. bott. of cap beam (East)	23.837	23.996
El. Top of footing	7.612	9.779
Pile cut-off El.	5.172	7.279
Dimension "h"	19'-0"	17'-0"
Dimension "h,"	16'-2	14'-2⅝"

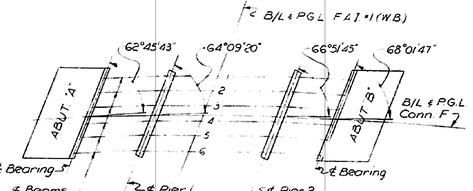
NOTE: Elevations ① thru ⑥ are finished top of pier elevations.

ANCHOR BOLT LOCATIONS

	Pier 1	Pier 2
i	7⅝"	7⅞"
j	4¾"	6"
k	11¼"	1'-0"
ℓ	1'-0½"	11¼"
m	5½"	4¾"
n	7⅜"	7⅝"
p	7⅛"	7¼"
q	1'-0⅝"	11⅜"
r	5⅜"	4⅝"
s	4⅝"	5⅛"
t	11⅜"	1'-0⅛"
u	7¼"	7⅜"



SECTION F-F
Scale: 1½"=1'-0"



KEY PLAN
N.T.S.

NOTES:

1. For General Notes see Sheet No. 2
2. For Angles given on Key Plan are to the local Tangent on Connection "F."
3. For Shoe and Anchor Bolt Details see Sheet No. 23
4. For Drainage Details see Sheet No. 25
5. For Pile Details see Sheet No. 5

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE
CONNECTION "F" - BRIDGE NO. 6-8
PIERS 1 & 2

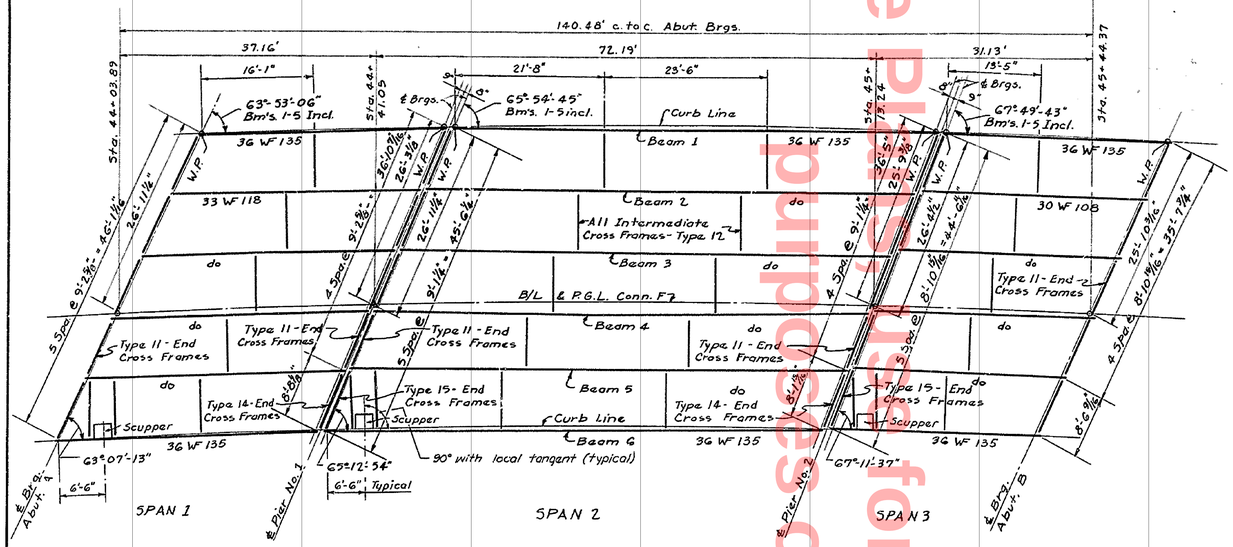
J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: W.J.A. CHECKED: K.K.C. DATE: 7/31/63
DRAWN: P.F. IN CHARGE: M.W.K. SCALE: AS SHOWN

BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

REVISIONS

COUNTY	CONTRACT	P.S.& P. REC. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	64010632.11	2	DEL.	I-95-1(13)		20	26

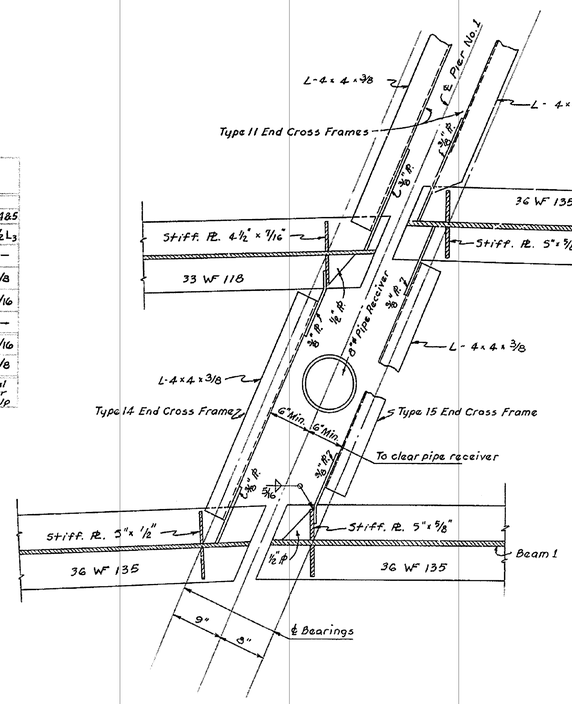


FRAMING PLAN

Scale: 1"=10'

CAMBER INCREMENTS FOR DEAD LOAD INCHES (VERTICAL CURVE)

	Span 1		Span 2		Span 3			
	Bms. 1 to 6		Bms. 1 to 6		Bms. 1 & 6		Bms. 2,3,4 & 5	
	$\frac{1}{4}L_1$	$\frac{1}{2}L_1$	$\frac{1}{4}L_2$	$\frac{1}{2}L_2$	$\frac{1}{4}L_3$	$\frac{1}{2}L_3$	$\frac{1}{4}L_3$	$\frac{1}{2}L_3$
Structural Steel	–	–	1/4	5/16	–	–	–	–
Concrete Deck Slab	1/8	3/16	1	1 3/8	1/16	1/8	1/16	1/8
Sidewalk and Parapet	1/16	1/16	1/8	3/16	–	–	–	1/16
2" Wearing Surface	–	–	1/16	1/8	–	–	–	–
Full Dead Load	3/16	1/4	1 7/16	2	1/16	1/8	1/16	3/16
Vertical Curve	–	1/16	1/8	3/16	1/16	1/8	1/16	1/8
Total Camber at ½ Ln	Natural Camber Place Up		2 3/16		Natural Camber Place Up		Natural Camber Place Up	



END CROSS FRAME CONNECTION

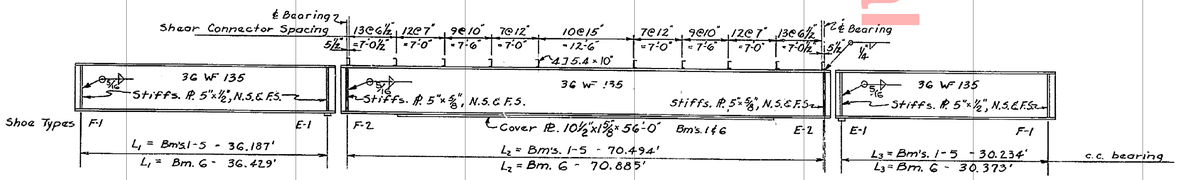
Scale: 1" = 1'-0"

CROSS SECTION

Scale: ⅜"=1'-0"

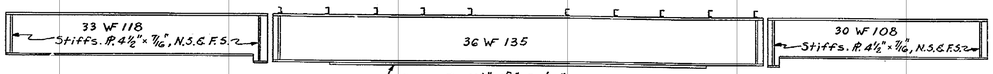
BEARING FILL HEIGHTS AT SHOES				
Beams	℄ Brg. Pier 1		℄ Brg. Pier 2	
	Span 1	Span 2	Span 2	Span 3
1	–	1/16"	–	1 1/16"
2	2 1/2"	–	–	7 1/16" *
3	2 1/16"	–	–	7 1/16" *
4	2 5/16"	–	–	8" *
5	2 1/2"	–	–	8 3/16" *
6	–	1/16"	–	1 1/16"

Use stools for fills noted *, otherwise use solid fills. See Bearings Details Sheet.



EXTERIOR BEAM

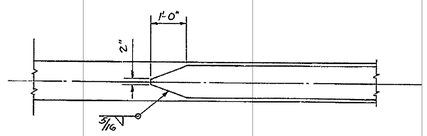
No Scale



Note: For Details not shown see Exterior Beam

INTERIOR BEAM

No Scale



BOTTOM FLANGE DETAIL

Scale: ½" = 1'-0"

Notes:
For General Notes, see Sheet No. 2
For Cross Frames, dams and bridge railing, see Superstructure Details Sheet. No. 22
For Shoes, see Bearing Details Sheet. No. 23
For Scupper and scupper framing, see Scupper Details Sheet. No. 24

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE
CONNECTION F — BRIDGE 6-8
SUPERSTRUCTURE — FRAMING

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

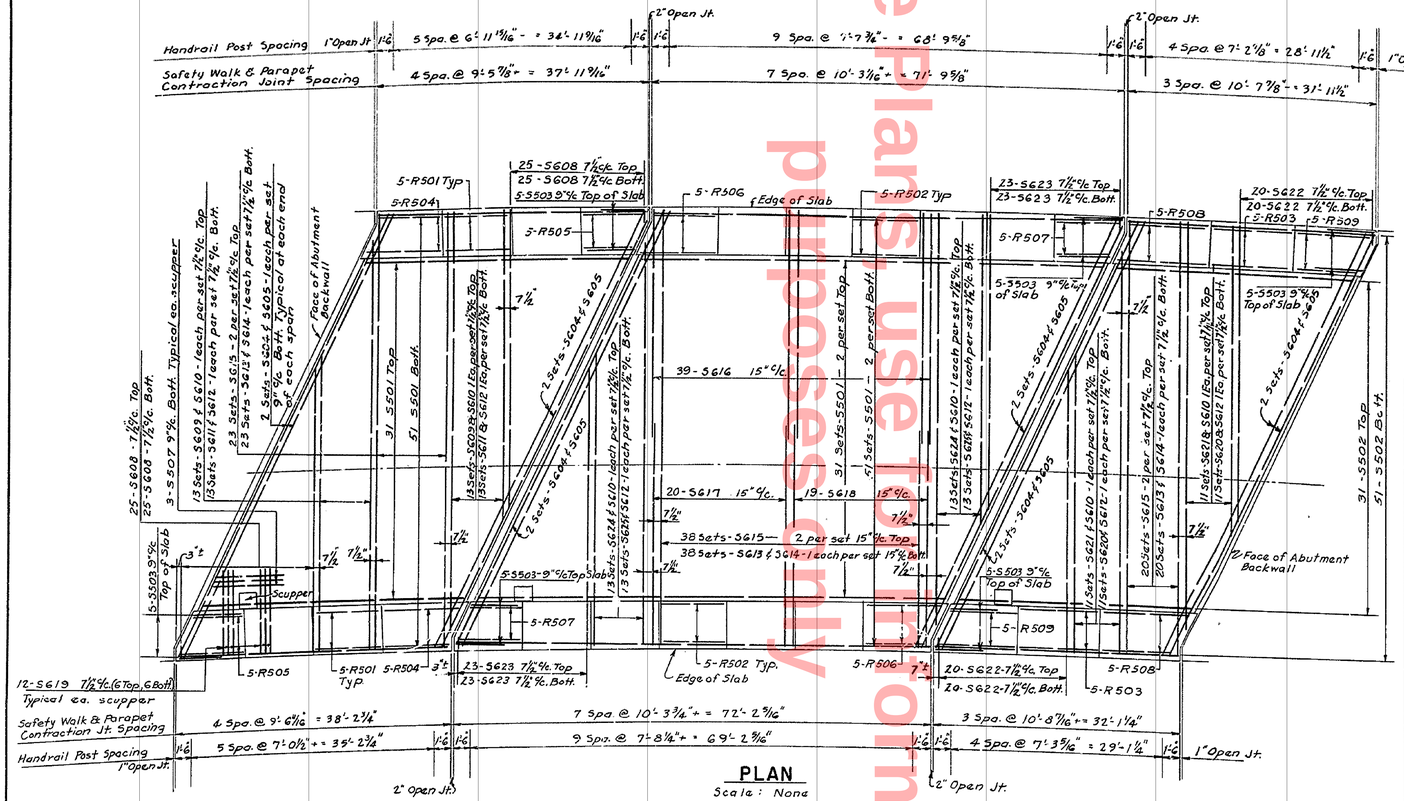
DESIGNED: E.L.L. CHECKED: F.P.P. DATE: 12-19-63
DRAWN: D.L.M. IN CHARGE: C.P.M. SCALE: As Shown.

REVISIONS
Dead Load camber changed to 1 1/16" at ℄

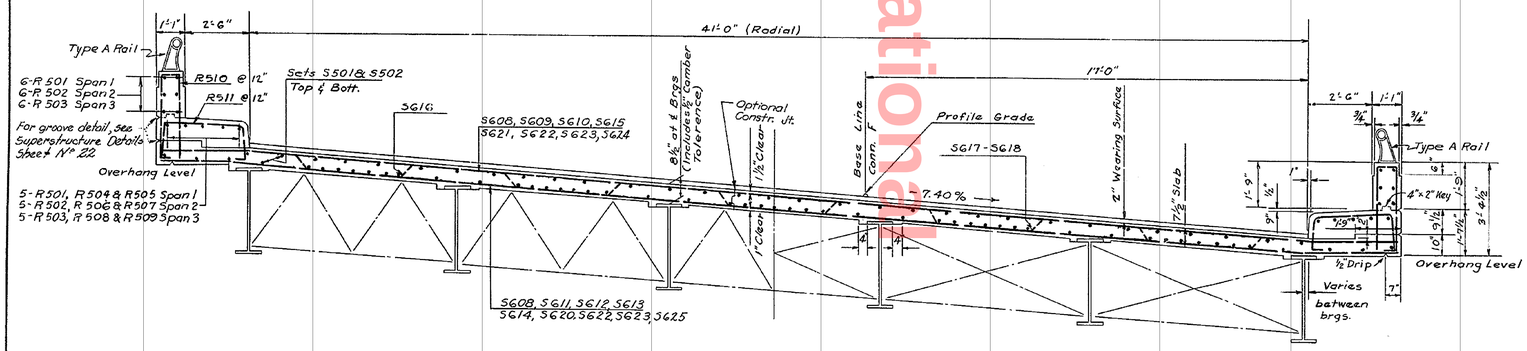
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

"Imperial" 156 W. B. & E.

COUNTY	CONTRACT	P & A REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	BA0106321	2	DEL.	I-95-1(13)		21	26



PLAN
Scale: None



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

Note:
Cut top bars of scupper as may be required

Fit of bars due to cross slope of roadway shall be accomplished in the field.

Where sets are composed of bars of different lengths, except for series bars, splices are to be staggered in adjacent sets

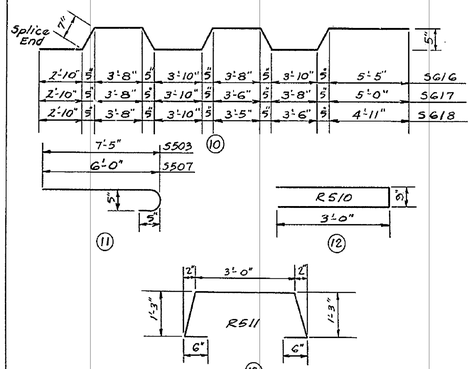
REINFORCING SCHEDULE

Location	Mark	Number Required Span 1	Span 2	Span 3	Total 3 Spans	Length	Total Weight Lbs	Type
Safety Walk and Parapet	R501	68			68	9'-0"		Str
	R502		134		134	9'-10"		Str
	R503			46	46	10'-2"		Str
	R504	2 Ser of 5			2 Ser of 5	Varies 9'-0" to 10'-2"		Str
	R505	2 Ser of 5			2 Ser of 5	Varies 7'-10" to 9'-0"		Str
	R506		2 Ser of 5		2 Ser of 5	Varies 9'-10" to 10'-10"		Str
	R507		2 Ser of 5		2 Ser of 5	Varies 8'-10" to 9'-10"		Str
	R508			2 Ser. of 5	2 Ser. of 5	Varies 10'-2" to 11'-2"		Str.
	R509			2 Ser of 5	2 Ser of 5	Varies 9'-2" to 10'-2"		Str.
	R510	78	146	66	290	6'-9"		12
	R511	78	146	66	290	6'-6"		13

Total Weight = 51,321 Lbs

REINFORCING SCHEDULE

Location	Mark	Number Required Span 1	Span 2	Span 3	Total 3 Spans	Length	Total Weight Lbs.	Type
Deck	S604	4	4	4	12	23'-4"		Str.
	S605	4	4	4	12	32'-2"		Str.
	S608	4 Ser of 25			4 Ser of 25	Varies 1'-3" to 30'-4"		Str.
	S609	2 Ser of 13			2 Ser of 13	Varies 8'-3" to 22'-10"		Str.
	S610	26	26	22	74	24'-10"		Str.
	S611	2 Ser of 13			2 Ser of 13	Varies 12'-4" to 26'-11"		Str.
	S612	26	26	22	74	20'-9"		Str.
	S613	23	38	20	81	21'-0"		Str.
	S614	23	38	20	81	28'-6"		Str.
	S615	46	76	40	162	24'-9"		Str.
	S616		39		39	26'-2"		10
	S617		20		20	25'-5"		10
	S618		19		19	25'-1"		10
	S619	12	12	12	36	7'-3"		Str
	S620			2 Ser of 11	2 Ser of 11	Varies 12'-1" to 26'-9"		Str.
	S621			2 Ser of 11	2 Ser of 11	Varies 8'-0" to 22'-8"		Str.
	S622			4 Ser of 20	4 Ser of 20	Varies 2'-1" to 29'-11"		Str.
	S623		4 Ser of 23		4 Ser of 23	Varies 1'-4" to 29'-8"		Str.
	S624		2 Ser of 13		2 Ser of 13	Varies 7'-5" To 23'-1"		Str.
	S625		2 Ser of 13		2 Ser of 13	Varies 9'-6" To 27'-2"		Str.
	S501	82	164		246	36'-9"		Str.
	S502			82	82	30'-11"		Str.
	S503	10	10	10	30	8'-0"		11
	S507	3	3	3	9	6'-7"		11



Note: Bar size is indicated in the bar mark. The first digit where three digits are used and the first two digits where four digits are used indicate the bar size.

For General Notes, see Sheet No. 2

For railing details, roadway and safety walk dams, see Superstructure Details sheet No. 22

For details of roadway slab construction joints and parapet contraction joints see Superstructure Details sheet No 22.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE
CONNECTION F- BRIDGE 6-8
SUPERSTRUCTURE-DECK
J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

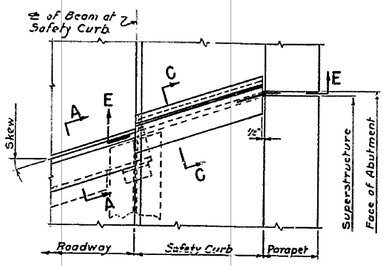
DESIGNED: E.L.L. CHECKED: W.H.P. DATE: 12-19-63
DRAWN: B.A.M. IN CHARGE: C.B.M SCALE: As Shown

BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

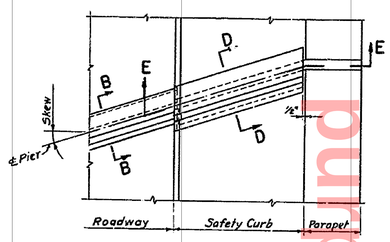
REVISIONS

"Imperial" 156 W. B. & E.

COUNTY	CONTRACT	A.A.S. R.I.D. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	64010632.11	2	DEL.	I-95-1(13)		22	26

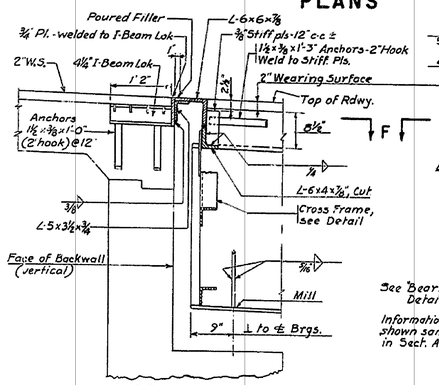


AT ABUTMENTS

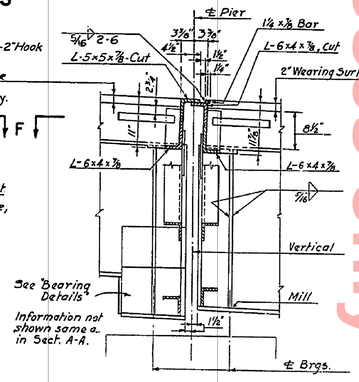


AT PIERS

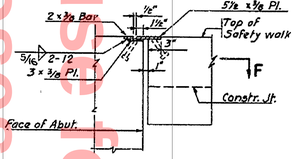
PLANS



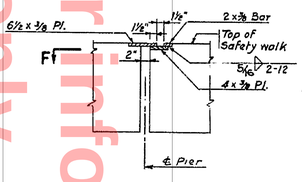
SECTION A-A



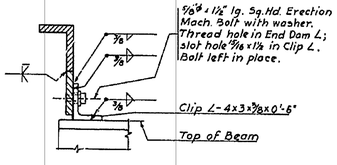
SECTION B-B



SECTION C-C

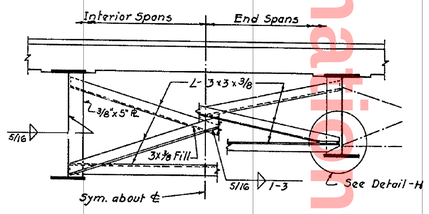


SECTION D-D

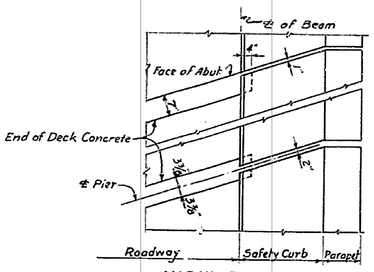


DETAIL-G
Scale: 1½"=1'-0"

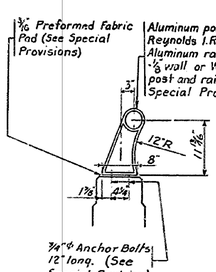
ROADWAY AND SIDEWALK DAMS
Scale: ¾"=1'-0", except as noted



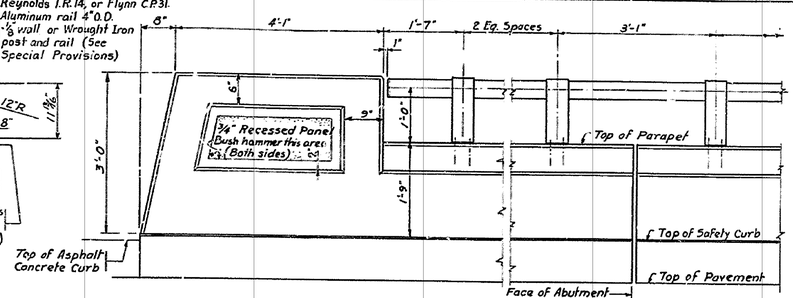
INTERMEDIATE-TYPE 12

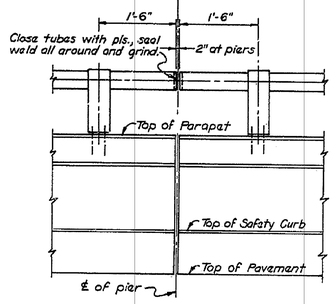


VIEW F-F
Scale: ½"=1'-0"



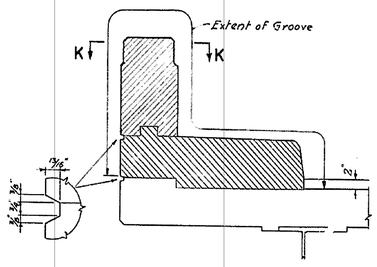
Aluminum posts Alcoa 1003, Reynolds I.R.14, or Flynn C.P.31.
Aluminum rail 4" O.D. ⅛ wall or Wrought Iron post and rail (See Special Provisions)



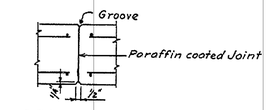


RAILING DETAILS
Scale: ¾"=1'-0"

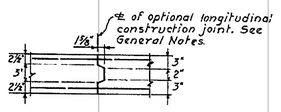
SECTION E-E



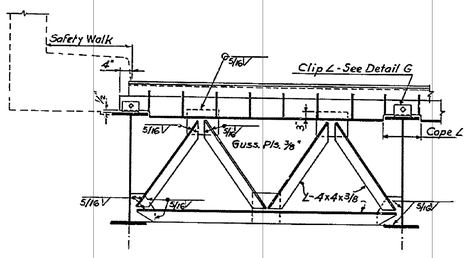
PARAPET CONTRACTION JOINT
Scale: ¾"=1'-0"



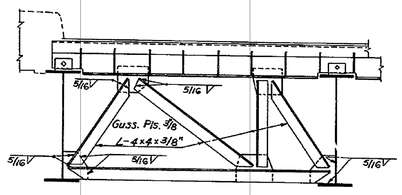
SECTION K-K



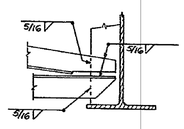
SLAB CONSTRUCTION JOINT
Scale: ¾"=1'-0"



END-TYPES 11 & 14



END-TYPE 15



DETAIL-H
Scale: 1"=1'-0"

CROSS FRAMES
Scale: ½"=1'-0"
Note.- Types 14 and 15 are in sloping planes at downspouts.

NOTE:
At all points of change in roadway cross-slope, cut, fit and buttweld expansion dam sections.

APPROVED _____ BRIDGE ENGINEER

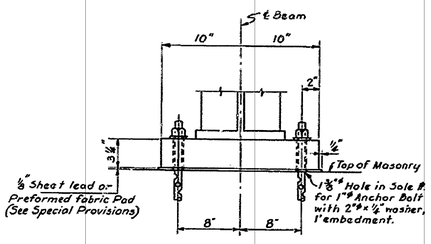
DELAWARE STATE HIGHWAY DEPARTMENT	
INTERSTATE ROUTE F.A.I.-1 CHRISTINA RIVER INTERCHANGE	
BRIDGES NO. 6-6, 6-7, & 6-8	
SUPERSTRUCTURE DETAILS	
J.E. GREINER CO. MORAN, PROCTOR, MUESER & RUTLEDGE CONSULTING ENGINEERS	
DESIGNED: U.C.	CHECKED: F.F.W.
DRAWN: U.C.	IN CHARGE: C.O.M.
DATE: 12-19-63	SCALE: As noted

CHECKED
GRADE
BEARINGS
TIE-IN LINKS
REINFORCING
EARTHWORK
DRAINAGE

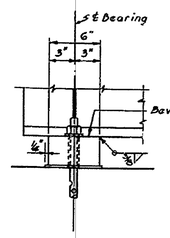
REVISIONS

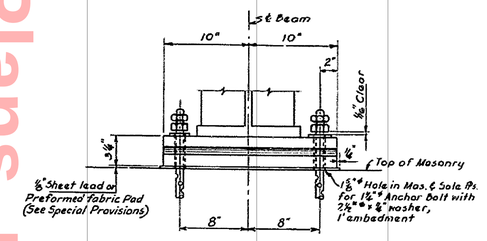
"Imperial" 136 W. B. & E.

COUNTY	CONTRACT	F.A.I. RTE. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	64010632.11	2	DEL.	I-95-1(13)		23	26

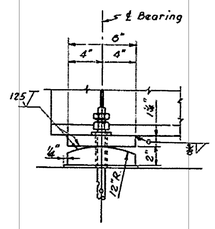


TYPE F1

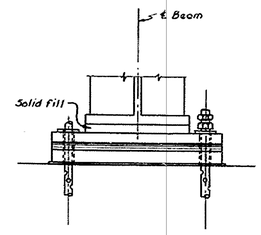


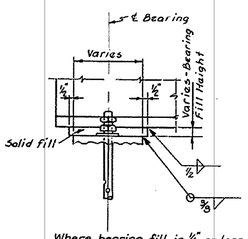


TYPE F2



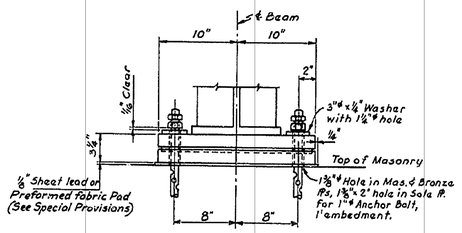
FIXED SHOES
1½"=1'-0"



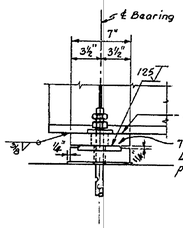


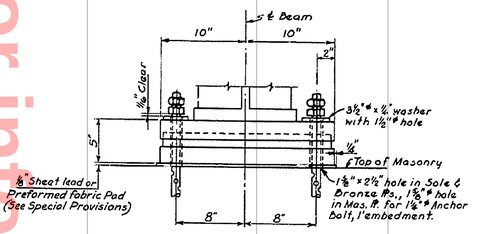
Where bearing fill is ¼" or less in thickness it shall be made the same width as the sole plate. The bearing fill and sole plate shall be welded to the bottom flange of the beam with a fillet weld the size of which shall be ⅜" plus the thickness of the bearing fill.

SOLID FILL
1½"=1'-0"

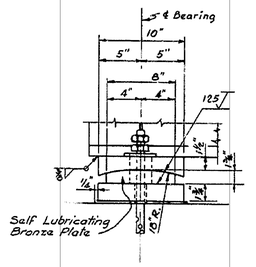


TYPE E1

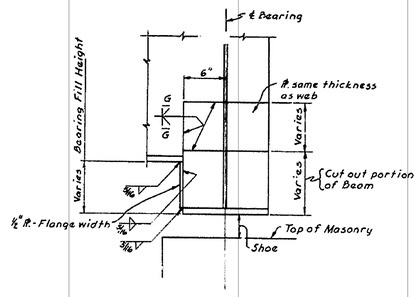




TYPE E2

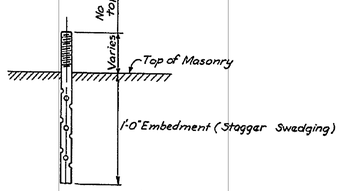


EXPANSION SHOES
1½"=1'-0"



STOOL
1"=1'-0"

BEARING FILLS



ANCHOR BOLT DETAILS
1½"=1'-0"

NOTES:
Corners of masonry plates shall be cut where necessary to provide a minimum of 3⅜" to the edge of pier cap.
The surface finish of metal in contact indicated by the symbol ▽ shall meet the requirements as defined in American Standard Association Specification ASA B-46.1.
All sliding surfaces to be finished in the direction of expansion or rotation.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT
INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE
BRIDGES NO. 6-6, 6-7, & 6-8
BEARING DETAILS

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

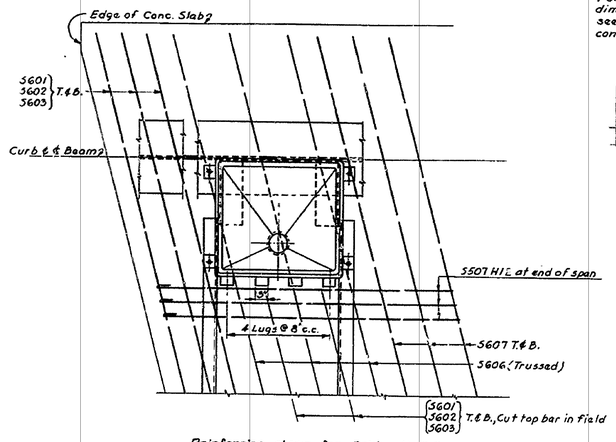
DESIGNED: J.J.S. F.F.W. CHECKED: F.F.W. DATE: 12-18-63
DRAWN: K.V.W. IN CHARGE: C.B.M. SCALE: As shown

CHECKED
GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE

REVISIONS

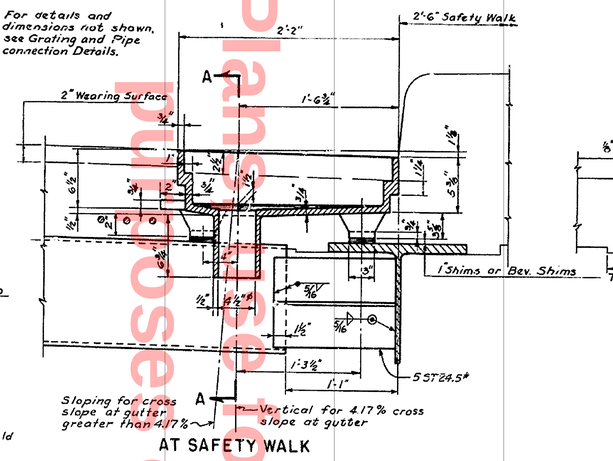
"Imperial" 156 W. B. & E.

COUNTY	CONTRACT	F. A. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	GA01063211	2	DEL.	I-95-1(13)		24	26

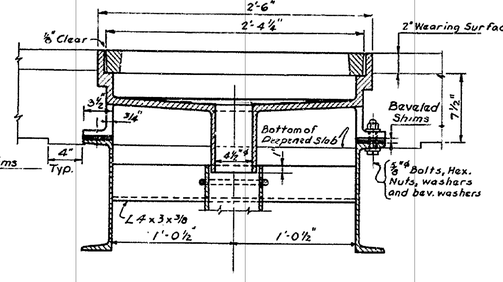


Reinforcing shown for Bridge No. 6-6

PLAN
3/4" = 1'-0"

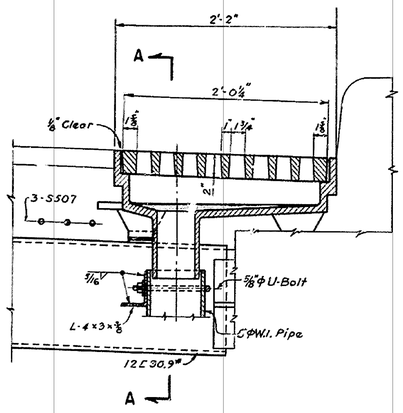


AT SAFETY WALK

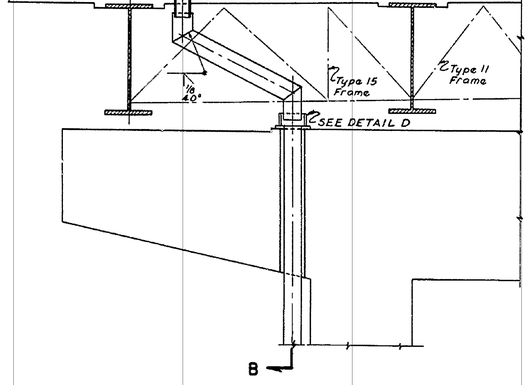


SECTION A-A

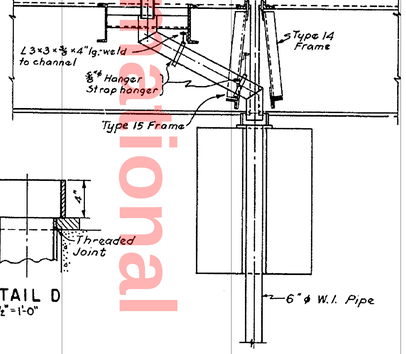
SCUPPERS
1 1/2" = 1'-0"



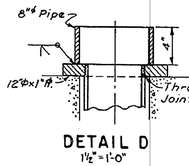
GRATING AND PIPE CONNECTION DETAILS
1 1/2" = 1'-0"



AT SAFETY WALK - PIERS

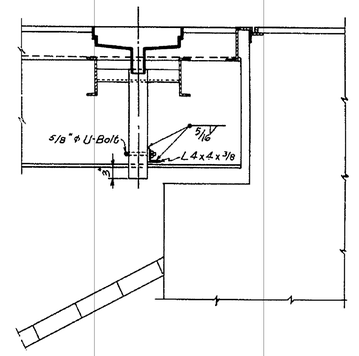


SECTION B-B



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

PIPE CONNECTIONS
1/2" = 1'-0"



AT ABUTMENT

Notes:
- For General Notes see Sheet No. 2.
- All gratings to be cast steel in accordance with A.S.T.M. A-27, Grade 65-35, galvanized.
- All frames to be cast iron in accordance with A.S.T.M. A-48, Class No. 30, galvanized. (See Special Provisions)
- All drain pipe to be 6" ø W.I.
- Pipe supports shall be spaced 12' maximum.
- For details of pipe outlet and pipe supports, see Slope Protection and Drainage Details sheet No. 25

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE

BRIDGES NO. 6-6, 6-7, & 6-8

SCUPPER DETAILS

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

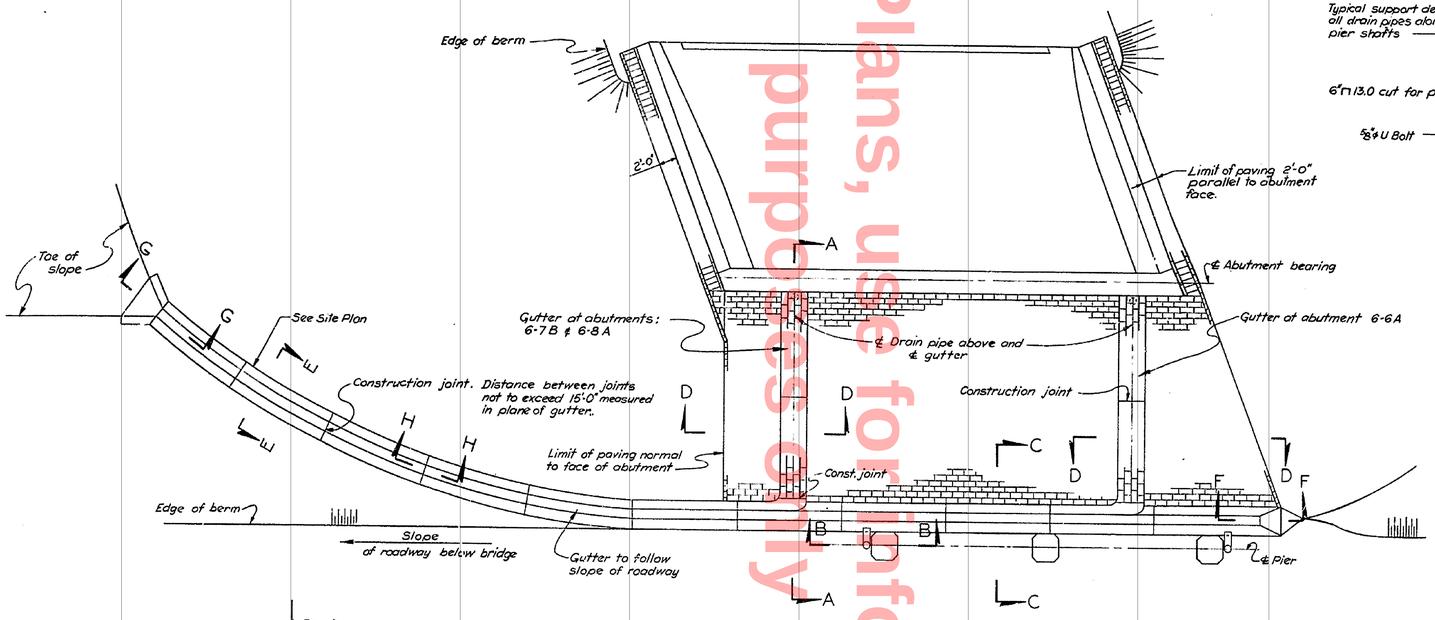
DESIGNED: W.C. CHECKED: A.L.N. DATE: 12/19/63
DRAWN: W.W.W. IN CHARGE: C.P.M. SCALE: As Shown

REVISIONS

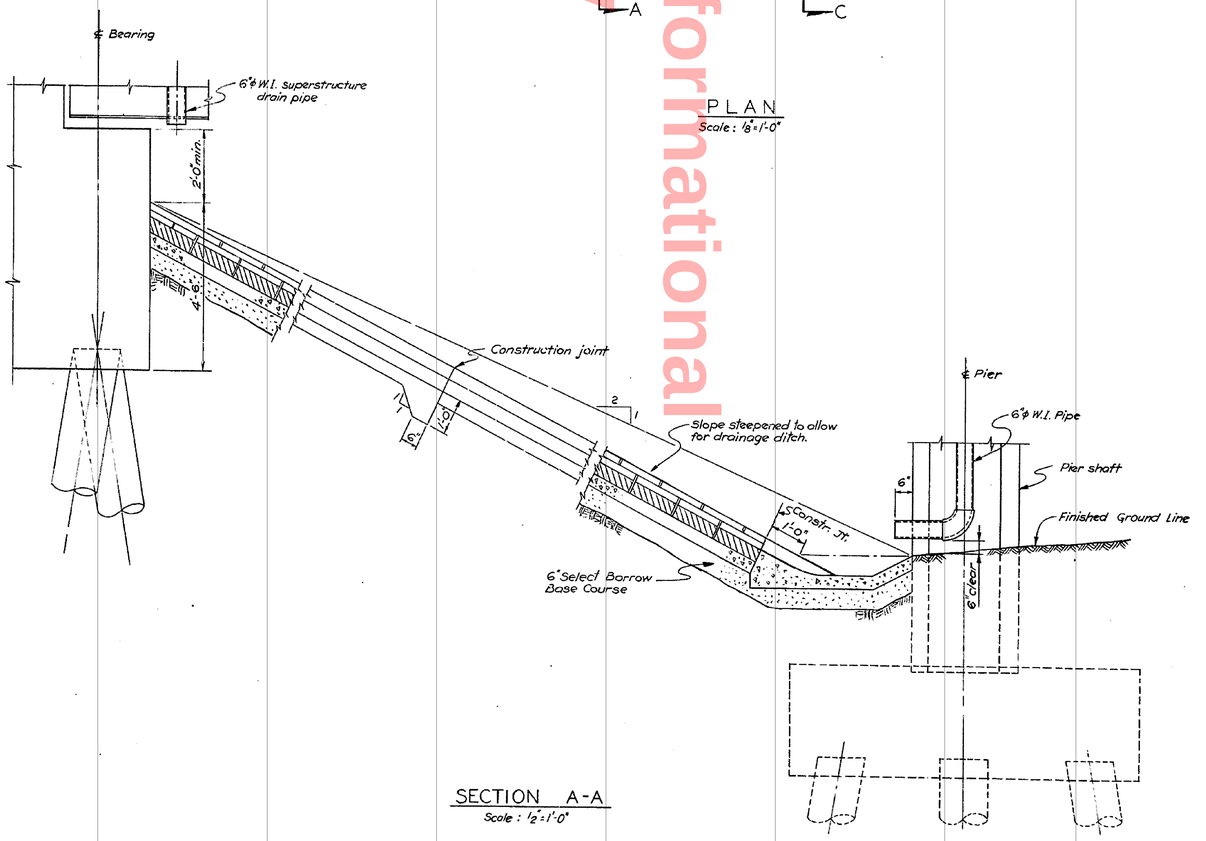
GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE
CHECKED

1-6-3

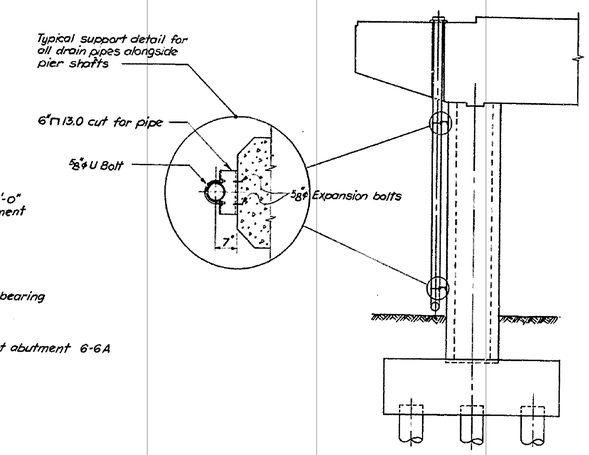
COUNTY	CONTRACT	F.A.P. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	G01063211	2	DEL.	I-95-1(13)		25	26



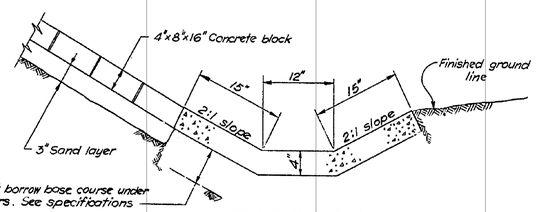
PLAN
Scale : 1/8"=1'-0"



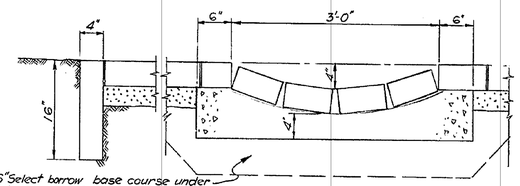
SECTION A-A
Scale : 1/2"=1'-0"



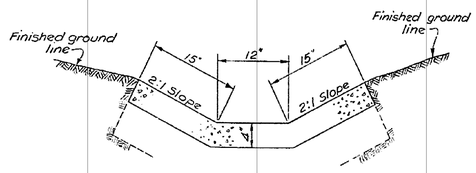
SECTION B-B
Scale : 1/4"=1'-0"



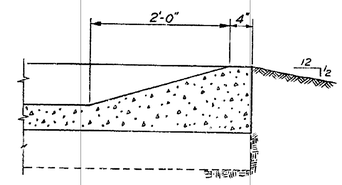
SECTION C-C
Scale : 1"=1'-0"



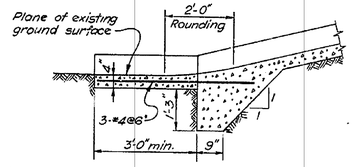
SECTION D-D
Scale : 1"=1'-0"



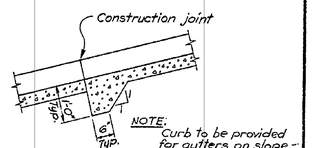
SECTION E-E
Scale : 1"=1'-0"



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



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



NOTE: Curb to be provided for gutters on slope - more than 5%

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

NOTES:

1. For General Notes see Sheet No. 2
2. For lengths and locations of concrete gutters see Site Plans for Bridges Nos 6-6, 6-7 and 6-8.
3. For location of drain pipes see Superstructure - Framing for Bridges Nos 6-6, 6-7 and 6-8.
4. For details of drain pipes see Sheet No. 24.

APPROVED _____ BRIDGE ENGINEER

DELAWARE
STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-1
CHRISTINA RIVER INTERCHANGE

BRIDGE NOS. 6-6, 6-7 & 6-8
SLOPE PROTECTION & DRAINAGE DETAILS

J. E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

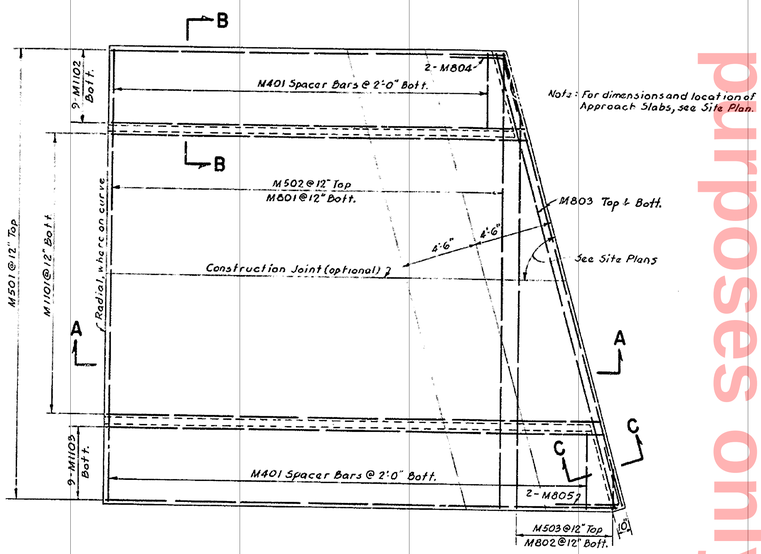
DESIGNED: W.A.A... CHECKED: N.W.K. DATE: 7/31/59
DRAWN: S.P. ..... IN CHARGE: N.W.K. SCALE: AS NOTED

GRADE
BEARINGS
TIE POINTS
SUPERSTRUCTURE
EARTHWORK
DRAINAGE

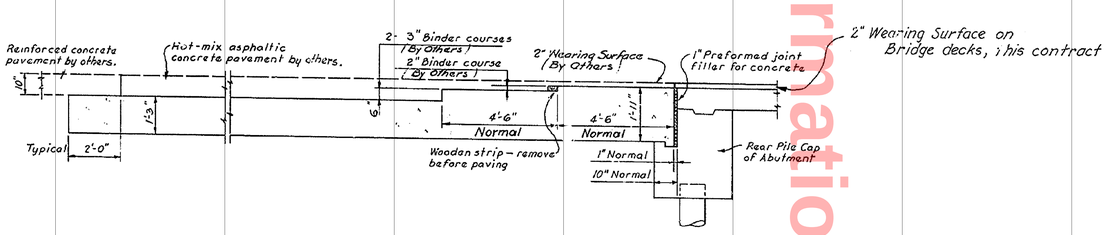
25 M

D C B A

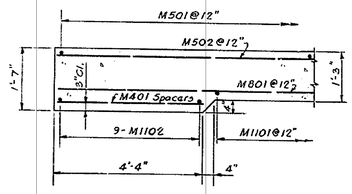
COUNTY	CONTRACT	F.A.P. REG. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
NEW CASTLE	9110632111	2	DEL.	I 95-1(13)		26	26



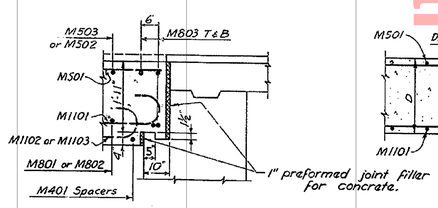
DECK PLAN
No Scale



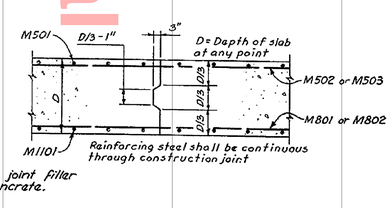
SECTION A-A
3/8" = 1'-0"



SECTION B-B
1/2" = 1'-0"



SECTION C-C
1/2" = 1'-0"



LONGITUDINAL CONSTRUCTION JOINT DETAIL
No Scale

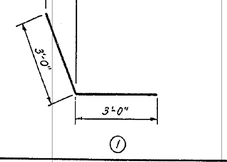
Note: Clear distance from face of concrete to reinforcing steel shall be 2" except on bottom where it shall be 3".

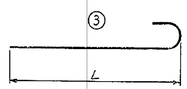
REINFORCING SCHEDULE

Mark	Type	BRIDGE Nº 6-6 ABUTMENT "A" Number Required	Length	"L"	BRIDGE Nº 6-6 ABUTMENT "B" Number Required	Length	"L"	BRIDGE Nº 6-7 ABUTMENT "A" Number Required	Length	"L"	BRIDGE Nº 6-7 ABUTMENT "B" Number Required	Length	"L"	BRIDGE Nº 6-8 ABUTMENT "A" Number Required	Length	"L"	BRIDGE Nº 6-8 ABUTMENT "B" Number Required	Length	"L"
M 1101	③	16 / 1 Ea.	Varies 25'-0" to 27'-4"	Varies 23'-5" to 25'-9"	18 / 1 Ea.	Varies 25'-10" to 26'-3"	Varies 24'-3" to 24'-8"	16 / 1 Ea.	Varies 22'-4" to 28'-2"	Varies 20'-9" to 26'-1"	16 / 1 Ea.	Varies 21'-8" to 30'-7"	Varies 20'-1" to 29'-0"	16 / 1 Ea.	Varies 22'-2" to 30'-5"	Varies 20'-7" to 28'-10"	16 / 1 Ea.	Varies 23'-5" to 28'-10"	Varies 21'-10" to 27'-3"
M 1102	③	9 / 1 Ea.	Varies 23'-3" to 23'-11"	Varies 21'-8" to 22'-4"	9	25'-1"	23'-6"	9 / 1 Ea.	Varies 20'-7" to 22'-1"	Varies 19'-0" to 20'-6"	9 / 1 Ea.	Varies 19'-9" to 19'-0"	Varies 18'-2" to 17'-5"	9 / 1 Ea.	Varies 18'-6" to 20'-8"	Varies 16'-11" to 19'-1"	9 / 1 Ea.	Varies 20'-11" to 22'-5"	Varies 19'-4" to 20'-10"
M 1103	③	9 / 1 Ea.	Varies 26'-1 to 26'-9	Varies 24'-6" to 25'-2"	9	25'-7"	24'-0"	9 / 1 Ea.	Varies 28'-5" to 29'-11"	Varies 26'-10 to 28'-4"	9 / 1 Ea.	Varies 29'-10" to 32'-1"	Varies 28'-3" to 30'-6	9 / 1 Ea.	Varies 29'-7" to 31'-10"	Varies 28'-0" to 30'-3"	9 / 1 Ea.	Varies 28'-5" to 29'-9"	Varies 26'-8" to 28'-2"
M 801	St.	23	23'-8"		25	23'-8"		21	23'-8"		18	23'-8"		18	23'-8"		21	23'-8"	
M 802	St.	3 / 1 Ea.	Varies 22'-4" to 10'-4"		–	–		8 / 1 Ea.	Varies 21'-0" to 4'-0"		12 / 1 Ea.	Varies 22'-0" to 4'-8"		12 / 1 Ea.	Varies 22'-9" to 3'-9"		8 / 1 Ea.	Varies 21'-0" to 3'-0"	
M 803	St.	4	23'-10"		4	23'-8"		4	25'-7"		4	27'-4"		4	26'-10"		4	25'-5"	
M 804	①	2	6'-0"		2	6'-0"		2	6'-0"		2	6'-0"		2	6'-0"		2	6'-0"	
M 805	②	2	6'-0"		2	6'-0"		2	6'-0"		2	6'-0"		2	6'-0"		2	6'-0"	
M 501	St.	24 / 1 Ea.	Varies 22'-9" to 26'-4"		24 / 1 Ea.	Varies 24'-3" to 24'-8"		24 / 1 Ea.	Varies 19'-9" to 29'-2"		24 / 1 Ea.	Varies 17'-4" to 31'-9"		24 / 1 Ea.	Varies 18'-3" to 30'-10"		24 / 1 Ea.	Varies 20'-4" to 28'-10"	
M 502	St.	23	23'-8"		25	23'-8"		21	23'-8"		18	23'-8"		18	23'-8"		21	23'-8"	
M 503	St.	3 / 1 Ea.	Varies 22'-4" to 10'-4"		–	–		8 / 1 Ea.	Varies 21'-0" to 4'-0"		12 / 1 Ea.	Varies 22'-0" to 4'-8"		12 / 1 Ea.	Varies 22'-9" to 3'-9"		8 / 1 Ea.	Varies 21'-0" to 3'-10"	
M 401	St.	25	4'-0"		26	4'-0"		24	4'-0"		24	4'-0"		24	4'-0"		25	4'-0"	
Total Weights-Lbs.				7818			7831			7792			7766			7841			7862

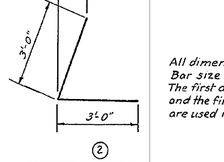
Total Weight = 46,910 Lbs.

1'-1"	For C-8, Abut. "B"
1'-8"	For C-8, Abut. "A"
1'-6"	For C-7, Abut. "B"
1'-1"	For C-7, Abut. "A"
0"	For C-6, Nb. 1 "B"
5"	For C-6, Abut. "A"





1'-1"	For C-8, Abut. "B"
1'-8"	For C-8, Abut. "A"
1'-6"	For C-7, Abut. "B"
1'-1"	For C-7, Abut. "A"
0"	For C-6, Abut. "B"
5"	For C-6, Abut. "A"



All dimensions are out to out.
Bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four digits are used indicate the bar size

APPROVED _____ BRIDGE ENGINEER

DELAWARE STATE HIGHWAY DEPARTMENT

INTERSTATE ROUTE F.A.I.-I
CHRISTINA RIVER INTERCHANGE

BRIDGES NO. 6-6, 6-7 & 6-8
APPROACH SLABS

J.E. GREINER CO.
MORAN, PROCTOR, MUESER & RUTLEDGE
CONSULTING ENGINEERS

DESIGNED: J.W.H. CHECKED: J.W.H. DATE: 12-19-63
DRAWN: W.W.W. IN CHARGE: G.A.M. SCALE: As Shown

REVISIONS

GRADE
BEARINGS
TIE POINTS
BENCH MARKS
EARTHWORK
DRAINAGE
CHECKED