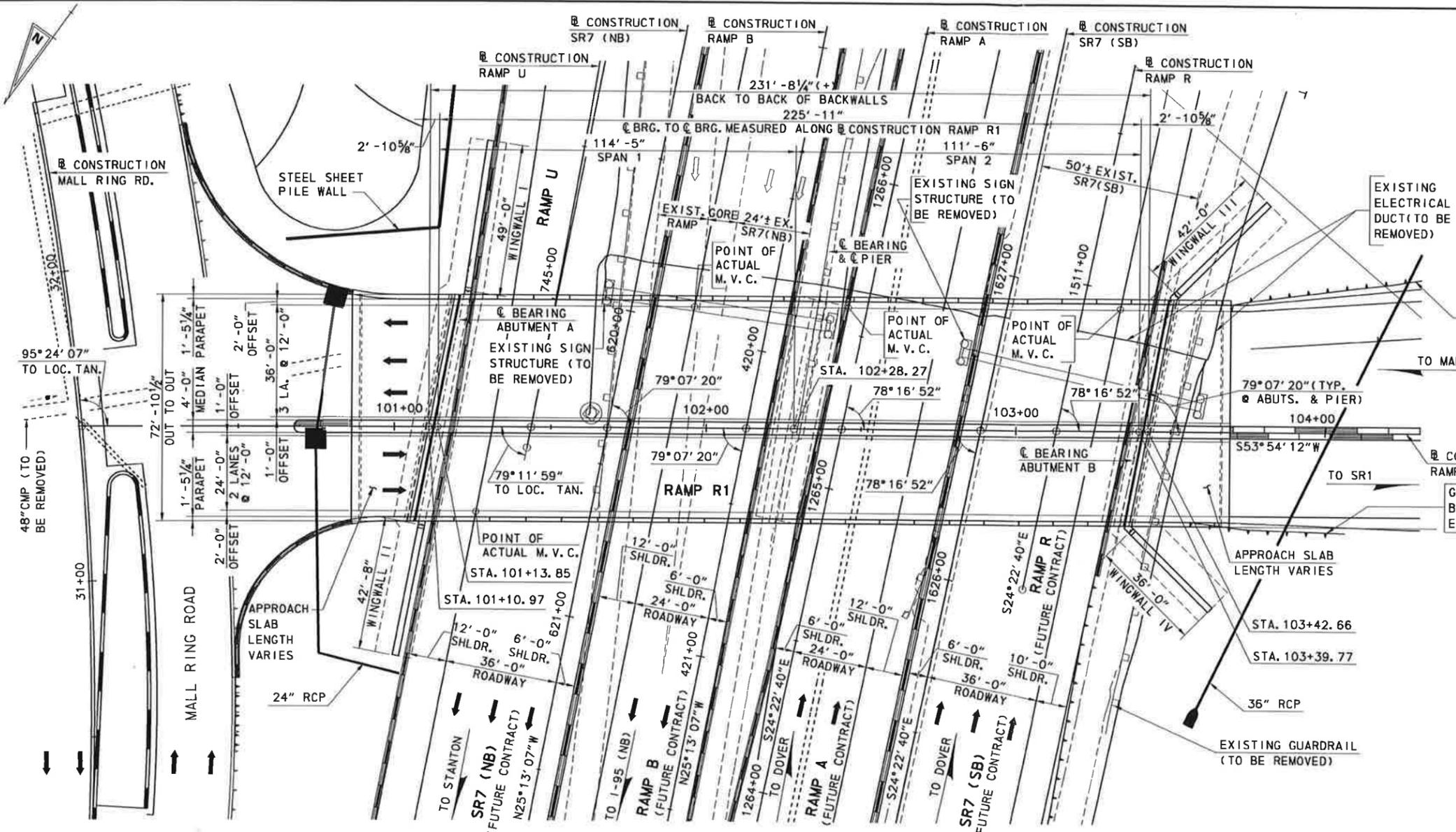


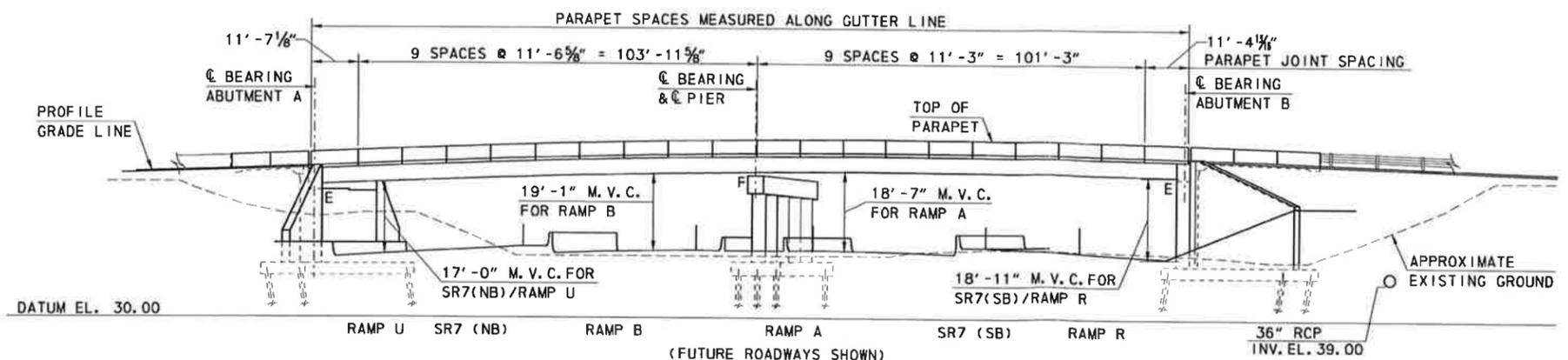
BR 1-223A

EQUALITY STATIONS	
STA. 100+00.00 RAMP R1=	STA. 31+49.98 MALL RING ROAD
STA. 101+43.65 RAMP R1=	STA. 745+11.94 RAMP U
STA. 101+68.09 RAMP R1=	STA. 620+38.04 SR7 (NB)
STA. 102+12.90 RAMP R1=	STA. 420+25.25 RAMP B
STA. 102+43.67 RAMP R1=	STA. 1265+19.56 RAMP A
STA. 102+88.61 RAMP R1=	STA. 1626+49.22 SR7 (SB)
STA. 103+13.12 RAMP R1=	STA. 1510+52.05 RAMP R

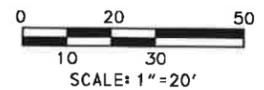


PLAN
SCALE: 1"=20'

- CROSS REFERENCE NOTES:
1. FOR GENERAL NOTES AND PROFILES, SEE SHEET S7-2.
 2. FOR STEEL SHEET PILE WALL, SEE POND A WALL SHEET.



ELEVATION
SCALE: 1"=20'



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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

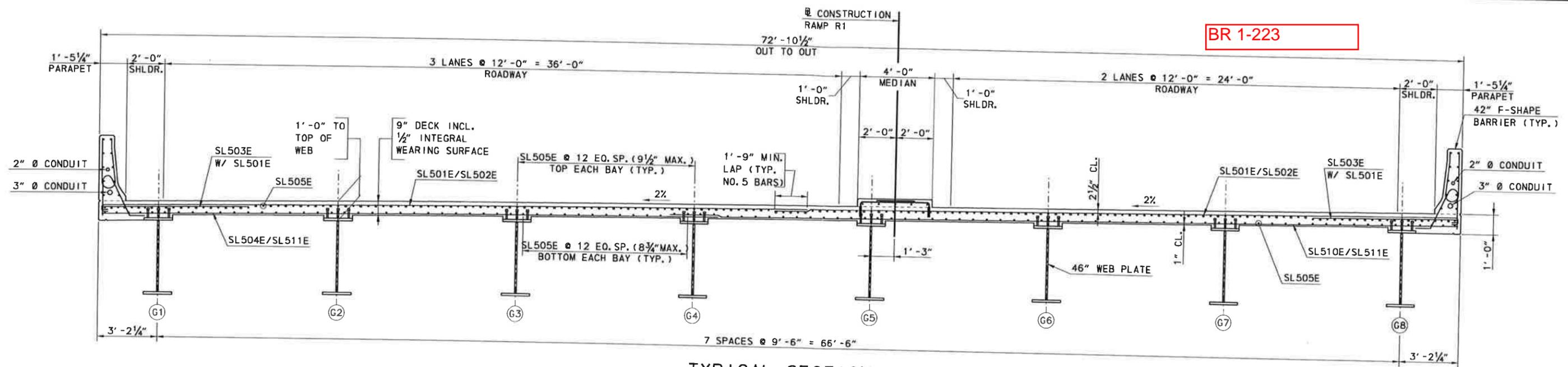
SR1/I-95 INTERCHANGE -
CHRISTIANA MALL
ROAD BRIDGE

CONTRACT	BRIDGE NO.	1-223
T201009004	DESIGNED BY:	JMS
COUNTY	CHECKED BY:	JSW
NEW CASTLE		

RAMP R1 OVER SR7
GENERAL PLAN
AND ELEVATION

S7-1
SHEET NO.
36
TOTAL SHTS.
164

BR 1-223



TYPICAL SECTION
SCALE: 3/8" = 1' - 0"

PILE INSTALLATION NOTES:

- ALL PILES SHALL BE HP14x89 AASHTO M270 (ASTM A 709), GRADE 50. PILES SHALL NOT BE COATED OR CASSED.
- ALL PILES SHALL BE DRIVEN TO THE NOMINAL PILE DRIVING RESISTANCE (R_{ndr}) LISTED IN THE PILE INSTALLATION DATA TABLE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE WAVE EQUATION AND HIGH-STRAIN DYNAMIC PILE TESTING MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- UPON COMPLETION OF THE HIGH-STRAIN DYNAMIC PILE TESTING THE CONTRACTOR SHALL SUBMIT A CAPWAP ANALYSIS OR OTHER SIMILAR APPROVED SIGNAL MATCHING TECHNIQUE TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE (1) PILE PER SUBSTRUCTURE, AS SHOWN ON THE PLANS, SHALL BE DYNAMICALLY TESTED BY THE CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISION 619519. TEST AND PRODUCTION PILE RE-STRIKES WILL BE PAID AS FOLLOWS:
 - ALL TEST PILE(S) WILL BE RESTRUCK AND DYNAMICALLY TESTED BY THE CONTRACTOR. THE TEST PILE RESTRIKES SHALL BE INCIDENTAL TO ITEM NO. 619519 DYNAMIC PILE TESTING BY CONTRACTOR PROVIDED THAT THEY ARE PERFORMED WITHIN FIVE (5) CALENDAR DAYS FROM INITIAL DRIVE.
 - AN ADDITIONAL PAYMENT WILL BE MADE TO THE CONTRACTOR IF HE IS DIRECTED BY THE ENGINEER TO WAIT AND RESTRIKE THE TEST PILE MORE THAN FIVE (5) CALENDAR DAYS AFTER INITIAL DRIVE. THE CONTRACTOR SHALL BE COMPENSATED AT THE FIXED PRICE OF \$1,000.00 PER CALENDAR DAY FOR EVERY DAY AFTER THE FIFTH CALENDAR DAY, UNDER ITEM NO. 619502 TEST PILE RESTRIKE. MULTIPLE TEST PILE RESTRIKES OCCURRING ON THE SAME DAY WILL ONLY BE PAID FOR AS ONE CALENDAR DAY. NO ADDITIONAL COMPENSATION WILL BE MADE REGARDLESS OF THE NUMBER OF TEST PILE RESTRIKES PERFORMED THAT DAY.
 - RESTRIKES ON PRODUCTION PILES WHICH ARE DESIGNATED TO BE DYNAMICALLY TESTED WILL NOT BE PAID UNDER ITEM NO. 619501 PRODUCTION PILE RESTRIKE. THESE PRODUCTION PILE RESTRIKES ARE INCIDENTAL TO ITEM NO. 619519 DYNAMIC PILE TESTING BY CONTRACTOR.
 - THE FIRST TEN (10) PRODUCTION PILE RESTRIKES FOR THE MALL BRIDGE SHALL BE PERFORMED AT NO COST TO THE DEPARTMENT. SUBSEQUENT RESTRIKES SHALL BE UNDER ITEM NO. 619501 PRODUCTION PILE RESTRIKES AT THE FIXED PRICE OF \$500.00 EACH.

THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.

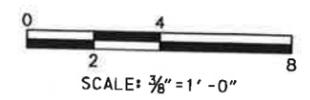
PILE INSTALLATION DATA					
SUBSTRUCTURE UNIT	DESIGN DATA			ACTUAL FIELD DATA	
	NOMINAL PILE DRIVING RESISTANCE (R _{ndr}) (KIPS)	ESTIMATED TIP ELEVATION	MINIMAL TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
ABUTMENT A	420	-24	-19		
PIER	420	1.5	6.5		
ABUTMENT B	395	-4	1		

ABUTMENT A PILE DRIVING INFORMATION
PILE SIZE AND TYPE: HP14x89
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

PIER PILE DRIVING INFORMATION
PILE SIZE AND TYPE: HP14x89
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

ABUTMENT B PILE DRIVING INFORMATION
PILE SIZE AND TYPE: HP14x89
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

- CROSS REFERENCE NOTES:
- FOR GIRDER DETAILS SEE SHEET S7-27.
 - FOR CROSS FRAME DETAILS, SEE SHEET S7-28.
 - FOR DECK SLAB PLAN, SEE SHEET S7-30.
 - FOR STAY-IN-PLACE FORM AND SHEAR STUD DETAILS, SEE SHEET S7-31.
 - FOR EXPANSION JOINT AND DIAPHRAGM DETAILS, SEE SHEET S7-33.
 - FOR F-SHAPE BARRIER AND MEDIAN DETAILS, SEE SHEET S7-31.



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ADDENDUMS / REVISIONS

SR1/I-95 INTERCHANGE - CHRISTIANA MALL ROAD BRIDGE

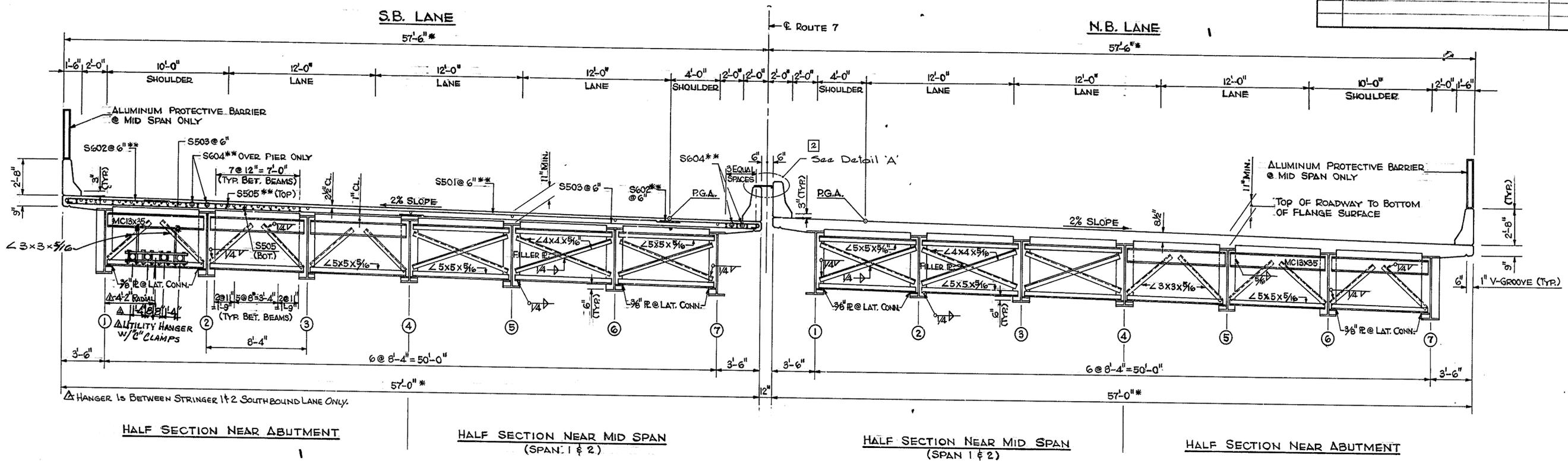
CONTRACT	BRIDGE NO.	1-223
T201009004	DESIGNED BY:	JMS
COUNTY	CHECKED BY:	JSW
NEW CASTLE		

**RAMP R1 OVER SR7
TYPICAL SECTION AND
PILE DETAILS**

S7-3
SHEET NO.
38
TOTAL SHTS.
164

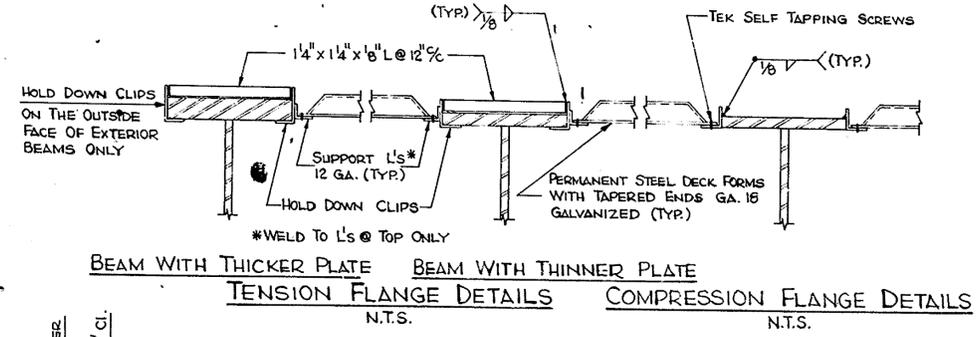
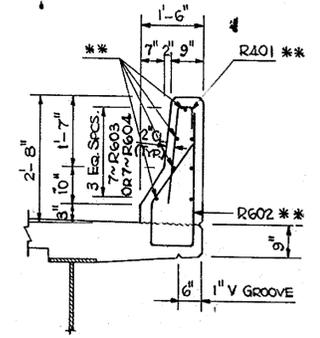
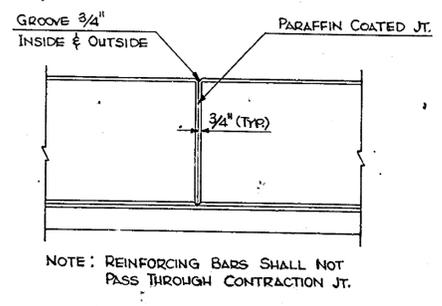
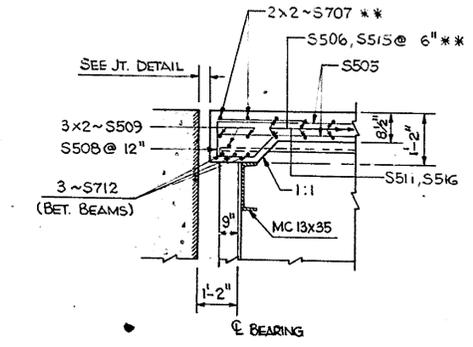
COUNTY	CONTRACT	P.P.A. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	78-101-02	2	DEL	FG-1045(10)	10	57
S.R. 7 AMTRAK OVERPASS						
NO.	REVISIONS	BY	DATE			
1	Add D.P.L. Utility Hanger (TYP. Cross Section)	T.F.F.	9-18-80			
2	Install 3/8" thk. alum. plate on top of barrier.	A.L.S.	4/30/82			

BR 1-264



TYPICAL CROSS SECTION
SCALE: 3/4"=1'-0"

- NOTE:**
- * DENOTES RADIAL DIMENSION
 - ** EPOXY COATED BARS
 - FOR DIAPHRAGM CONNECTION AND DETAILS OF SPAN 2, SEE SHEET 11
 - REINFORCEMENT IN S.B. LANE IS SAME IN N.B. LANE



LONGITUDINAL SECTION @ ABUTMENT
SCALE: 1/2"=1'-0"

PARAPET PARAFFIN JOINT

BARRIER RAIL DETAILS
SCALE: 1/2"=1'-0"

STEEL FORM SECTION
N.T.S.

2 Note: Areas of alum. plate that shall come in contact with concrete shall be coated with alkali-resistant bituminous paint before installation.

3/8" Alum. plate installed between Sta. 69+00.11 to Sta. 70+38.11 (L=138 L.F.)

3/8" Stainless steel exp. bolt w/washer @ 2'-0" o.c., L=3 3/4"

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

DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS		
SUPERSTRUCTURE DETAILS		
D. A.C.S.J.	SCALE	APPROVED BY
T. R.B.F.	AS SHOWN	
C.		BRIDGE ENGINEER

SPIRAL DATA
 $\theta_s = 0^\circ 45'$
 $L_s = 150.00'$
 $L.T. = 100.00'$
 $S.T. = 50.00'$
 $X = 150.00'$
 $Y = 0.65'$

CURVE DATA
 $A_c = 6^\circ 19' 12''$
 $D_c = 1^\circ$
 $T_c = 316.32'$
 $L_c = 632.00'$
 $R_c = 5729.58'$

NOTES:
 1. IF SHUT-OFF VALVE IN EXIST. MANHOLE OPERATES, WE CAN ELIMINATE 6" INSERTING VALVE AND 6" TAPPING SLEEVE & TAPPING VALVE BY INSTALLING A BEND.
 2. WE MUST HAVE PERMISSION BEFORE WE SHUT-OFF EXISTING SERVICE, IF SHUT-OFF IS NOT POSSIBLE, THIS DRAWING IS TO BE FOLLOWED.

COUNTY	CONTRACT	P.P.A. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	78-10-02	2	DEL	FG-1025(10)	3	57

S.R. 7 AMTRAK OVERPASS			
NO.	REVISIONS	BY	DATE
1	WATER MAIN REVISION	ACS.J	7/7/80
2	BARRIER CONNECTION	ACS.J	1/26/81
3	Install alum. plate on top of barrier - see sheet 10 of 57	A.L.S.	4/30/82

BR 1-264N

GENERAL NOTES

LOCATION: THIS STRUCTURE IS LOCATED ON: RELOCATED ROUTE 7 AND AMTRAK NEAR STANTON.

LOADING: HS 20-44 WITH 25 LBS./SQ. FT. FOR FUTURE WEARING SURFACE.

SPECIFICATIONS: STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES A.A.S.H.T.O. 1978 WITH CURRENT MODIFICATIONS AND ADDITIONS. WELDING IS TO CONFORM TO LATEST AMERICAN WELDING SOCIETY & A.A.S.H.T.O. WELDING SPECIFICATIONS.

MATERIAL AND FABRICATION: STATE OF DELAWARE, DEPARTMENT OF HIGHWAYS AND TRANSPORTATION STANDARD SPECIFICATIONS DATED JANUARY 1, 1974 AND SPECIAL PROVISION.

DESIGN: STRUCTURAL STEEL, A.S.T.M. A-588 $f_s = 27,000$ P.S.I. REINFORCING STEEL, A.S.T.M. A-615 GRADE 60, $f_s = 24,000$ P.S.I. TOP MAT OF DECK REINFORCEMENT TO BE EPOXY COATED. CONCRETE, $f_c = 1,600$ P.S.I., $n = 8$.

USE CLASS A CONCRETE FOR ALL CONCRETE STRUCTURES ABOVE FOOTING. USE CLASS B CONCRETE FOR FOOTING. NO TEMPORARY SUPPORTS SHALL BE USED FOR COMPOSITE CONSTRUCTION.

STAY-IN-PLACE FORMS SHALL BE REQUIRED ON THIS JOB. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4".

FOUNDATION: ALL ABUTMENTS AND PIERS SHALL BE FOUND ON PILING. PROTECTIVE COATING NOT REQUIRED.

BORING: LOCATIONS SHOWN THUS \odot . BORING DATA IS FOR INFORMATIONAL PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUB SOIL CONDITIONS.

PAINTING OF STRUCTURAL STEEL NOT REQUIRED.

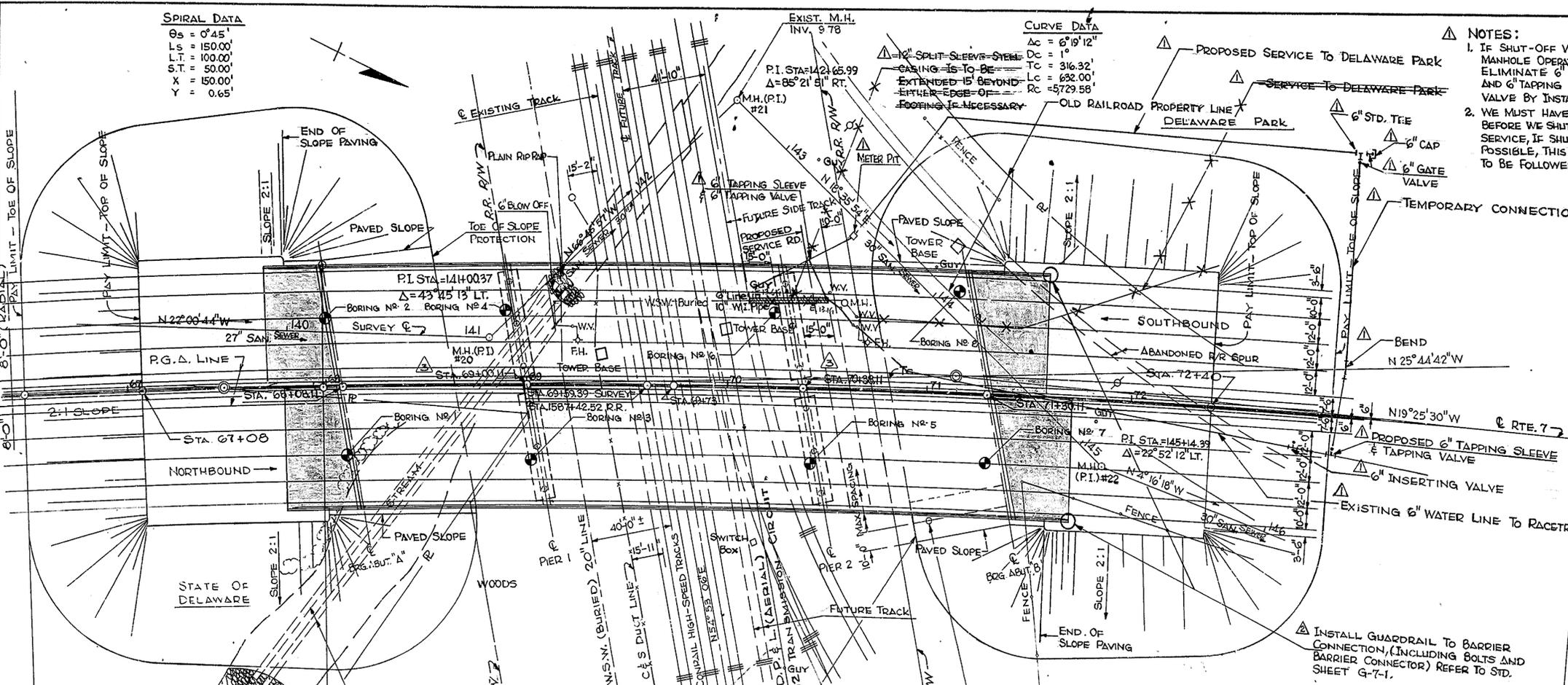
FOR SUMMARY OF BRIDGE QUANTITIES, SEE SHEET NO. 2

LIMITS OF THE PROJECT:
 MAJOR CONSTRUCTION: STA. 66+48.62 TO STA. 73+00.00
 UTILITIES: SEE SHEET NO. 6 & 7 FOR SANITARY SEWER.
 ACCESS ROAD: SEE SHEET NO. 5

PIER BACKFILL: USE EXCAVATED MATERIAL FOR BACKFILL WHENEVER POSSIBLE. COMPACT TO THE SATISFACTION OF THE ENGINEER.

TEST PIT: EXACT LOCATION OF UNDERGROUND FACILITIES (WATER & SEWER) SHALL BE DETERMINED BY TEST HOLES. PILES LOCATED IN THE VICINITY OF THESE FACILITIES SHALL BE AUGERED TO THE ELEVATION BELOW THESE FACILITIES.

SEEDING: USE CROWN VETCH SEEDING & MULCHING FOR SIDE SLOPE OF THE EMBANKMENT.



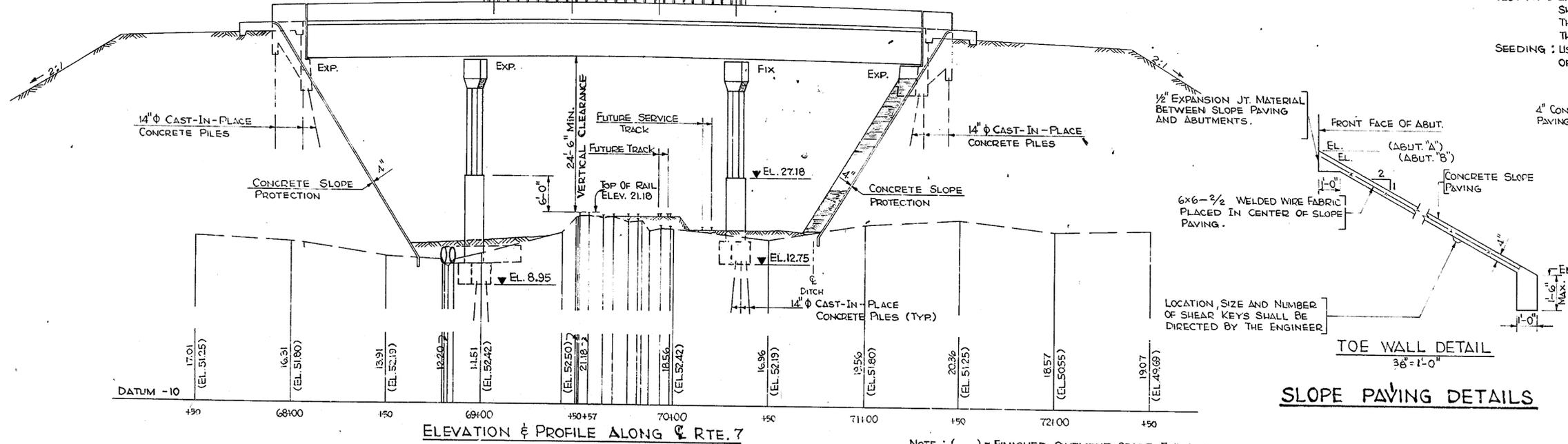
PLAN
 SCALE: 1" = 30'-0"

VERTICAL CURVE DATA
 P.V.I. STA. 69+50
 ELEV. = 57.50
 M.O. = 5.0'

NOTE:
 EXISTING RAILROAD EMBANKMENT SHOULD BE BENCH AS DIRECTED BY THE ENGINEER BEFORE PLACING THE FILL.

Sign locations
DANGER LIVE WIRE KEEP OFF

ALUMINUM PROTECTIVE BARRIER (BOTH SIDES)



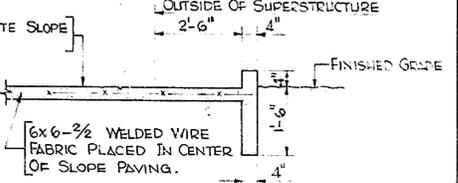
ELEVATION & PROFILE ALONG RTE. 7

NOTE: () = FINISHED PAVEMENT GRADE ELEVATION

1/2" EXPANSION JT. MATERIAL BETWEEN SUPERSTRUCTURE AND ABUTMENTS.

FRONT FACE OF ABUT. (ABUT. 'A') (ABUT. 'B')

4" CONCRETE SLOPE PAVING



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

LOCATION, SIZE AND NUMBER OF SHEAR KEYS SHALL BE DIRECTED BY THE ENGINEER

TOE WALL DETAIL
 3/8" = 1'-0"

SLOPE PAVING DETAILS

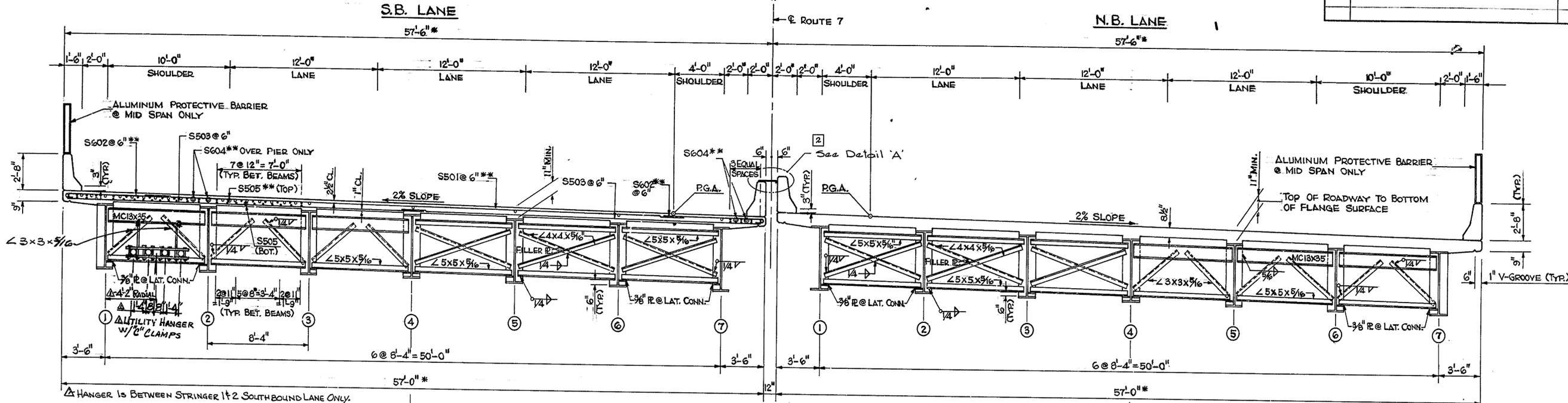
DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

PLAN and ELEVATION

D ACS.J SCALE APPROVED BY
 T R.B.F. HORIZ. 1" = 30'-0"
 C VERT. 1" = 10'-0"
 BRIDGE ENGINEER

BR 1-264S

COUNTY	CONTRACT	P.P.A. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	78-101-02	2	DEL	FG-1045(10)	10	57
S.R. 7 AMTRAK OVERPASS						
NO.	REVISIONS	BY	DATE			
1	Add D.P.L. Utility Hanger (Typ. Cross Section)	T.F.F.	9-18-80			
2	Install 3/8" thk. alum. plate on top of barrier.	A.L.S.	4/30/82			



HALF SECTION NEAR ABUTMENT

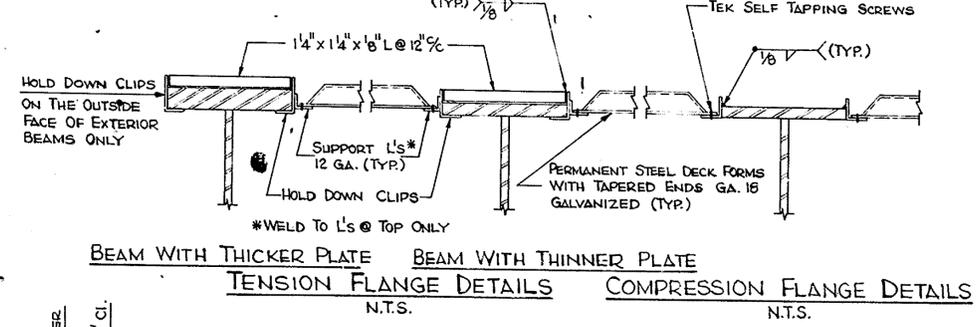
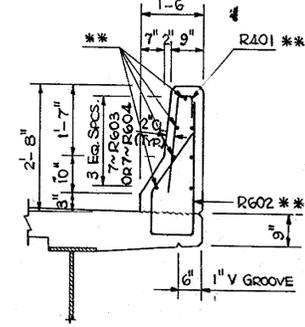
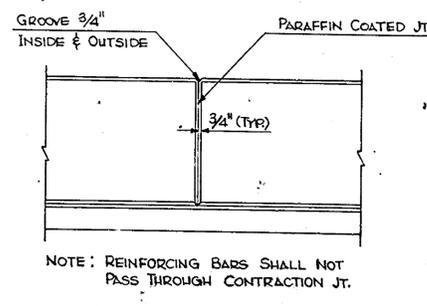
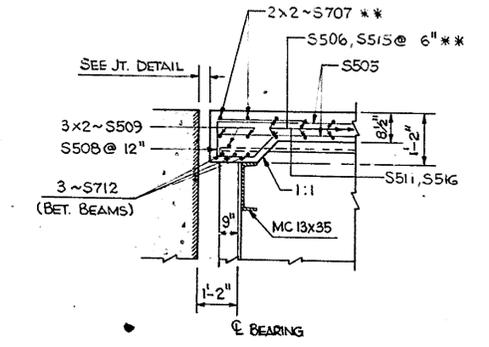
HALF SECTION NEAR MID SPAN (SPAN 1 & 2)

HALF SECTION NEAR MID SPAN (SPAN 1 & 2)

HALF SECTION NEAR ABUTMENT

TYPICAL CROSS SECTION SCALE: 1/4"=1'-0"

- NOTE:
- * DENOTES RADIAL DIMENSION
 - ** EPOXY COATED BARS
 - FOR DIAPHRAGM CONNECTION AND DETAILS OF SPAN 2, SEE SHEET 11
 - REINFORCEMENT IN S.B. LANE IS SAME IN N.B. LANE



LONGITUDINAL SECTION @ ABUTMENT SCALE: 1/2"=1'-0"

PARAPET PARAFFIN JOINT

BARRIER RAIL DETAILS SCALE: 1/2"=1'-0"

STEEL FORM SECTION N.T.S.

2 Note: Areas of alum. plate that shall come in contact with concrete shall be coated with alkali-resistant bituminous paint before installation.

3/8" Alum. plate installed between Sta. 69+00.11 to Sta. 70+38.11 (L=138 L.F.)

3/8" Stainless steel exp. bolt w/washer @ 2'-0" o.c., L=3 3/4"

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

DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS		
SUPERSTRUCTURE DETAILS		
D. A.C.S.J.	SCALE	APPROVED BY
T. R.B.F.	AS SHOWN	
C.		BRIDGE ENGINEER

SPIRAL DATA
 $\theta_s = 0^\circ 45'$
 $L_s = 150.00'$
 $L.T. = 100.00'$
 $S.T. = 50.00'$
 $X = 150.00'$
 $Y = 0.65'$

CURVE DATA
 $A_c = 6^\circ 19' 12''$
 $D_c = 1^\circ$
 $T_c = 316.32'$
 $L_c = 632.00'$
 $R_c = 5729.56'$

NOTES:
 1. IF SHUT-OFF VALVE IN EXIST. MANHOLE OPERATES, WE CAN ELIMINATE 6" INSERTING VALVE AND 6" TAPPING SLEEVE & TAPPING VALVE BY INSTALLING A BEND.
 2. WE MUST HAVE PERMISSION BEFORE WE SHUT-OFF EXISTING SERVICE, IF SHUT-OFF IS NOT POSSIBLE, THIS DRAWING IS TO BE FOLLOWED.

COUNTY	CONTRACT	P.P.A. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	78-10-02	2	DEL	FG-1025(10)	3	57

S.R. 7 AMTRAK OVERPASS			
NO.	REVISIONS	BY	DATE
1	WATER MAIN REVISION	ACS.J	7/7/80
2	BARRIER CONNECTION	ACS.J	1/26/81
3	Install alum. plate on top of barrier - see sheet 10 of 57	A.L.S.	4/30/82

GENERAL NOTES

LOCATION : THIS STRUCTURE IS LOCATED ON: RELOCATED ROUTE 7 AND AMTRAK NEAR STANTON.

LOADING : HS 20-44 WITH 25 LBS./SQ. FT. FOR FUTURE WEARING SURFACE.

SPECIFICATIONS : STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES A.A.S.H.T.O. 1978 WITH CURRENT MODIFICATIONS AND ADDITIONS. WELDING IS TO CONFORM TO LATEST AMERICAN WELDING SOCIETY & A.A.S.H.T.O. WELDING SPECIFICATIONS.

MATERIAL AND FABRICATION : STATE OF DELAWARE, DEPARTMENT OF HIGHWAYS AND TRANSPORTATION STANDARD SPECIFICATIONS DATED JANUARY 1, 1974 AND SPECIAL PROVISION.

DESIGN : STRUCTURAL STEEL, A.S.T.M. A-588 $f_s = 27,000$ P.S.I. REINFORCING STEEL, A.S.T.M. A-615 GRADE 60, $f_s = 24,000$ P.S.I. TOP MAT OF DECK REINFORCEMENT TO BE EPOXY COATED. CONCRETE, $f_c = 1,600$ P.S.I., $n = 8$.

USE CLASS A CONCRETE FOR ALL CONCRETE STRUCTURES ABOVE FOOTING. USE CLASS B CONCRETE FOR FOOTING. NO TEMPORARY SUPPORTS SHALL BE USED FOR COMPOSITE CONSTRUCTION.

STAY-IN-PLACE FORMS SHALL BE REQUIRED ON THIS JOB. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4".

FOUNDATION : ALL ABUTMENTS AND PIERS SHALL BE FOUND ON PILING. PROTECTIVE COATING NOT REQUIRED.

BORING : LOCATIONS SHOWN THUS \odot . BORING DATA IS FOR INFORMATIONAL PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUB SOIL CONDITIONS.

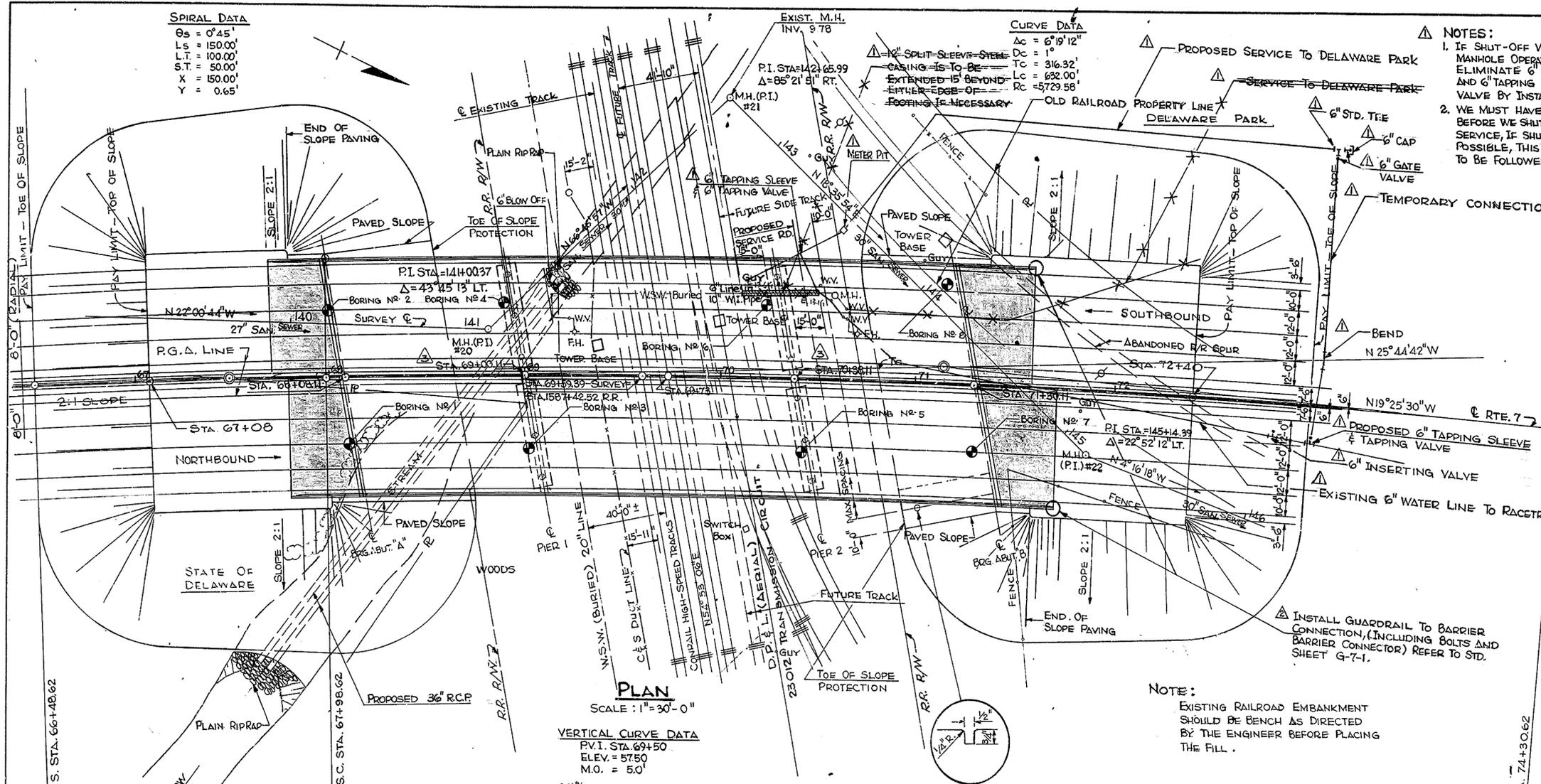
PAINTING OF STRUCTURAL STEEL NOT REQUIRED.

FOR SUMMARY OF BRIDGE QUANTITIES, SEE SHEET NO. 2

LIMITS OF THE PROJECT :
 MAJOR CONSTRUCTION : STA. 66+48.62 TO STA. 73+00.00
 UTILITIES : SEE SHEET NO. 6 & 7 FOR SANITARY SEWER.
 ACCESS ROAD : SEE SHEET NO. 5
 PIER BACKFILL : USE EXCAVATED MATERIAL FOR BACKFILL WHENEVER POSSIBLE. COMPACT TO THE SATISFACTION OF THE ENGINEER.

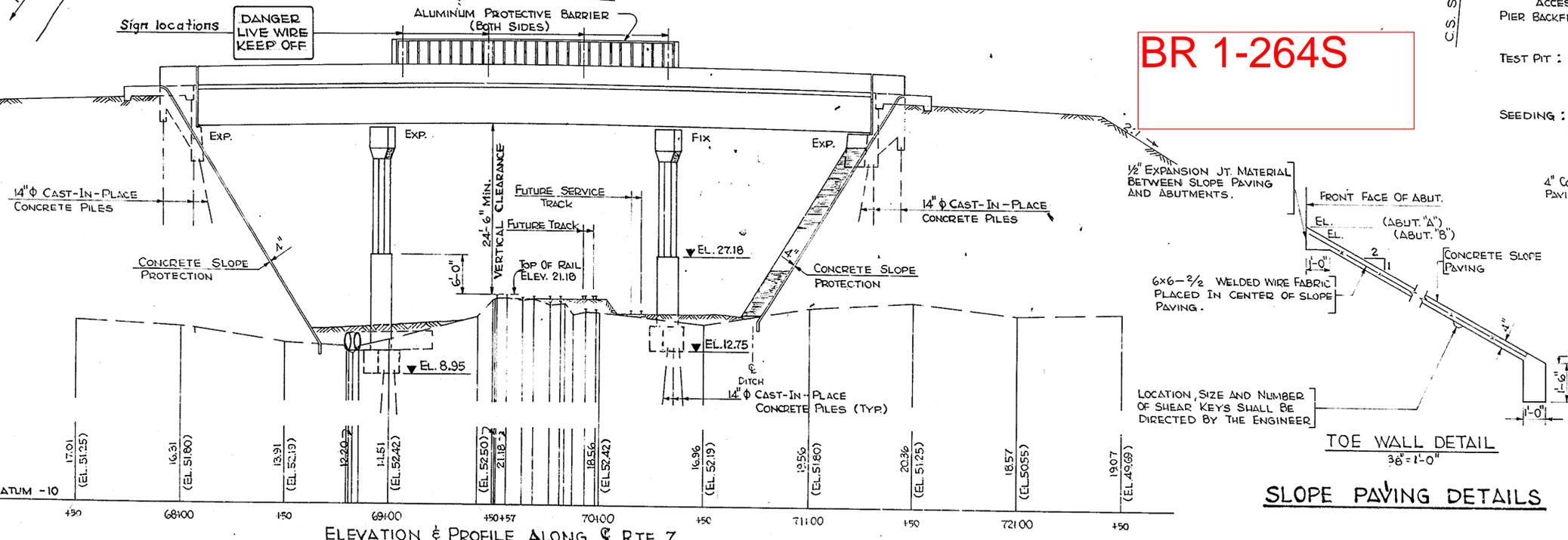
TEST PIT : EXACT LOCATION OF UNDERGROUND FACILITIES (WATER & SEWER) SHALL BE DETERMINED BY TEST HOLES. PILES LOCATED IN THE VICINITY OF THESE FACILITIES SHALL BE AUGERED TO THE ELEVATION BELOW THESE FACILITIES.

SEEDING : USE CROWN VETCH SEEDING & MULCHING FOR SIDE SLOPE OF THE EMBANKMENT.



NOTE:
 EXISTING RAILROAD EMBANKMENT SHOULD BE BENCH AS DIRECTED BY THE ENGINEER BEFORE PLACING THE FILL.

BR 1-264S



GUTTER DETAIL
 $\frac{1}{2}'' = 1'-0''$

DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

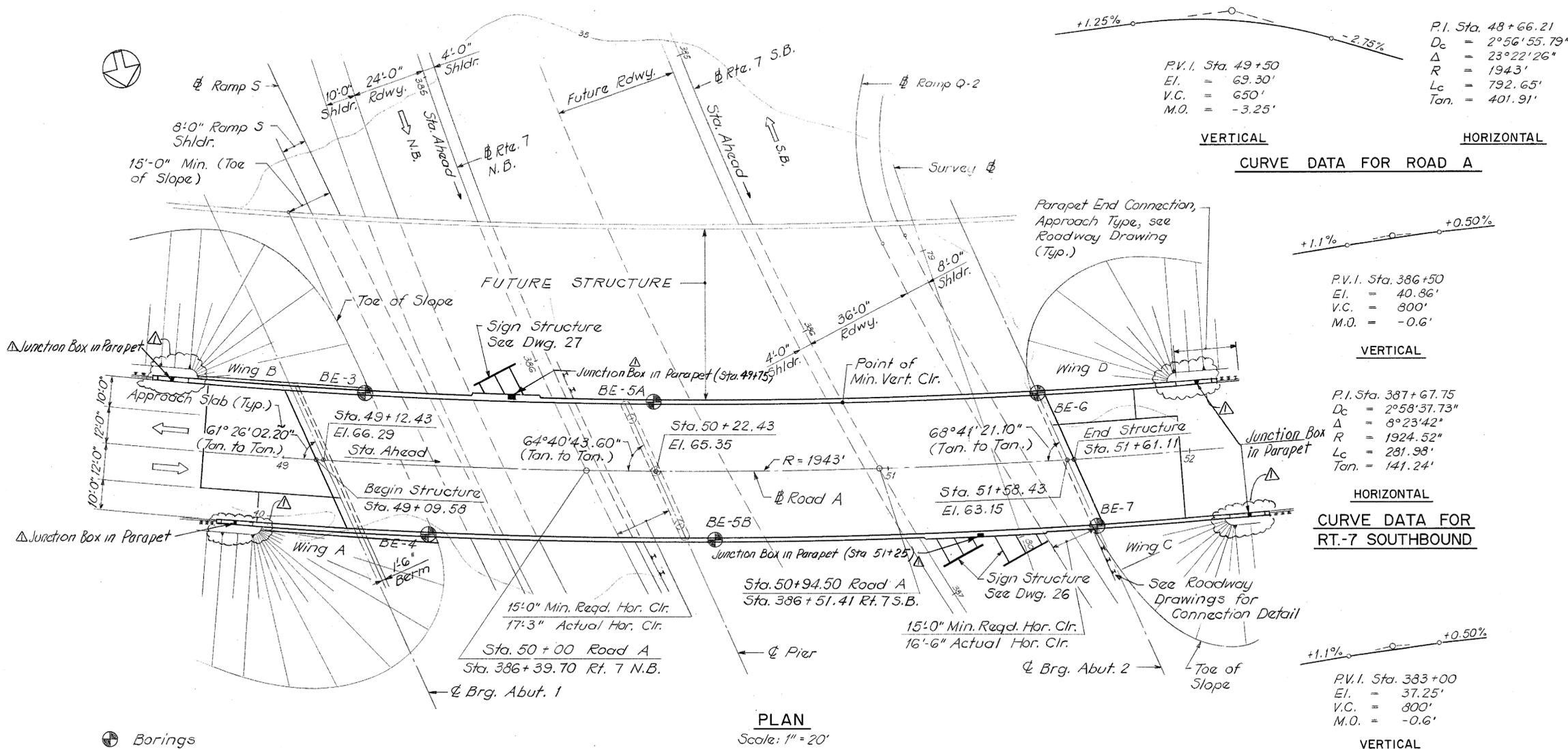
PLAN and ELEVATION

D ACS.J. SCALE APPROVED BY
 T R.B.F. HORIZ. 1" = 30'-0"
 C VERT. 1" = 10'-0"

BRIDGE ENGINEER

**ROAD A
OVER ROUTE - 7
2 SPAN COMP. STEEL GIRDER BRIDGE
GENERAL PLAN**

BR 1-222



VERTICAL **HORIZONTAL**
CURVE DATA FOR ROAD A

P.V.I. Sta. 48+66.21
 $D_c = 2^\circ 56' 55.79''$
 $\Delta = 23^\circ 22' 26''$
 $R = 1943'$
 $L_c = 792.65'$
 $Tan. = 401.91'$

P.V.I. Sta. 49+50
 $EI. = 69.30'$
 $V.C. = 650'$
 $M.O. = -3.25'$

VERTICAL
CURVE DATA FOR RT-7 SOUTHBOUND

P.V.I. Sta. 386+50
 $EI. = 40.86'$
 $V.C. = 800'$
 $M.O. = -0.6'$

HORIZONTAL
CURVE DATA FOR RT-7 SOUTHBOUND

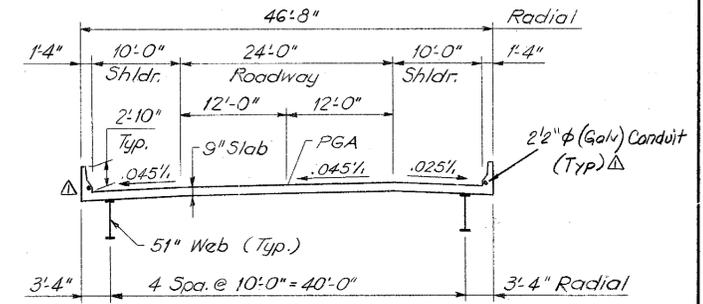
P.I. Sta. 387+67.75
 $D_c = 2^\circ 58' 37.73''$
 $\Delta = 8^\circ 23' 42''$
 $R = 1924.52'$
 $L_c = 281.98'$
 $Tan. = 141.24'$

VERTICAL
CURVE DATA FOR RT-7 NORTHBOUND

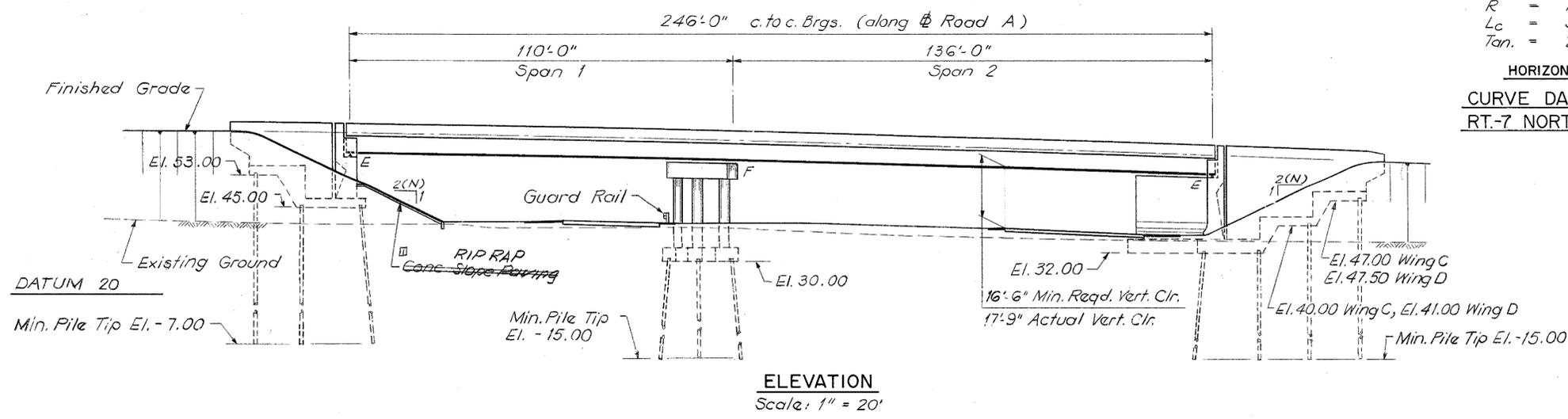
P.V.I. Sta. 383+00
 $EI. = 37.25'$
 $V.C. = 800'$
 $M.O. = -0.6'$

HORIZONTAL
CURVE DATA FOR RT-7 NORTHBOUND

P.I. Sta. 384+81.58
 $D_c = 3^\circ 45' 00''$
 $\Delta = 22^\circ 00' 00''$
 $R = 1527.89'$
 $L_c = 586.67'$
 $Tan. = 296.99'$



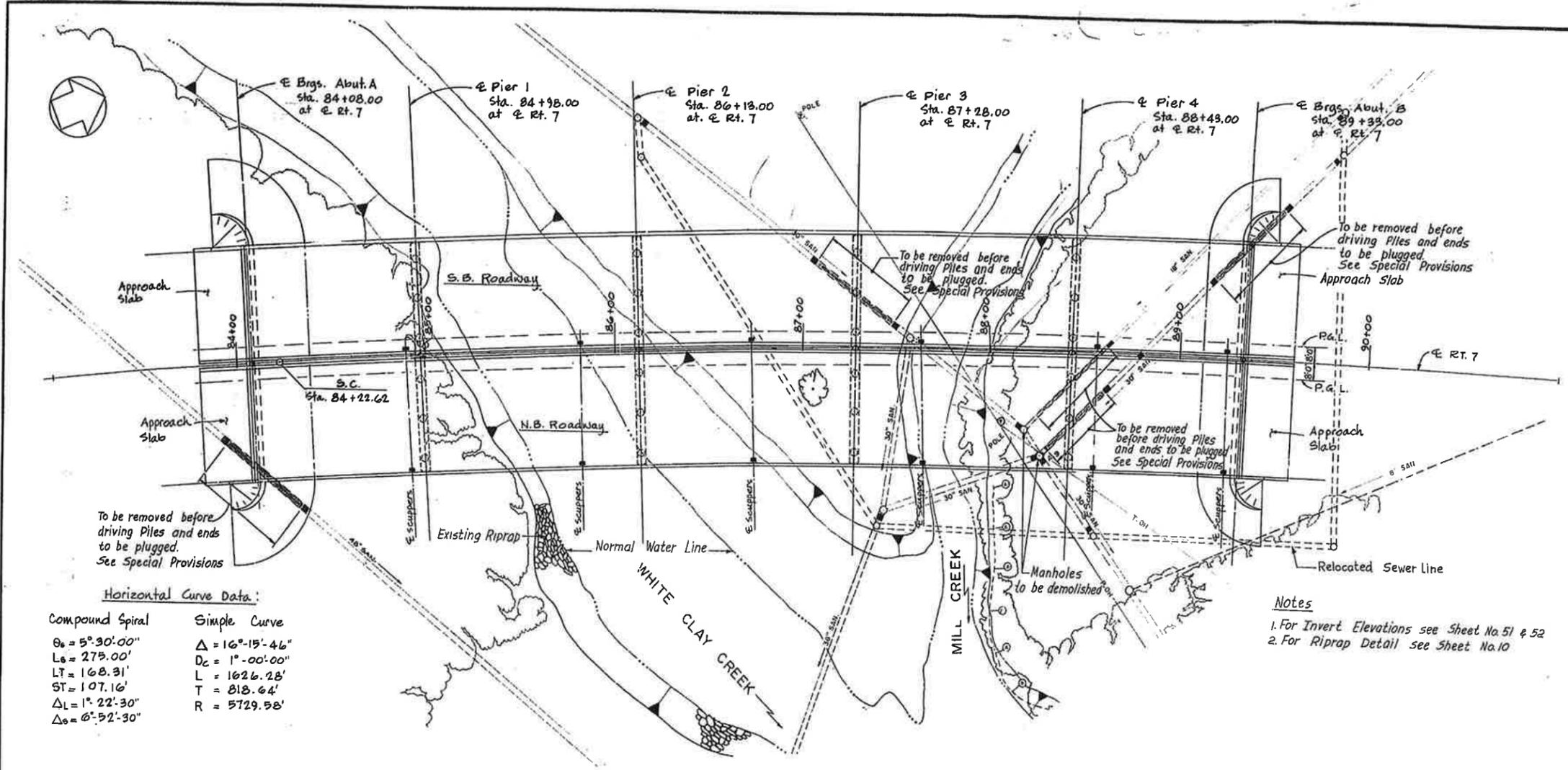
INDEX OF DRAWINGS	
NO.	TITLE
1	General Plan
2	General Notes & Quantities
3	Stake-Out Plan
4	Abutment 1
5	Wing A and B
6	Abutment 1 Footing Plan
7	Abutment 1 Bar List
8	Abutment 2
9	Wing C and D
10	Wing C and D Sections
11	Abutment 2 Footing Plan
12	Abutment Details
13	Abutment 2 Bar List
14	Pier
15	Pier Bar List
16	Framing Plan
17	Girder Details I
18	Girder Details II
19	Bearing Details
20	Deck Reinforcement Plan
21	Deck Bar List
22	Deck Elevations
23	Joint and Form Details
24	Approach Slab
25	Concrete Slope Paving
26	Sign Structure Details I
27	Sign Structure Details II
28	Pay Limit Details
29	Test Borings



REVISIONS
 CHK 12/20/78
 US 1, 3-9-80
 US 1, 15-83-78
 Revised as shown
 Added Junction Box
 Change slope shown to 1:1
 Author
 Addendum
 Revision
 PREL. TRACING KIM
 DESIGN DGF
 CHKD SBS
 8388

COUNTY	CONTRACT	S.P.C. NO.	DATE	P.O. OR PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-101-01	3	DEL	F-1045(12)	67	144
RELOCATION OF DELAWARE ROUTE 7 AMTRAK TO STANTON						
NO.	REVISIONS	BY	DATE			

BR 1-262N

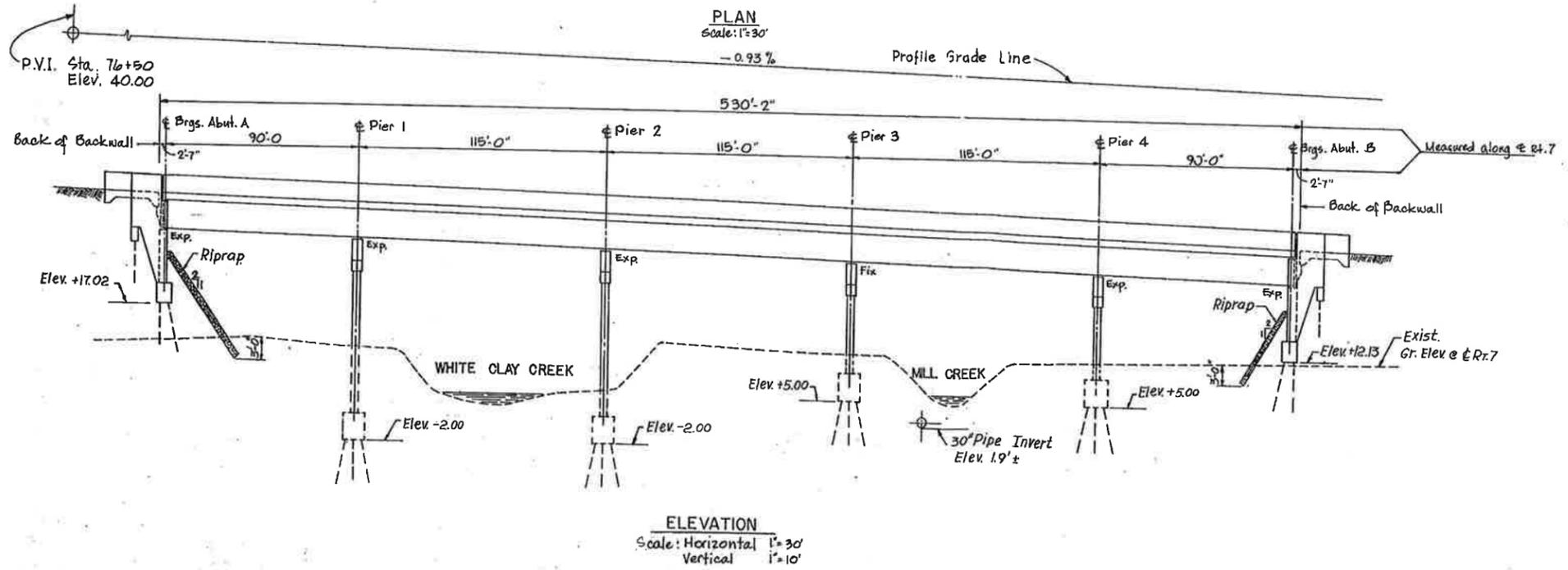


Horizontal Curve Data:

Compound Spiral	Simple Curve
$\theta_s = 5^\circ 30' 00''$	$\Delta = 16^\circ 15' 46''$
$L_s = 275.00'$	$D_c = 1^\circ 00' 00''$
$LT = 168.31'$	$L = 1626.28'$
$ST = 107.16'$	$T = 818.64'$
$\Delta L = 1^\circ 22' 30''$	$R = 5729.58'$
$\Delta_s = 6^\circ 52' 30''$	

Notes

1. For Invert Elevations see Sheet No. 51 & 52
2. For Riprap Detail see Sheet No. 10



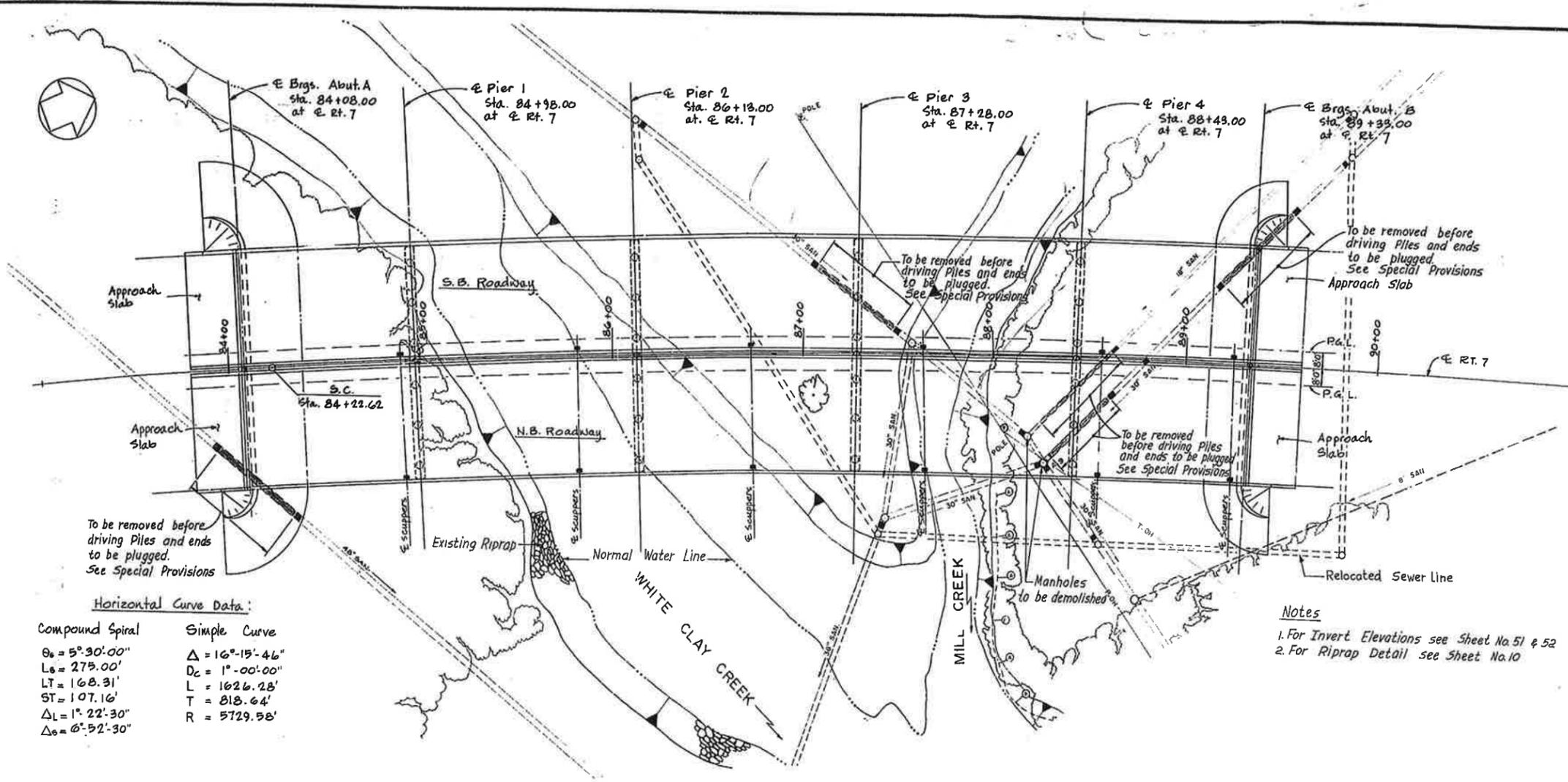
Hydrographic Data

Maximum High Water Elevation:
 For 100 Year Flood - Elev. 20.5'
 For 50 Year Flood - Elev. 15.6'
 $Q_{100} = 17,100$ CFS
 $Q_{50} = 8,000$ CFS

DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS		
BRIDGE No. 246A		
GENERAL PLAN AND ELEVATION		
D. G. V. J.	SCALE	APPROVED BY:
T.	AS NOTED	
C. S. S.		BRIDGE ENGINEER

COUNTY	CONTRACT	S.P.C. NO.	DATE	P.O. OR PROJECT NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79-101-01	3	DEL	F-1045(12)	67	144
RELOCATION OF DELAWARE ROUTE 7 AMTRAK TO STANTON						
NO.	REVISIONS	BY	DATE			

BR 1-262S

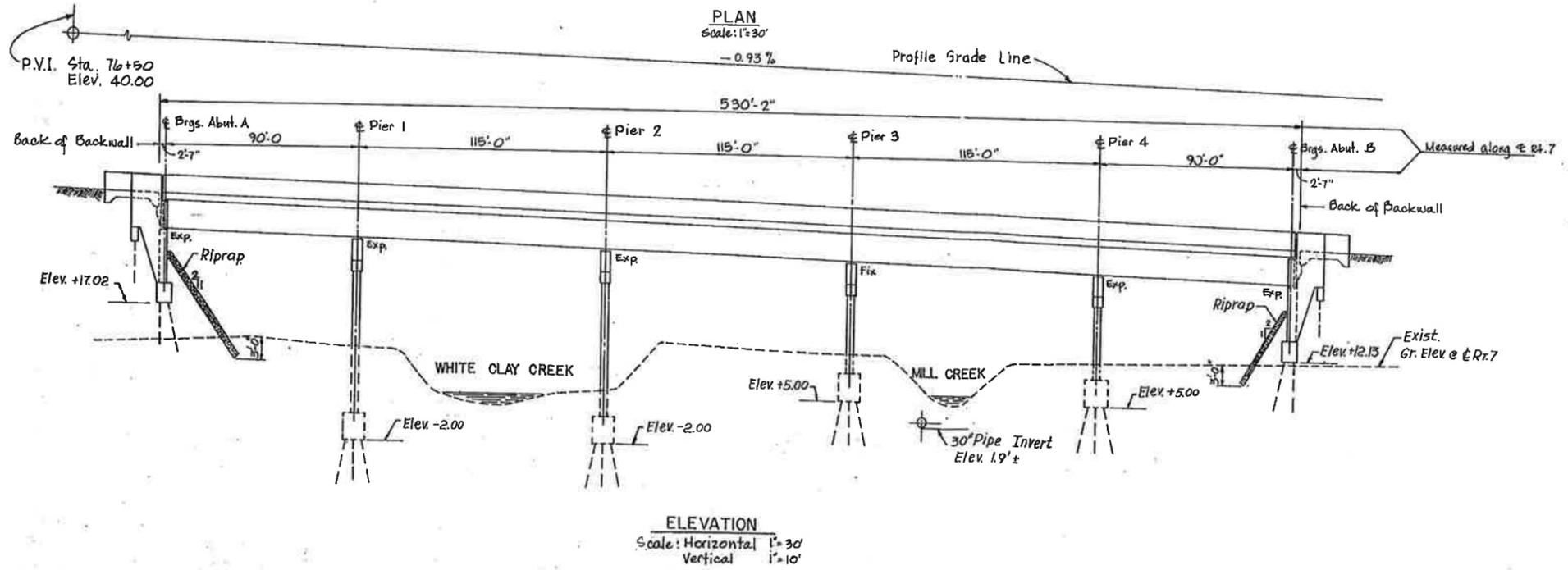


Horizontal Curve Data:

Compound Spiral	Simple Curve
$\theta_s = 5^\circ 30' 00''$	$\Delta = 16^\circ 15' 46''$
$L_s = 275.00'$	$D_c = 1^\circ 00' 00''$
$LT = 168.31'$	$L = 1626.28'$
$ST = 107.16'$	$T = 818.64'$
$\Delta L = 1^\circ 22' 30''$	$R = 5729.58'$
$\Delta_s = 6^\circ 52' 30''$	

Notes

1. For Invert Elevations see Sheet No. 51 & 52
2. For Riprap Detail see Sheet No. 10

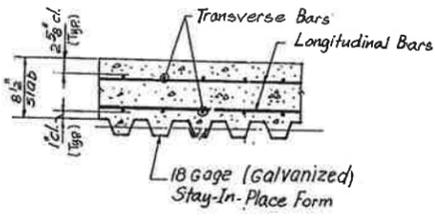
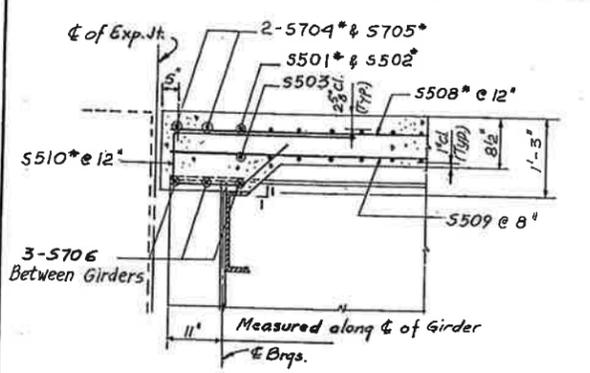
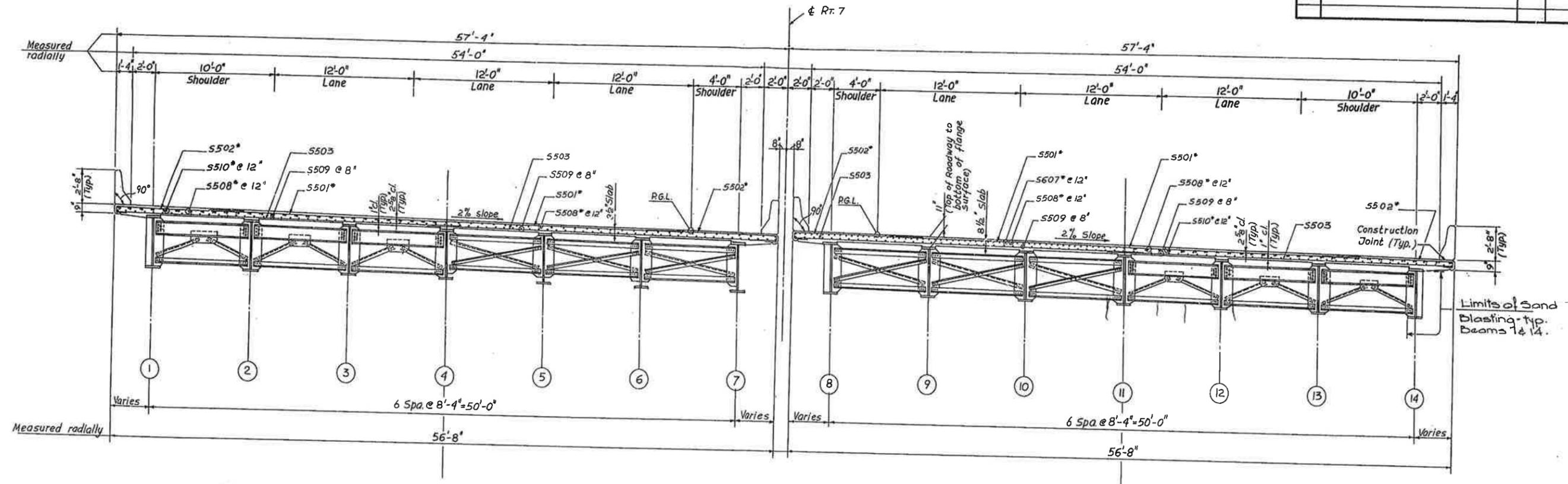


Hydrographic Data

Maximum High Water Elevation:
 For 100 Year Flood - Elev. 20.5'
 For 50 Year Flood - Elev. 15.6'
 $Q_{100} = 17,100$ CFS
 $Q_{50} = 8,000$ CFS

DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS		
BRIDGE No. 246A		
GENERAL PLAN AND ELEVATION		
D. G. V. J.	SCALE	APPROVED BY:
T.	AS NOTED	
C. S. S.		BRIDGE ENGINEER

COUNTY	CONTRACT	F.R.L. OR. NO.	STATE	FED. AID PROJ. CT. NO.	SHEET NO.	TOTAL SHEETS
NEW CASTLE	79.KI.01	3	DEL.	F-1045 (12)	79	144
RELOCATION OF DELAWARE ROUTE 7 AMTRAK TO STANTON						
NO.	REVISIONS	BY	DATE			



TYPICAL CROSS SECTION
Scale: 1/4" = 1'-0"

- Notes
1. For General Notes see Sheet No. 66
 2. * Denotes Epoxy Coated Bars.
 3. For details of cross frames see Sheet No. 83
 4. For Parapet Reinforcement see Sheet No. 85
 5. For details of Junction Box and Conduit in East Parapet of N.B. Roadway see Sheet No. 85
 6. For Slab Form see Sheet No. 84
 7. Steel forms to stay in place. Shop drawing shall be submitted for review and approved by the Engineer. Metal forms must be galvanized, mortar tight and steel metal screws must be non-corrosive. Tack screws shall be installed at the side lap of the sheets at mid-span between supports. No weld will be permitted at negative moment zone.

Note
For details of Expansion Joint see Sheet No. 86.

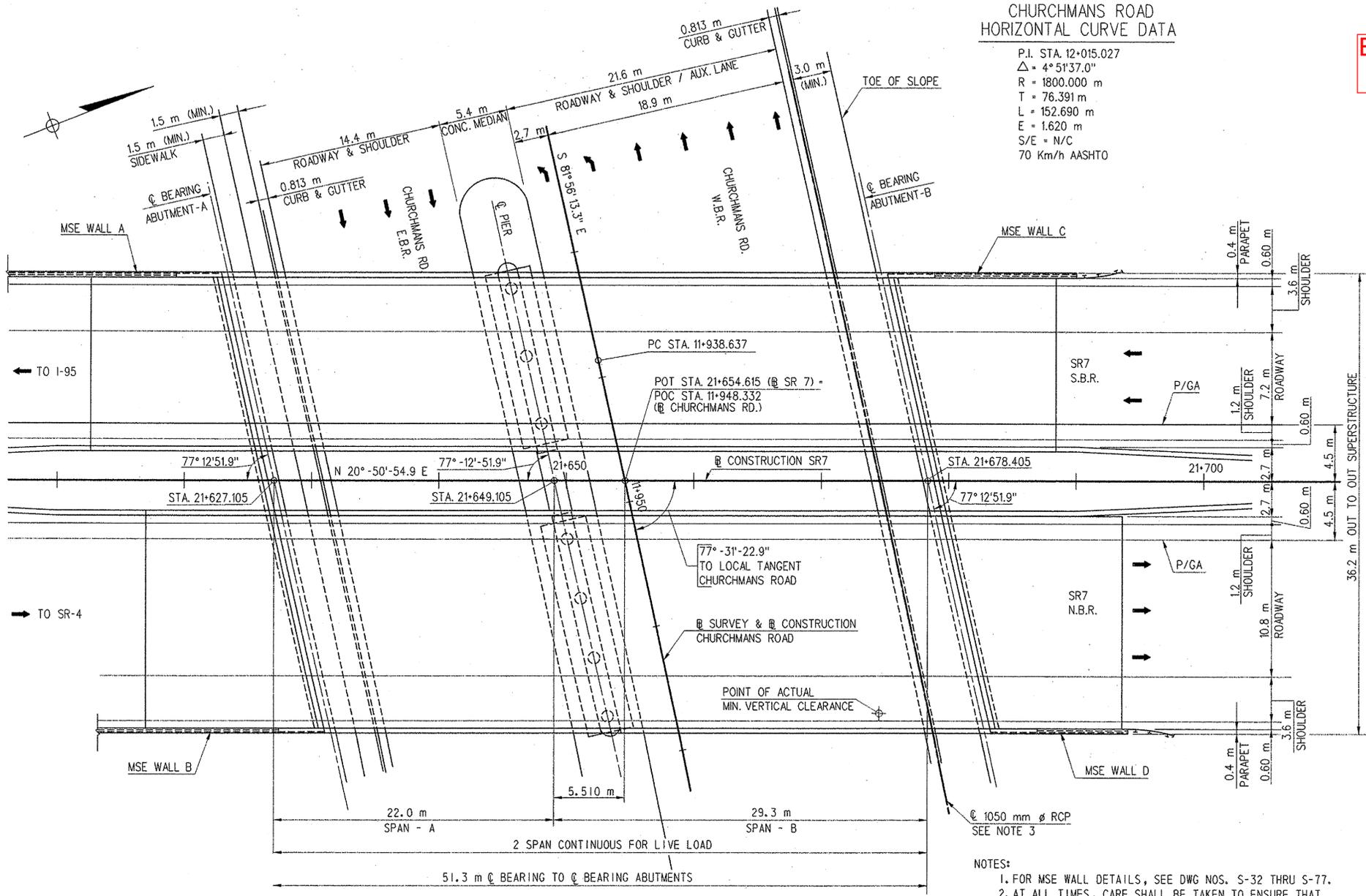
DELAWARE DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS		
BRIDGE No. 246A		
SUPERSTRUCTURE TYPICAL SECTION		
D. G. V. J.	SCALE AS NOTED	APPROVED BY: BRIDGE ENGINEER
T.		
C. S. S.		

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
91-101-04	NEW CASTLE	STP-N339(1)	141	365
CHURCHMANS ROAD & SR 7 INTERCHANGE				
STRUCTURE PLANS & DETAILS				
SR7 BRIDGE				
GENERAL PLAN AND ELEVATION				
REVISIONS				
ADDENDUM NO. 1 - REMOVED				
NOTE 4 - 4/15/97 - DRS				

BR 1-267N & S

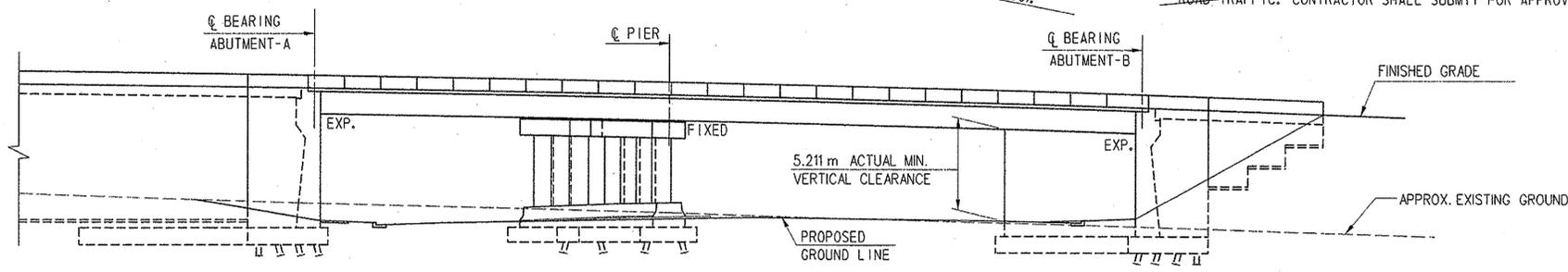
**CHURCHMANS ROAD
HORIZONTAL CURVE DATA**

P.I. STA. 12+015.027
 $\Delta = 4^\circ 51' 37.0''$
 R = 1800.000 m
 T = 76.391 m
 L = 152.690 m
 E = 1.620 m
 S/E = N/C
 70 Km/h AASHTO



SR7 VERTICAL CURVE DATA

PVI 21+655
 EL. 25.575
 VC = 160.0 m



GENERAL NOTES

S-2

DESIGN SPECIFICATIONS: 1992 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, INCLUDING INTERIMS THROUGH 1995.

MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE "DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS" DATED JULY 1985, WITH CURRENT MODIFICATIONS, ADDITIONS AND SPECIAL PROVISIONS.

DESIGN: LOAD FACTOR DESIGN METHOD

ELEVATIONS: ALL ELEVATIONS ARE SHOWN IN METERS AND ARE BASED ON N.G.S. DATUM.

DIMENSIONS: ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

PROJECT NOTES

LOCATION: DELAWARE ROUTE 7 OVER DELAWARE ROUTE 58 (CHURCHMANS ROAD), NEW CASTLE COUNTY, DELAWARE.

LOADING: AASHTO MS22.5 OR DELAWARE LEGAL LOAD (WHICHEVER GOVERNS) FOR LIVE LOAD, 1200 Pa FOR A FUTURE WEARING SURFACE AND 700 Pa FOR USE OF METAL STAY-IN-PLACE BRIDGE DECK FORMS.

PORTLAND CEMENT CONCRETE: STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED: ABUTMENT STEMS, BACKWALLS, PIER CAPS, PIER COLUMNS, APPROACH SLABS AND PARAPET - $f'c=30$ MPa, CLASS A
 ALL FOOTINGS - $f'c=20$ MPa, CLASS B
 SUPERSTRUCTURE INCLUDING DECK SLABS - $f'c=30$ MPa, CLASS D
 MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED 20 mm UNLESS OTHERWISE NOTED.

PRESTRESSED CONCRETE: ALL PRESTRESSED CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF $f'c = 38$ MPa AND A STRENGTH OF $f'c_i = 31$ MPa AT TRANSFER OF PRESTRESS. ALL STRANDS IN PRESTRESSED CONCRETE SHALL BE 13 mm DIAMETER, 7 WIRE, LOW RELAXATION STRANDS, CONFORMING TO ASTM A-416-80, GRADE 1860.

REINFORCEMENT: REINFORCING STEEL SHALL CONFORM TO AASHTO M31, GRADE 60. REINFORCING STEEL CLEAR COVER SHALL BE 50 mm UNLESS OTHERWISE NOTED. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284, AND IS DENOTED WITH A SUFFIX "E" IN THE BAR MARKS. ALL DECK SLAB, APPROACH SLAB, PARAPET, AND ABUTMENT BACKWALL REINFORCING SHALL BE EPOXY COATED.

THE FOLLOWING CHART MAY BE USED FOR SUBSTITUTION OF ALTERNATE REBAR DESIGNATIONS FOR THE DESIGNATIONS SHOWN ON THE PLANS WITHOUT MODIFYING THE BAR SPACING:

PROPOSED SYSTEM	ALTERNATE SYSTEMS	
ASTM A615M	ASTM A615M-96a	ASTM A615-96a
10M	#13	#4
15M	#16	#5
20M	#22	#7
25M	#25	#8
30M	#32	#10
35M	#36	#11

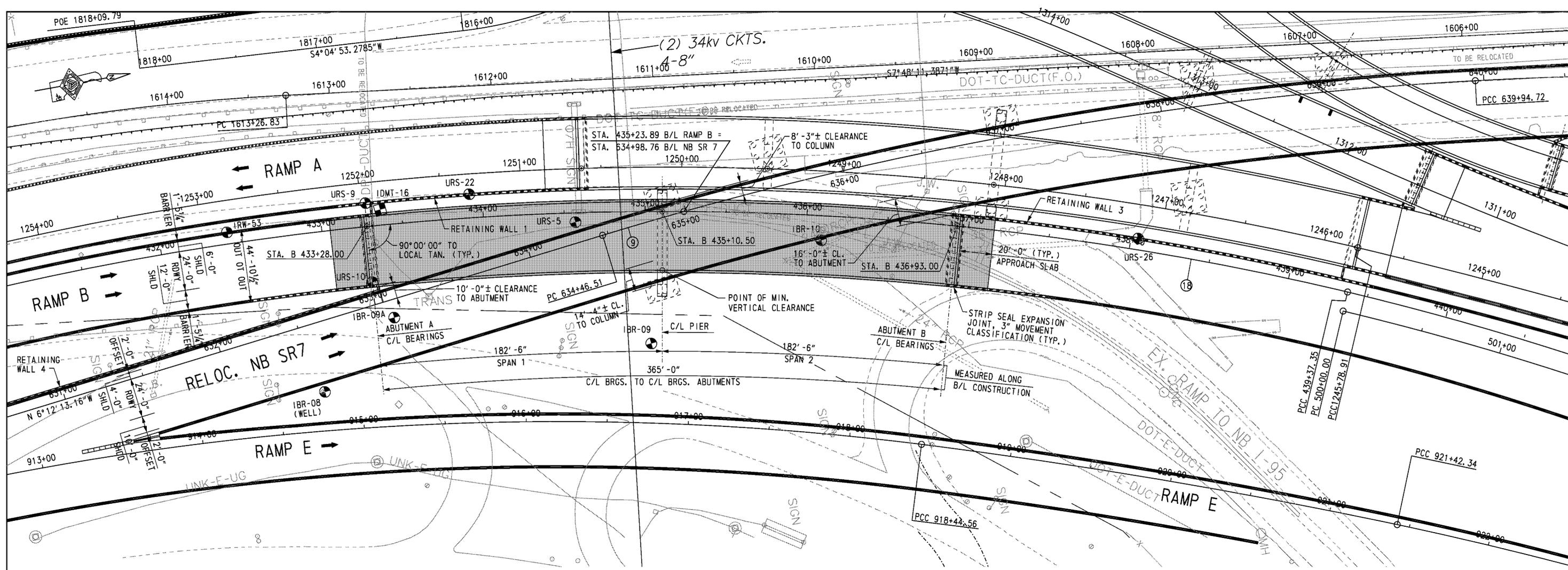
IF THE REBAR SIZES DO NOT MATCH THE CHART ABOVE, THEN THE CONTRACTOR SHALL ADJUST THE BAR SPACING TO PROVIDE THE CROSS-SECTIONAL AREA CALLED FOR ON THE PLANS. SHOP DRAWINGS SHALL BE SUBMITTED FOR ANY CHANGE IN BAR SPACING. PAYMENT SHALL BE INCIDENTAL TO SECTION 60300 AND/OR 604000.

FOUNDATIONS: ABUTMENTS AND PIERS SHALL BE SUPPORTED BY 350 mm ϕ STEEL SHELL C-1-P CONCRETE PILES. FOR ADDITIONAL INFORMATION, SEE DWG NO. S-4.

RATINGS: THE FOLLOWING RATINGS HAVE BEEN DEVELOPED FOR THIS STRUCTURE:

TRUCK	INVENTORY RATING	OPERATING RATING	CONTROL POINT
AASHTO MS22.5	405 kN	542 kN	SPAN A, 0.5 PT.
DELAWARE S220	356 kN	594 kN	SPAN A, 0.5 PT.
DELAWARE S237	342 kN	571 kN	SPAN A, 0.5 PT.
DELAWARE S334	328 kN	548 kN	SPAN A, 0.5 PT.
DELAWARE S437	375 kN	652 kN	SPAN A, 0.5 PT.
DELAWARE T330	442 kN	821 kN	SPAN A, 0.5 PT.
DELAWARE T435	456 kN	849 kN	SPAN A, 0.5 PT.
DELAWARE T540	456 kN	858 kN	SPAN A, 0.5 PT.

N:\BMD\SHARE\DELAWARE\SR7\CHURCHMAN\PE01.DGN
 PREL. TRACING
 D.L.S.
 DESIGN
 J.J.F.
 CHKD
 D.R.S.



B/L CONSTR. RAMP B
B/L CONSTR. NB SR7

CURVE 18 DATA
 PI STA. 432+05.12
 $\Delta = 49^\circ 15' 06.54''$ RT
 $D_c = 3^\circ 08' 22.18''$
 $R = 1,825.0000'$
 $T = 836.55'$
 $L = 1,568.78'$

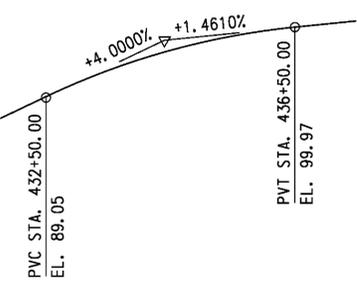
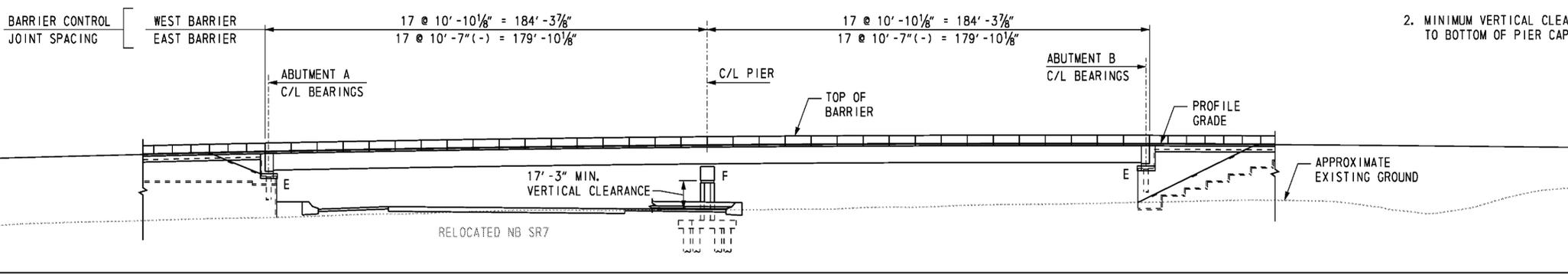
CURVE 9 DATA
 PI STA. 637+21.94
 $\Delta = 13^\circ 46' 34.84''$ RT
 $D_c = 2^\circ 30' 46.70''$
 $R = 2,280.0000'$
 $T = 275.43'$
 $L = 548.21'$

PLAN
 SCALE: 1" = 30'-0"

- NOTES:**
- GUIDED AND NON-GUIDED POT BEARINGS ARE PROVIDED AT ABUTMENTS A AND B. FIXED POT BEARINGS ARE PROVIDED AT PIER.
 - MINIMUM VERTICAL CLEARANCE IS MEASURED TO BOTTOM OF PIER CAP.

BR 1-268A

PVI STA. 434+50.00
 EL. 97.05
 EX = -1.27
 K = 157.54
 VC = 400.0'

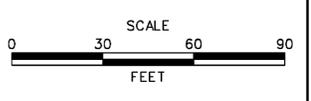


RAMP B PROFILE
 NOT TO SCALE

ELEVATION
 SCALE: 1" = 30'-0"



ADDENDUMS / REVISIONS	



SR1/I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-268A
28-090-03	DESIGNED BY:	R. F. KIRCHNER
COUNTY	CHECKED BY:	G. P. MISTRY
NEW CASTLE		

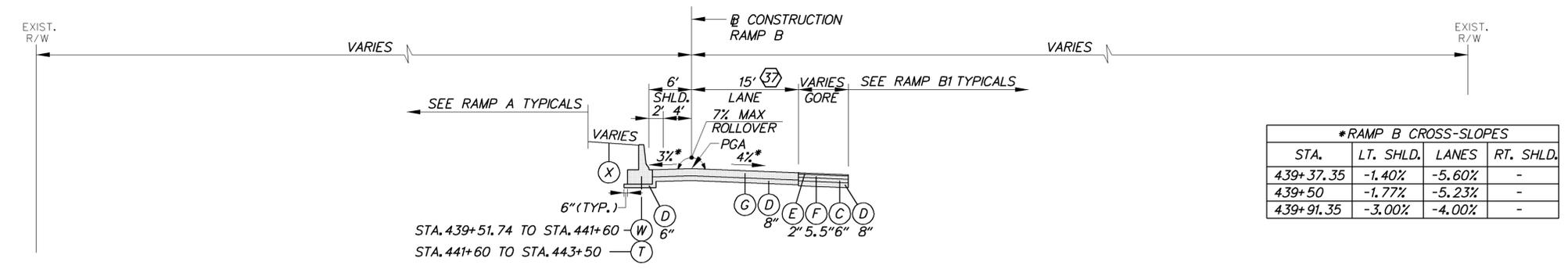
RAMP B OVER SR 7
BRIDGE PLAN AND ELEVATION

S3-1
SHEET NO.
307
TOTAL SHTS.
803

10/28/2010 O:\200832687-XM\CAD\Bridge\BR-53\pe01_BR-53_srl.dgn

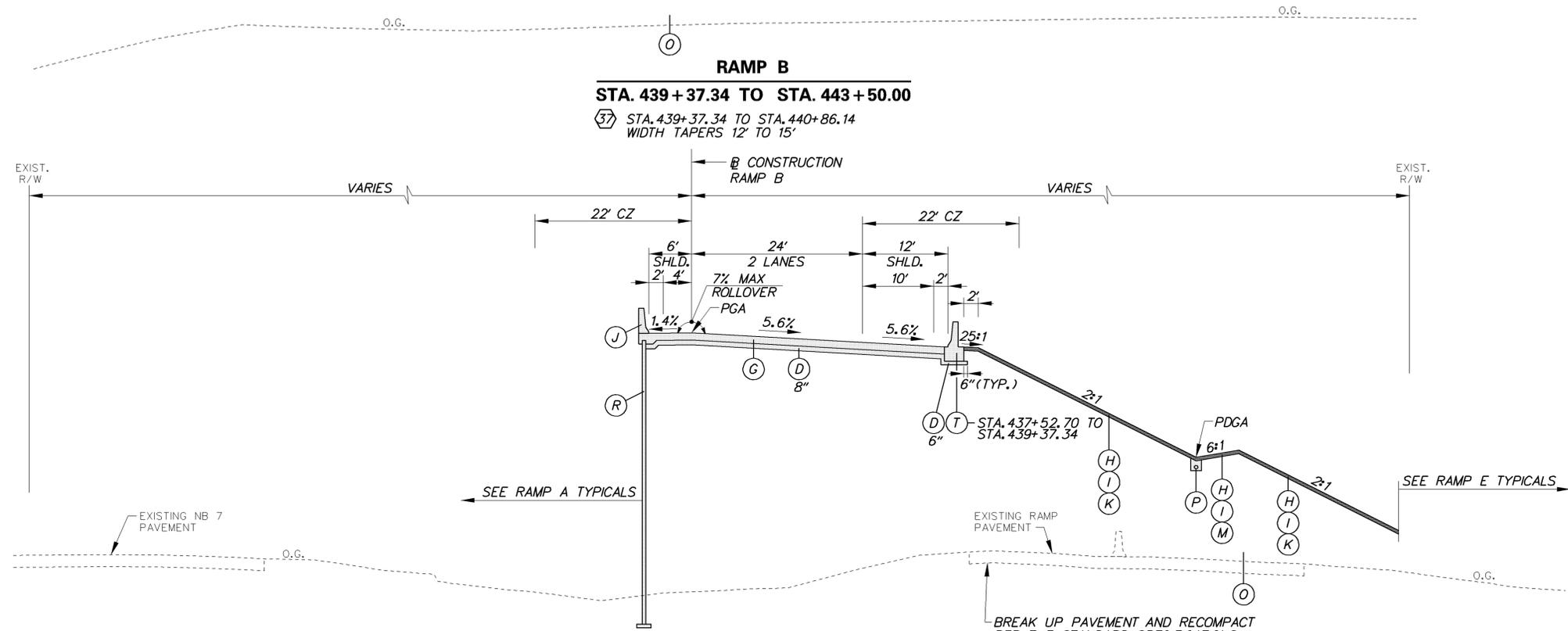
LEGEND

- (A) ITEM 401708 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 70-22 (NON-CARBONATE STONE)
- (B) ITEM 401654 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 70-22
- (C) ITEM 401663 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22
- (D) ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B
- (E) ITEM 401711 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 76-22 (NON-CARBONATE STONE)
- (F) ITEM 401660 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 76-22
- (G) ITEM 501006 - PORTLAND CEMENT CONCRETE PAVEMENT, 12"
- (H) ITEM 732002 - TOPSOIL, 6" DEPTH
- (I) ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
- (J) ITEM 602017 - PCC MASONRY, PARAPET, CLASS A
- (K) ITEM 735533 - SOIL RETENTION BLANKET MULCH, TYPE 3
- (L) ITEM 735534 - SOIL RETENTION BLANKET MULCH, TYPE 4
- (M) ITEM 735535 - SOIL RETENTION BLANKET MULCH, TYPE 5, UNLESS OTHERWISE NOTED, SEE DRAINAGE PLANS FOR LIMITS AND TYPE
- (N) ITEM 209001 - BORROW, TYPE A
- (O) ITEM 209006 - BORROW, TYPE F OR APPROVED PROJECT EXCAVATION
- (P) ITEM 715001 - PERFORATED PIPE UNDERDRAINS, 6"
- (Q) ITEM 760504 - RUMBLE STRIPS, HOT-MIX
- (R) ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS
- (S) ITEM 602773 - PCC MASONRY FOR MECHANICALLY STABILIZED EARTH WALLS
- (T) ITEM 720529 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE
- (U) ITEM 720654 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 1
- (V) ITEM 720587 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, MODIFIED
- (W) ITEM 720655 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED TYPE 2
- (X) ITEM 712005 - RIPRAP, R-4
- (Y) ITEM 401665 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, PATCHING
- (Z) ITEM 401666 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22, PATCHING
- (AA) ITEM 401667 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE, 160 GYRATIONS, PG 64-22, PATCHING
- (BB) ITEM 302008 - GRADED AGGREGATE BASE COURSE, TYPE B, PATCHING
- (CC) ITEM 755000 - HOT-MIX, HOT LAID, BITUMINOUS CONCRETE CURB
- (CD) ITEM 701010 - PORTLAND CEMENT CONCRETE CURB, TYPE 1
- (CE) ITEM 701011 - PORTLAND CEMENT CONCRETE CURB, TYPE 2
- (CF) ITEM 701020 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 1
- (CG) ITEM 701023 - INTEGRAL PORTLAND CEMENT CONCRETE CURB AND GUTTER, TYPE 4
- (CH) ITEM 701026 - PORTLAND CEMENT CONCRETE MONOLITHIC MEDIAN
- (CI) ITEM 701027 - PORTLAND CEMENT CONCRETE CURB, TYPE 1 MODIFIED
- (CJ) ITEM 720658 - PCC SAFETY BARRIER PERMANENT SINGLE FACE, MODIFIED, TYPE 5
- (CK) ITEM 720050 - GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1
- (CL) ITEM 760507 - PROFILE MILLING, HOT-MIX
- (CM) ITEM 720656 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED, TYPE 3
- (CN) ITEM 720657 - PCC SAFETY BARRIER PERMANENT, SINGLE FACE, MODIFIED, TYPE 4
- (CO) ITEM 720651 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 1
- (CP) ITEM 720652 - PCC SAFETY BARRIER PERMANENT, DOUBLE FACE, BIFURCATED, TYPE 2
- (CR) ITEM 401668 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE
- (CS) ITEM 401669 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22, WEDGE



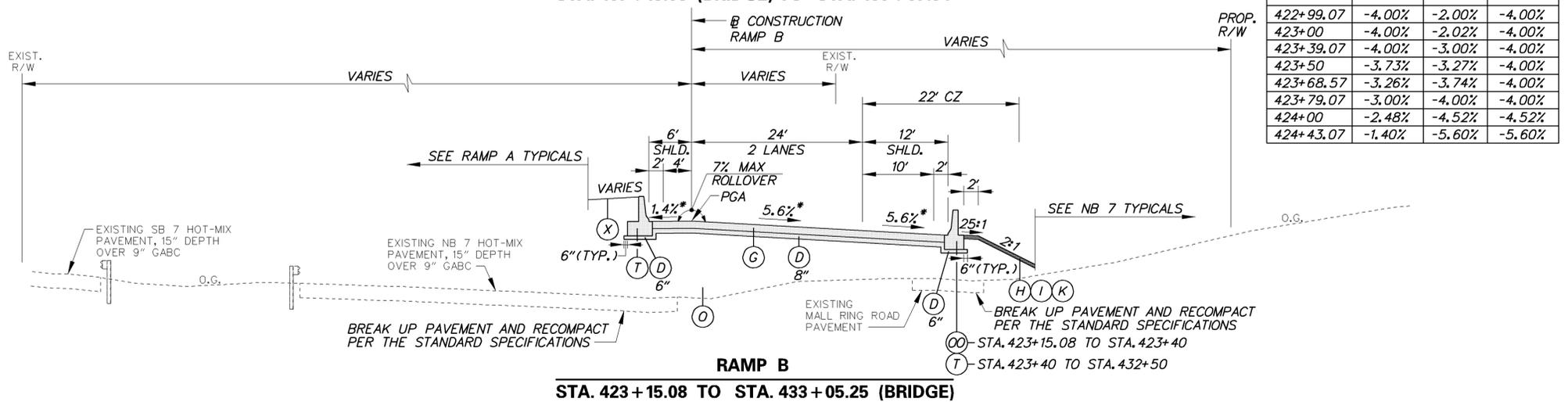
***RAMP B CROSS-SLOPES**

STA.	LT. SHLD.	LANES	RT. SHLD.
439+37.35	-1.40%	-5.60%	-
439+50	-1.77%	-5.23%	-
439+91.35	-3.00%	-4.00%	-



***RAMP B CROSS-SLOPES**

STA.	LT. SHLD.	LANES	RT. SHLD.
422+99.07	-4.00%	-2.00%	-4.00%
423+00	-4.00%	-2.02%	-4.00%
423+39.07	-4.00%	-3.00%	-4.00%
423+50	-3.73%	-3.27%	-4.00%
423+68.57	-3.26%	-3.74%	-4.00%
423+79.07	-3.00%	-4.00%	-4.00%
424+00	-2.48%	-4.52%	-4.52%
424+43.07	-1.40%	-5.60%	-5.60%

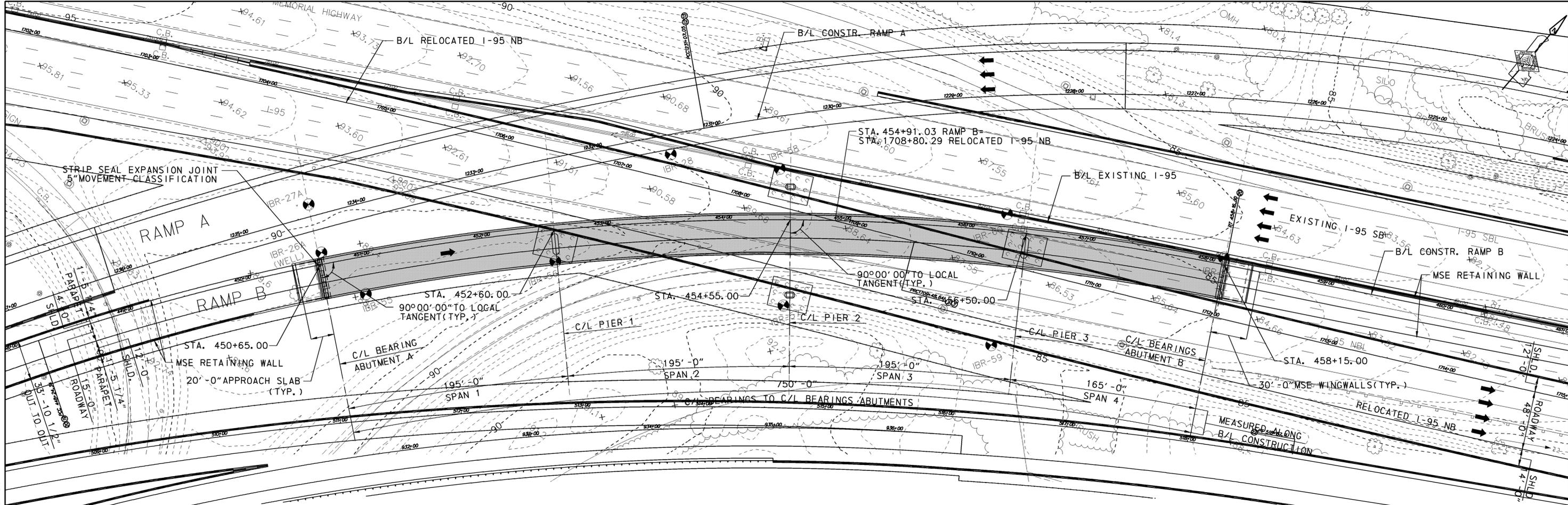


PAVEMENT LIFT NOTE:
 THE MAXIMUM LIFTS FOR THE INDIVIDUAL PAVING MATERIAL ARE AS FOLLOWS:
 SUPERPAVE, TYPE C HOT-MIX - 2"
 SUPERPAVE, TYPE B HOT-MIX - 3"
 SUPERPAVE, BIT. CONC. BASE COURSE - 6"
 GRADED AGGREGATE BASE COURSE - 8"

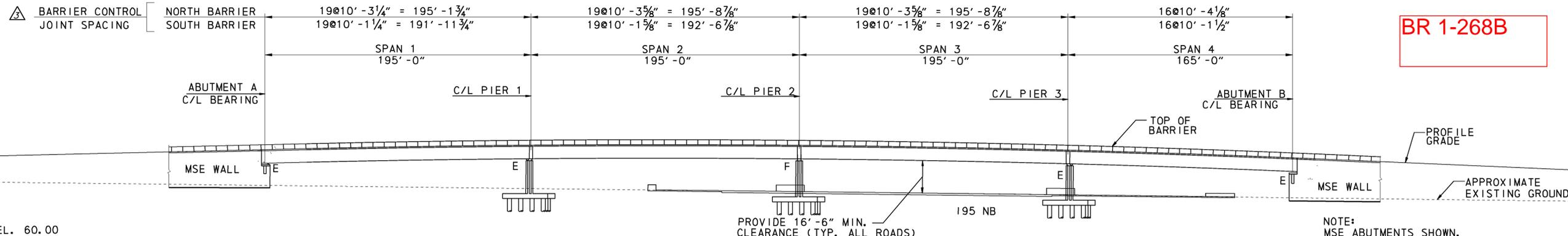
NOTES:
 1) THE PGA IS APPLIED TO THE TOP OF THE FINAL PAVEMENT SURFACE.

2/15/2011 12:12:54 PM M:\PROJECTS\2003\03059_DEL TRNPK\SRIMALL\CADD\2809003\PLANS\TS20_SR.IDGN

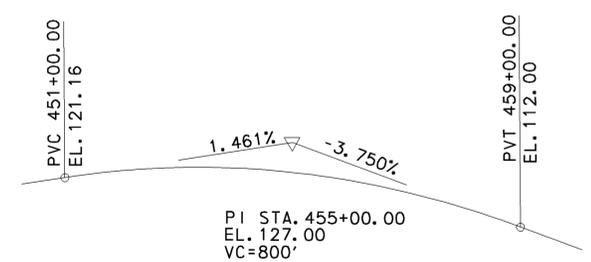
<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	<p>NOT TO SCALE</p>	<p>SR1 / I-95 INTERCHANGE</p>	CONTRACT	BRIDGE NO.	<p>TYPICAL SECTIONS</p>	SHEET NO.
	ADDENDUM NO. 3 CHANGED ITEM NO., 02/18/2011, RLS			28-090-03	DESIGNED BY:		26
				COUNTY	CHECKED BY:		TOTAL SHTS.
				NEW CASTLE			803



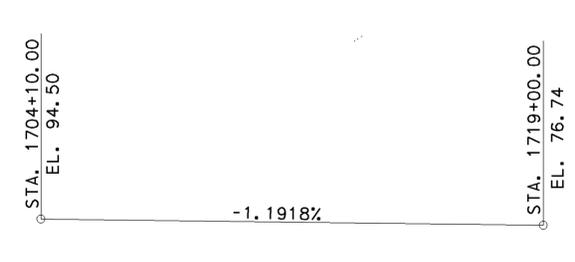
PLAN
SCALE: 1" = 40' - 0"



ELEVATION
SCALE: 1" = 40' - 0"



RAMP B-VERTICAL CURVE DATA
NOT TO SCALE

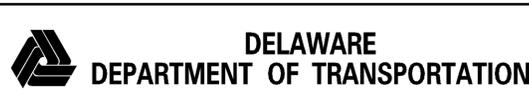


RELOCATED I-95 NB PROFILE
NOT TO SCALE

B/L CONSTR. RAMP B
CURVE DATA

PI STA. 453+31.90
 $\Delta = 29^\circ 54' 47.21''$ RT
 $D_c = 3^\circ 00' 56.04''$
 $R = 1,900.0000'$
 $T = 507.5597'$
 $L = 991.9565'$

- NOTE:
1. FOR GENERAL NOTES, SEE DWG. NO S6-2.
 2. GUIDED POT BEARINGS AT ABUTMENT A AND B AND PIERS 1 AND 3. NON-GUIDED POT BEARINGS AT ABUTMENT A AND B.
 3. PIER 2 IS A CONCRETE FILLED INTEGRAL CROSS GIRDER.
 4. MINIMUM VERTICAL CLEARANCE IS MEASURED TO THE BOTTOM OF PIER CAP AND INCLUDES 3' - 0" ALLOWANCE FOR TEMPORARY SHORING.



ADDENDUMS / REVISIONS	
ADDENDUM NO. 3	BARRIER CONTROL JOINT SPACING CALLOUT, 02/18/11, DWD

SRI / I-95 INTERCHANGE

CONTRACT	BRIDGE NO.	1-268B
28-090-03	DESIGNED BY:	MDM
COUNTY	CHECKED BY:	DWD
NEW CASTLE		

RAMP B OVER I-95NB
GENERAL PLAN AND ELEVATION

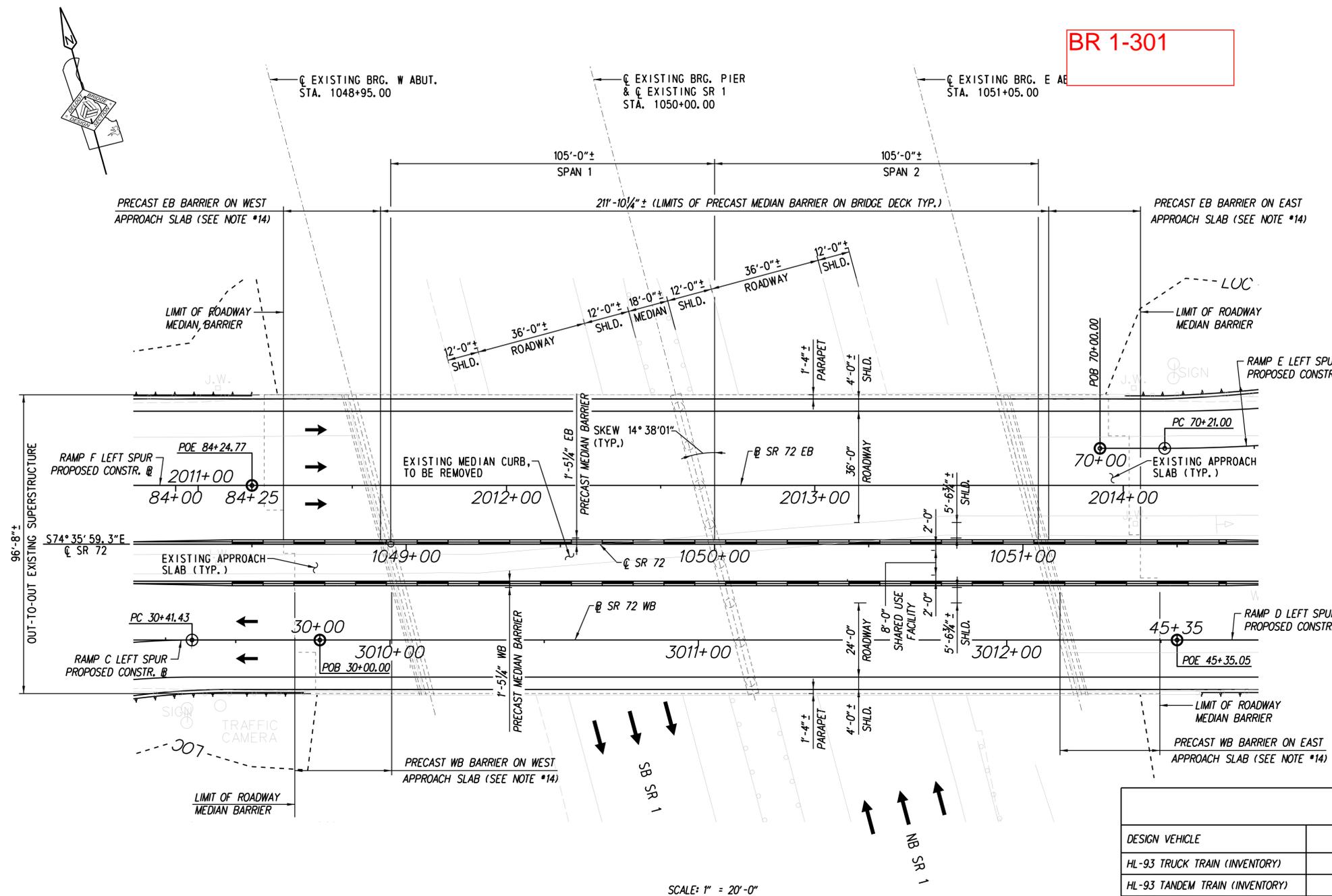
S6-1
SHEET NO.
448
TOTAL SHTS.
803

2/16/2011 5:23:59 PM M:\PROJECTS\2003\03059_DELTRNPK\SRI_WALL\PHASE III CONSTRUCTION SERVICES\ADDENDUM 3\CADD WORKING DRAWINGS\PEO1\BR-S6-SR1.DGN

BR 1-301

BRIDGE PROJECT NOTES

- LOCATION SR 72 BRIDGE NO. 1-301-356 OVER SR 1, NEW CASTLE COUNTY, DELEWARE.
- DESIGN CRITERIA
2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 7TH EDITION, INCLUDING 2015 INTERIM REVISIONS.
- LOADING
DEAD LOAD INCLUDES 25 PSF FOR FUTURE WEARING SURFACE (EXCLUDING PEDESTRIAN WALKWAY) AND 15 PSF FOR S.L.P. FORMS. VEHICULAR LIVE LOAD IS HL-93. LRFR LOAD RATINGS IN ACCORDANCE WITH AASHTO MANUAL FOR BRIDGE EVALUATION, 2ND EDITION INCLUDING 2015 INTERIM REVISIONS.
- PORTLAND CEMENT CONCRETE
STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED:
(F_c = 28 DAY COMPRESSIVE STRENGTH)
CLASS A - PARAPETS, ABUTMENT FOOTINGS, ABUTMENTS, PIER ABOVE FOOTING AND WING WALLS (F_c = 4.5 KSI)
MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE STANDARD SPECIFICATIONS. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE ANY APPROVED CONCRETE ADDITIVES OR HEATING TECHNIQUES TO MAINTAIN THE PROPER TEMPERATURE FOR ANY CONCRETE POURED DURING COLD WEATHER. PAYMENT SHALL INCIDENTAL TO THE RESPECTIVE CONCRETE BID ITEMS.
- BAR REINFORCEMENT
REINFORCING STEEL SHALL CONFORM TO ASSHTO M31 (ASTM, A615), GRADE 60. REINFORCING STEEL SHALL HAVE A 3" COVER IF CAST AGAINST EARTH AND A 2" CLEAR COVER ELSEWHERE, UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL REINFORCING STEEL SHALL BE PROTECTED WITH FUSION BONDED EPOXY, EPOXY COATED REINFORCING STEEL SHALL CONFORM TO ASSHTO M284 (ASTM D3963).
- CONSTRUCTION JOINTS
KEYED CONSTRUCTION JOINTS SHALL BE 2 INCHES X 4 INCHES OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINTS SHALL HAVE A 3/4" V-NOTCH. ANY WATERSTOPS SHALL BE INCIDENTAL TO THE APPROPRIATE CONCRETE ITEM.
- REPLACE SILICONE POURED JOINTS BETWEEN THE BACKWALL AND APPROACH SLAB, AND THE APPROACH SLAB AND PARAPET ON THE EASTERN AND WESTERN SIDES OF THE BRIDGE IN ACCORDANCE WITH SP 605692, SILICONE JOINT SEAL.
- SEAL CRACKS IN THE EXISTING DECK AND APPROACH SLABS IN ACCORDANCE WITH SP 602620, CRACK SEALING BRIDGE DECKS, APPROACH SLABS, SIDEWALKS, ETC.
- SEAL BRIDGE DECK AND APPROACH SLABS IN ACCORDANCE WITH SP 602546, WATERPROOFING P.C.C. MASONRY.
- REPAIR THE CRACK AND DELAMINATION AT THE NORTHWEST PARAPET/ABUTMENT/WINGWALL INTERFACE AND THE SOUTHWEST/PARAPET/ABUTMENT/WINGWALL INTERFACE IN ACCORDANCE WITH SP 602586, REHABILITATION OF CONCRETE STRUCTURE, AND SP 602611, REPAIR OF CONCRETE STRUCTURES BY EPOXY INJECTION.
- REMOVE AND REPLACE THE EXISTING CHAIN LINK MESH ON TOP OF THE EXISTING PARAPET WALLS ON THE NORTH AND SOUTH SIDES OF THE BRIDGE IN ACCORDANCE WITH SP 727507, BRIDGE SAFETY FENCE.
- CLEAN AND PAINT EXISTING EXPANSION DAMS AT BOTH ENDS OF BRIDGE IN ACCORDANCE WITH SP 605533, CLEANING OF EXISTING STEEL STRUCTURES, HAZARDOUS BASE, AND SP 605616, MOISTURE CURED URETHANE PAINT SYSTEM (RECOATING).
- SEAL THE EXISTING PARAPET FACES (FRONT, BACK AND TOP) IN ACCORDANCE WITH SP 602646, SILICONE ACRYLIC CONCRETE SEALER.
- FOR DIMENSIONS AND PLAN LAYOUT OF PRECAST BARRIER ON APPROACH SLAB, SEE SHEET NO. 82.



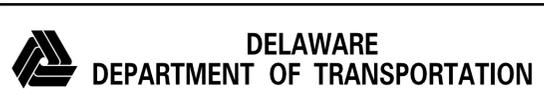
LOAD RATING SUMMARY

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TON)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK TRAIN (INVENTORY)	0.97	N/A	SPAN 1: GIRDER B	110	FLEXURE
HL-93 TANDEM TRAIN (INVENTORY)	1.20	N/A	SPAN 1: GIRDER B	110	FLEXURE
HL-93 TRUCK (INVENTORY)	1.32	N/A	SPAN 1: GIRDER B	110	FLEXURE
HS-20 (INVENTORY)	1.92	69.29	SPAN 1: GIRDER B	110	FLEXURE
HL-93 TRUCK TRAIN (OPERATING)	1.25	N/A	SPAN 1: GIRDER B	110	FLEXURE
HL-93 TANDEM TRAIN (OPERATING)	1.55	N/A	SPAN 1: GIRDER B	110	FLEXURE
HL-93 TRUCK (OPERATING)	1.71	N/A	SPAN 1: GIRDER B	110	FLEXURE
HS-20 (OPERATING)	2.50	89.82	SPAN 1: GIRDER B	110	FLEXURE
DE S220 & LEGAL LANE (LEGAL)	2.70	54.09	SPAN 1: GIRDER B	110	FLEXURE
DE S335 & LEGAL LANE (LEGAL)	1.74	60.99	SPAN 1: GIRDER B	110	FLEXURE
DE S437 & LEGAL LANE (LEGAL)	1.67	61.17	SPAN 1: GIRDER B	110	FLEXURE
DE S330 & LEGAL LANE (LEGAL)	2.07	62.20	SPAN 1: GIRDER B	110	FLEXURE
DE S435 & LEGAL LANE (LEGAL)	1.83	64.11	SPAN 1: GIRDER B	110	FLEXURE
DE S540 & LEGAL LANE (LEGAL)	1.65	66.06	SPAN 1: GIRDER B	110	FLEXURE

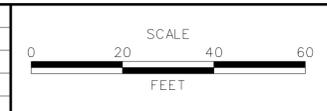
NOTE: LOAD RATING INCLUDES FUTURE WEARING SURFACE AS NOTED IN THE PLANS.

INDEX OF SHEETS		
SHEET NO.	DRAWING NO.	TITLE
78	PE-01	BRIDGE PLAN
79	TS-01	BRIDGE TYPICAL SECTIONS
80	SR-01	CONSTRUCTION PHASING
81	BA-01	MEDIAN BARRIER DETAILS
82	BA-02	MEDIAN BARRIER DETAILS AT JOINTS
83	BA-03	EXISTING BARRIER CONDUIT DETAILS
84	BR-01	REINFORCEMENT BAR LIST

PLOTTED BY: WELTER DATE: 5/5/2016
 FILE LOCATION: Q:\INDE\150848_001\DESIGN-BUILD_PROJECT\CADD\PE.DGN [SHEET: PE]



ADDENDUMS / REVISIONS	



SR 1 - SR 72 INTERCHANGE DESIGN-BUILD

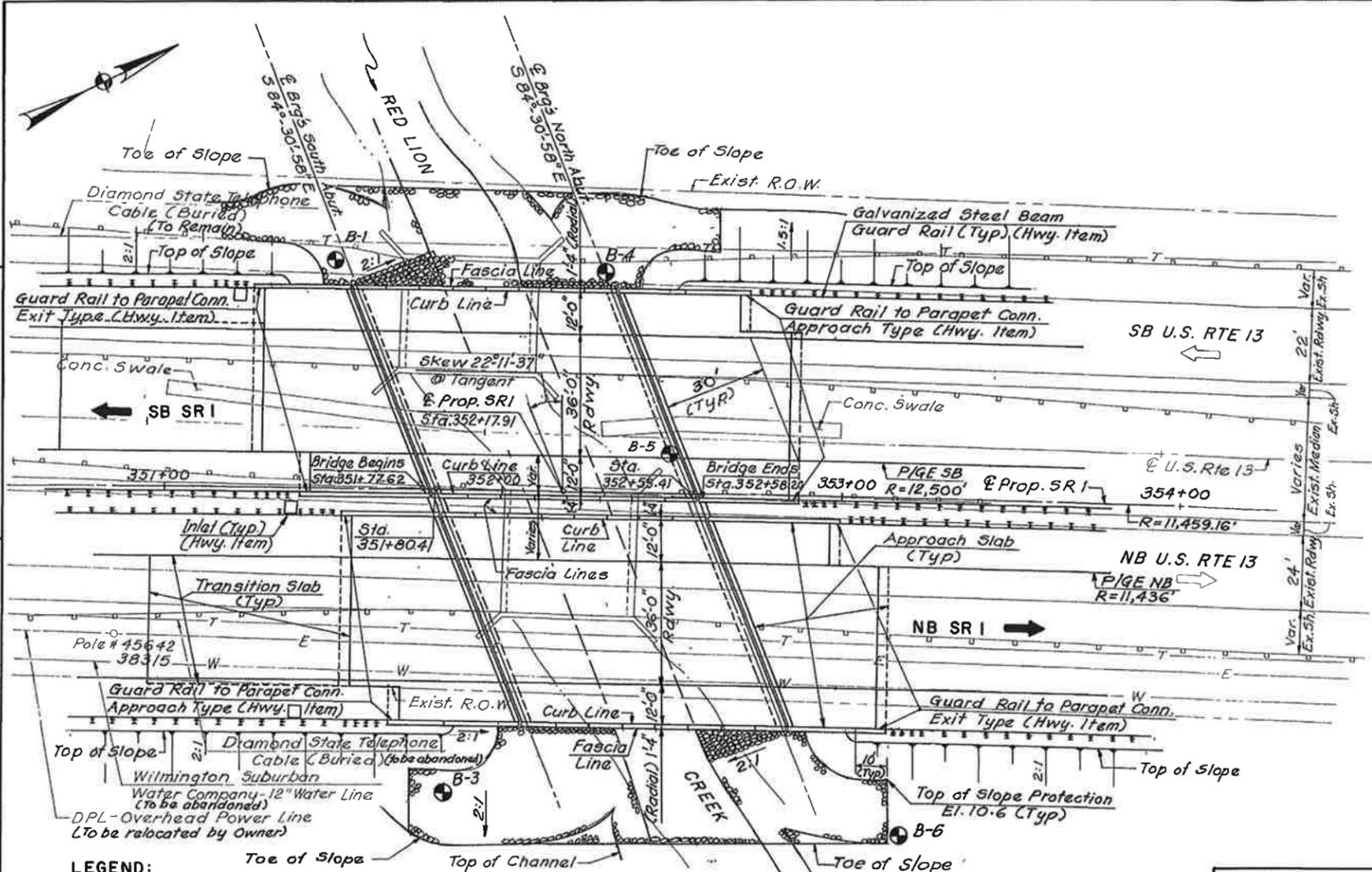
CONTRACT	BRIDGE NO.	1-301-356
T201511002	DESIGNED BY:	ADW
COUNTY	CHECKED BY:	DJC
NEW CASTLE		

BRIDGE PLAN	
SHEET NO.	78
TOTAL SHTS.	160

PE-01

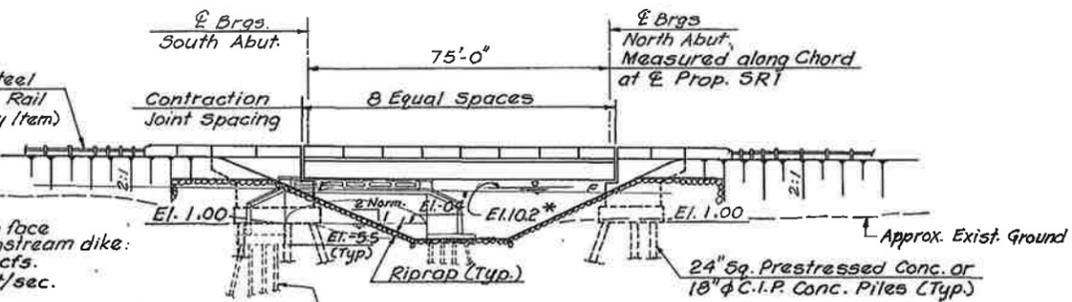
**SR I OVER RED LION CREEK
GENERAL PLAN & ELEVATION I**

BR 1-305 N & S



LEGEND:
 B-1 Boring Number and Location

PLAN
Scale: 1"=20'



ELEVATION
Scale: 1"=20'

HYDRAULIC DATA
 Drainage Area 6.35 sq. Mi.
 100 yr. Discharge at upstream face without backwater from downstream dike:
 Design Discharge = 4,700 cfs.
 Design Velocity = 9.8 ft/sec.
 Water Surface = El. 7.0
 Cross Section Flow Area thru Bridge = 481.8 S.F.
 Manning's Roughness Coef. = 0.03

* Water surface Elev. for 10 yr. or 25 yr. High Tide including backwater from downstream dike. Velocity = 0.0 Ft/Sec.
 * Water surface Elev. at East Fascia of Exist. N.B. Route 13 Bridge measured 10/5/88.

GENERAL NOTES:

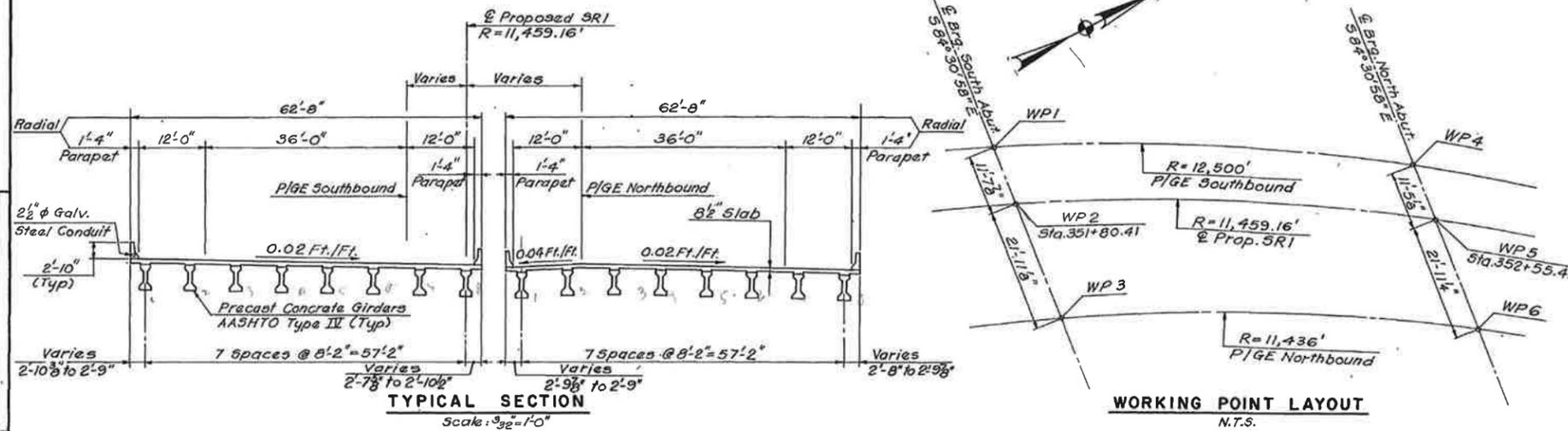
- DESIGN SPECIFICATION:**
1989 AASHTO Standard Specifications for Highway Bridges including Interims. Welding shall conform to 1988 AASHTO/AWS Bridge Welding Code D1.5-88.
- DESIGN:**
Load Factor Design Method.
- LOADING:**
Live load AASHTO H25-44 or Delaware Legal Load whichever governs. Dead load includes 25 pounds per square foot provision for future overlay and 15 pounds per square foot for use of S.I.P. Bridge deck forms.
- MATERIAL AND FABRICATION:**
Delaware Department of Transportation Standard Specifications dated July 1985, with current modifications, additions and special provisions.
- CONCRETE:**
Specified Compressive Strength (f'c)
Deck Slab 4500 psi Class D
Concrete for Prestressed Beams 5000 psi (f'c 4000 psi)
Concrete above Footings & Parapets 4500 psi Class A
Concrete in Footings 3000 psi Class B
Chamfer exposed edges 1/4" unless shown otherwise
- REINFORCEMENT STEEL:**
AASHTO M31, Gr. 60 (ASTM A615). All deck slab, approach slabs, Parapet bars, vertical bars in diaphragm, and bars in top of backwall shall be epoxy coated. Epoxy coated bars shall not contact uncoated bars.
- STRUCTURAL STEEL:**
Structural steel for Expansion Devices shall conform to AASHTO M270, Gr 36 (ASTM A36)
- PRESTRESSING STEEL:**
Prestressing steel shall be seven wire, Low-Relaxation strands, Grade 270, conforming to AASHTO M203 (ASTM A416)
- FOUNDATION:**
24" 5g. Prestressed Concrete Piles or 18" φ C.I.P. Piles with 120 Ton Design Capacity.
- WAVE EQUATION NOTE:**
The Contractor will be responsible for submitting a wave equation analysis in accordance with the modifications to the Standard Specifications, Subsection 618.15. The wave equation analysis must be certified by a Professional Engineer.
- EARTHQUAKE DESIGN:**
Method in accordance with AASHTO Guide Specifications for Seismic Design of Highway Bridges, Category A.

DWG. NO.	TITLE
1	General Plan and Elevation I
2	General Plan and Elevation II
3	Stage Construction I
4	Stage Construction II
5	Temporary Detour Bridge
6	Existing Bridge Demolition
7	Pile Plan
8	South Abutment NB Roadway
9	North Abutment NB Roadway
10	South Abutment SB Roadway
11	North Abutment SB Roadway
12	Wingwalls
13	Substructure Details
14	Framing Plan
15	Prestressed Beams
16	Superstructure Details
17	Joint and Form Details
18	Deck Slab & Cross Section-NB Rdwy.
19	Deck Slab & Cross Section-SB Rdwy.
20	Finished Deck Elevations
21	Approach Slabs-Northbound
22	Approach Slabs-Southbound
23	Transition Slab Details
24-28	Bar List 1-5
29	Boring Logs I
30	Boring Logs II

VISIONS
 ERH
 CHKD
 JSS
 DESIGN
 PM
 PREL. TRACING

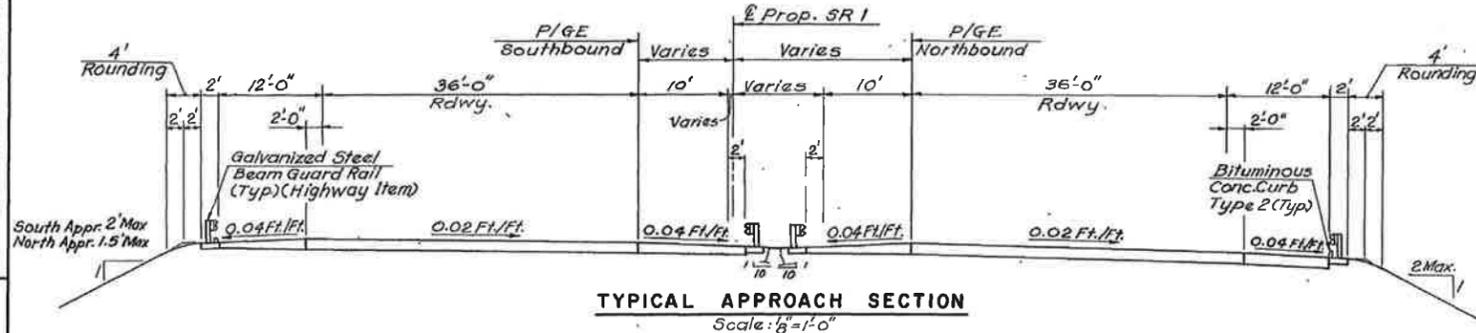
DWG. NO.	CONTRACT	COUNTY	FEDERAL AID PROJECT #	SHEET	TOTAL SHEETS
2	89-110-05	NEW CASTLE	F-1003 (9)	414	

**SR I OVER RED LION CREEK
GENERAL PLAN & ELEVATION II**



POINT	STATION	COORDINATES	
		NORTH	EAST
WP 1	351+76.05, 10.8/Lt	584,888.488	433,292.851
WP 2	351+80.41	584,887.319	433,303.959
WP 3	351+88.64, 20.32/Rt	584,885.224	433,325.781
WP 4	352+51.07, 10.57/Lt	584,954.829	433,327.420
WP 5	352+55.41	584,953.737	433,358.796
WP 6	352+63.78, 20.28/Rt	584,951.641	433,360.632

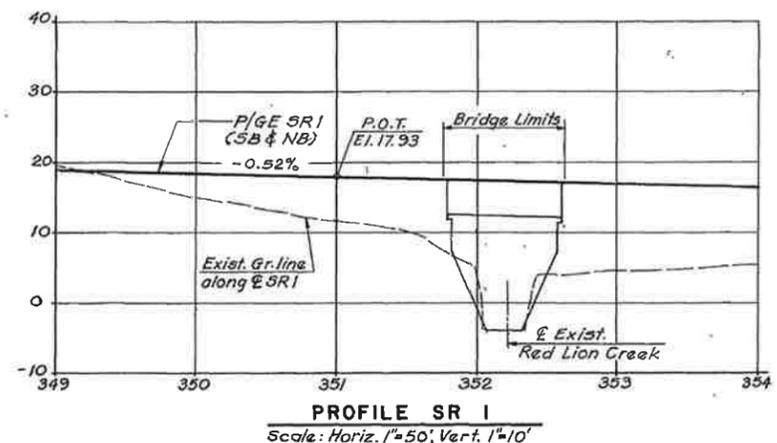
REVISIONS
ADDRESS: A. G. SULLIVAN CONSULTANTS, 121472 S.W. 11TH AVE., MIAMI, FL 33157
QUANTITY REVISIONS: 04/02/00



ESTIMATED QUANTITIES

SECTION	DESCRIPTION	UNIT	QUANTITY
207000	Excavation and Backfill for Structures	C.Y.	1310
209003	Borrow, Type 'C'	C.Y.	770
211000	Removal of Structures and Obstructions	L.S.	760
211003	Removal of Structures and Obstructions	L.S.	760
602004	P.C.C. Masonry, Abutment Footing, Class 'B'	C.Y.	375
602009	P.C.C. Masonry, Approach Slab, Class 'A'	C.Y.	745
602013	P.C.C. Masonry, Superstructure, Class 'D'	C.Y.	295,925
602015	P.C.C. Masonry, Abutment Above Footing, Class 'A'	C.Y.	516
602017	P.C.C. Masonry, Parapet, Class 'A'	C.Y.	50
602520	Epoxy Protective Coating for Concrete	S.Y.	1,111
603000	Bar Reinforcement	Lb.	59,100
604000	Bar Reinforcement - Epoxy Coated	Lb.	207,000
605511	Prefabricated Expansion Joint System, 3'	L.F.	270
620523	Prestressed Concrete Piles, 24"x24"	L.F.	2,400
620524	Prestressed Concrete Test Piles, 24"x24"	L.F.	258
620004	Cast-in-Place Concrete Piles, 18" (All)	L.F.	3,570
620008	Steel Shell Test Pile, 18" (All)	L.F.	360
623001	Prestressed Concrete Members, I-Beams (Est. L.F. = 1222 Ft.)	L.S.	1
712503	Rip-rap, R-4	S.Y.	2,061
715001	6" Perforated Pipe Underdrain	L.F.	414
746545	Bridge Electrical System	L.F.	130
209002	Borrow, Type 'B'	C.Y.	2,000
210000	Furnish Borrow, Type 'C' for Pipe, Utility Trench & Structural Backfill	C.Y.	475
620528	Production Pile Restrike	EA	5
620529	Test Pile Restrike	EA/DY	5
622500	Temporary Steel Sheet Piles (Unprotected)	S.F.	6360
605505	Dismantling and Hauling Acrow Bridge	L.S.	1
605507	Hauling and Erecting Acrow Bridge	L.S.	1

SECTION	DESCRIPTION	UNIT	QUANTITY
202516	SOIL EXCAVATION, LEVEL D	C.Y.	1300
202517	SOIL EXCAVATION, LEVEL C	C.Y.	1300
202518	SOIL TESTING	EACH	65
202519	WICK DRAIN LIQUID	GAL.	1,500,000
202520	WICK DRAIN LIQUID TESTING	EACH	18
202521	HAZARDOUS LIQUID WASTE	GAL.	1,656,000
202522	HAZARDOUS SOLID WASTE	TON	3,040
202523	WASTE MANAGEMENT PLAN	L.S.	1
202524	NONHAZARDOUS LIQUID WASTE	GAL.	1,656,000
202525	NONHAZARDOUS SOLID WASTE	TON	3,040
211512	CONCRETE EXCAVATION	C.Y.	430
211513	CONCRETE TESTING	EACH	4
211514	COFFERDAM DEWATERING	GAL.	156,000
211515	COFFERDAM LIQUID TESTING	EACH	20
211516	TIMBER PILE REMOVAL	L.F.	1525
211517	TIMBER PILE TESTING	EACH	4



PROFILE SR I
Scale: Horiz. 1"=50'; Vert. 1"=10'

PREL. TRACKING: PM
DESIGN: JSS
CHECK: ERM

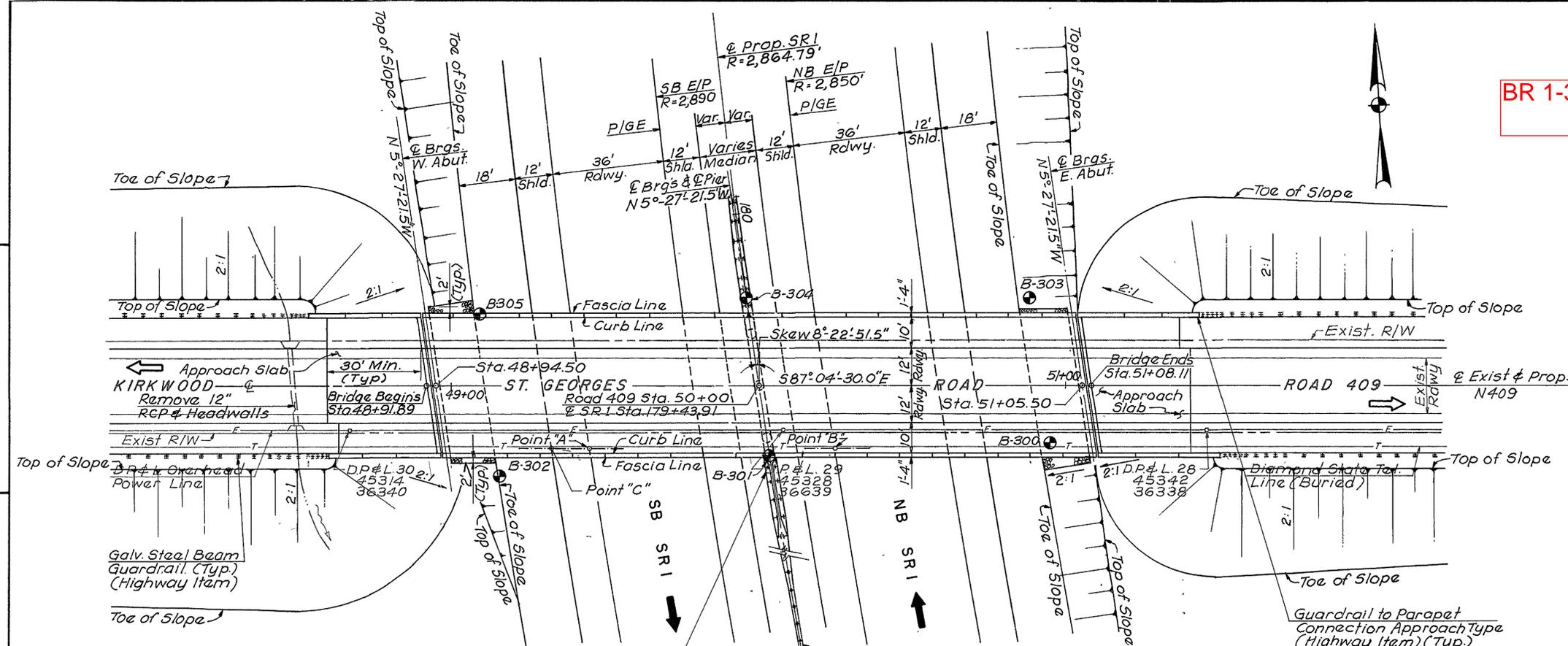
* Denotes Estimated Fixed Quantity
** Denotes Fixed Cost Items
*** For Limits of Item 211003 "Removal of Structures and Obstructions", See Note 6 on Bridge Dwg. No. 23.

302500	Del. No. 3 Stone	Tons	450
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**SRI, N409 OVERPASS
GENERAL PLAN & ELEVATION I**

BR 1-306

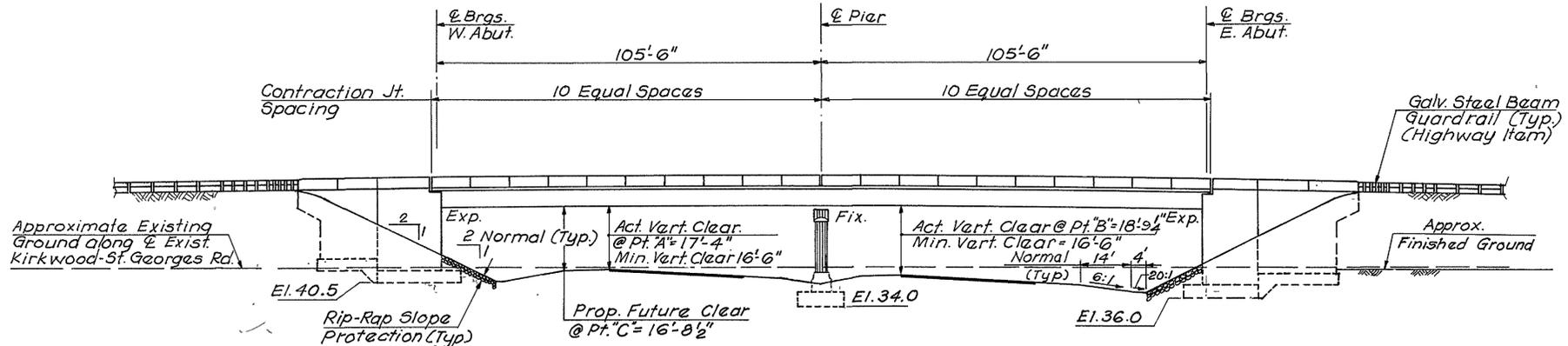
INDEX OF DRAWINGS	
DWG. NO.	
1.	General Plan and Elevation I
2.	General Plan and Elevation II
3.	West Abutment
4.	East Abutment
5.	Wingwalls
6.	Abutment and Wingwall Details
7.	Pier
8.	Substructure Details
9.	Framing Plan
10.	Girder Details
11.	Camber Table
12.	Bearing and Steel Details
13.	Joint and Form Details
14.	Deck Slab Plan and Cross Section
15.	Finished Deck Elevations
16.	Approach Slabs
17.	Bar List 1
18.	Bar List 2
19.	Bar List 3
20.	Boring Logs I
21.	Boring Logs II
22.	West Abutment Form Liners
23.	East Abutment Form Liners



PLAN
Scale: 1"=20'

NOTE:
All Utilities to be relocated by others.

LEGEND:
 Boring Number and Location
 B-301



ELEVATION
Scale: 1"=20'

GENERAL NOTES:

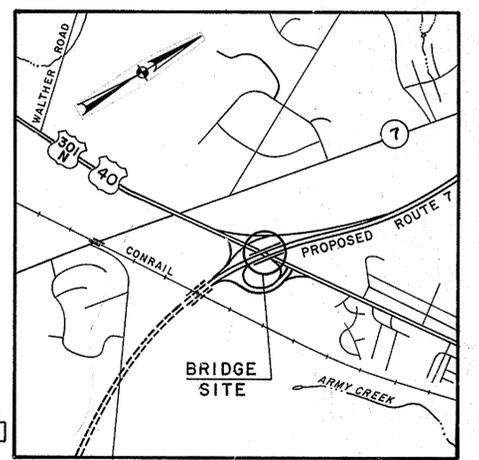
- DESIGN SPECIFICATION:**
1989 AASHTO Standard Specifications for Highway Bridges. Welding shall conform to 1988 AASHTO/AWS Bridge Welding Code D-1.5-88.
- DESIGN:**
Load Factor Design Method.
- LOADING:**
Live Load - AASHTO HS 25-44 or Delaware Legal Load, whichever governs. Dead Load includes 25 Pounds per Square Foot provision for future overlay and 15 pounds per square foot for use of Bridge Deck Forms.
- MATERIAL AND FABRICATION:**
Delaware Department of Transportation Standard Specifications, dated July 1985, with current modifications, additions and special provisions.
- CONCRETE:**
Specified Compressive Strength (f_c):
Deck Slab 4500 Psi, Class D'
Concrete above Footings 4500 Psi, Class A'
Concrete in Footings 3000 Psi, Class B'
Chamfer exposed edges 3/4" unless shown otherwise.
- REINFORCEMENT STEEL:**
ASTM A615 (Grade 60). All Deck Slab, Approach Slab, Parapet bars, and Bars in top of Backwall will be Epoxy Coated. Epoxy coated bars shall not contact uncoated bars.
- STRUCTURAL STEEL:**
ASTM Designation A572, (AASHTO M270, Gr.50) F_y = 50,000 psi. Painted with Urethane Paint System.
- HIGH STRENGTH BOLTS:**
ASTM A325, (AASHTO M164) Type I, Mechanically Galvanized, Primed and Painted.
- FOUNDATION DESIGN CRITERIA:**
Maximum allowable bearing pressure = 2.5 TSF
Maximum 1/2" differential settlement between superstructure supports.
- EARTHQUAKE DESIGN:**
Method in accordance with AASHTO Guide Specifications for Seismic Design of Highway Bridges, Category A.

REVISIONS
 JZL
 CHKD
 JZS
 DESIGN
 PM
 PREL. TRACING
 000 GRAPHICS 01/11

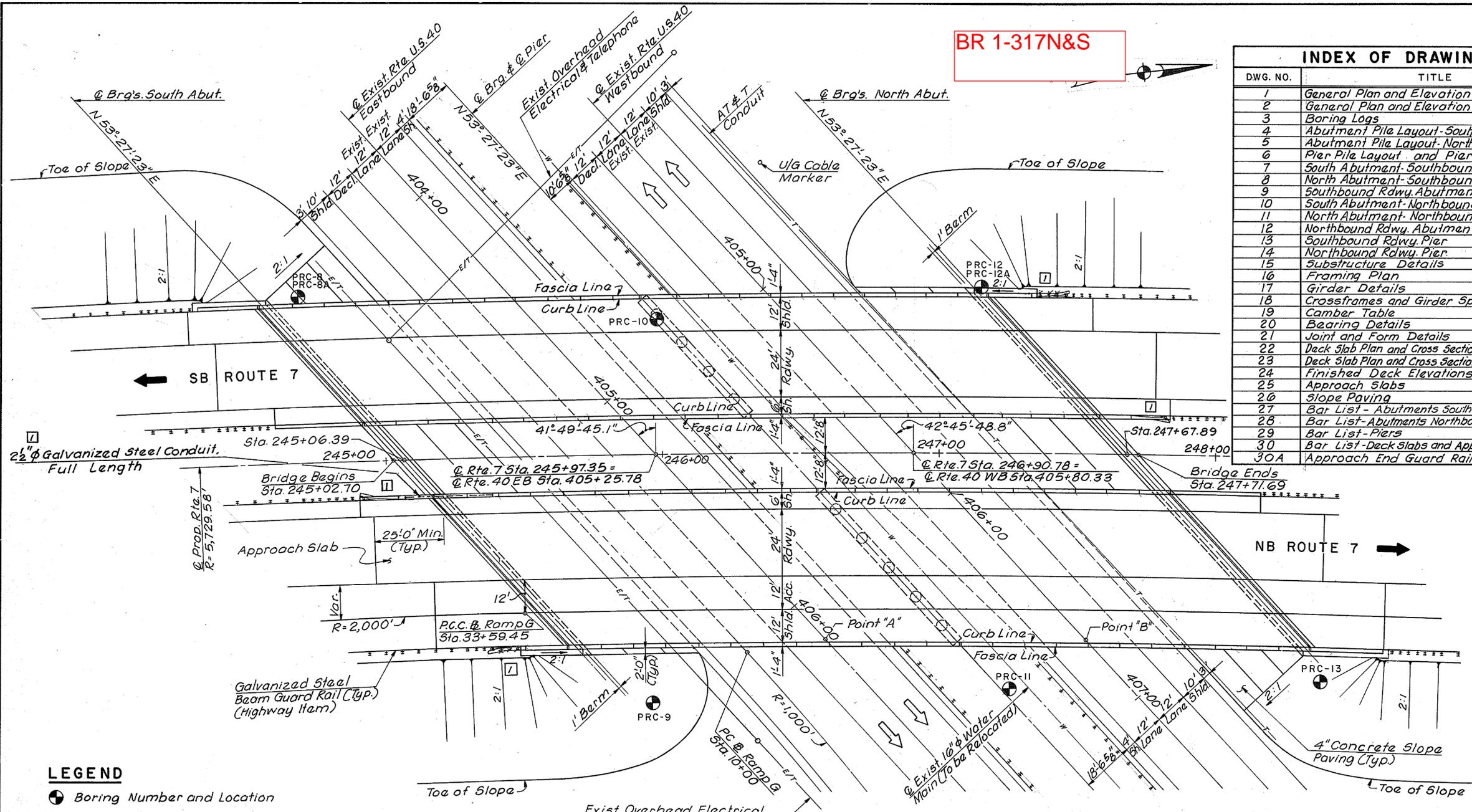
BR 1-317N&S

DWG. NO.	TITLE
1	General Plan and Elevation I
2	General Plan and Elevation II
3	Boring Logs
4	Abutment Pile Layout - Southbound Rdwy.
5	Abutment Pile Layout - Northbound Rdwy.
6	Pier Pile Layout and Pier Details
7	South Abutment - Southbound Rdwy.
8	North Abutment - Southbound Rdwy.
9	Southbound Rdwy. Abutment Details
10	South Abutment - Northbound Rdwy.
11	North Abutment - Northbound Rdwy.
12	Northbound Rdwy. Abutment Details
13	Southbound Rdwy. Pier
14	Northbound Rdwy. Pier
15	Substructure Details
16	Framing Plan
17	Girder Details
18	Crossframes and Girder Splice Details
19	Camber Table
20	Bearing Details
21	Joint and Form Details
22	Deck Slab Plan and Cross Section - Southbound Rdwy.
23	Deck Slab Plan and Cross Section - Northbound Rdwy.
24	Finished Deck Elevations
25	Approach Slabs
26	Slope Paving
27	Bar List - Abutments Southbound Roadway
28	Bar List - Abutments Northbound Roadway
29	Bar List - Piers
30	Bar List - Deck Slabs and Approach Slabs
30A	Approach End Guard Rail Barrier

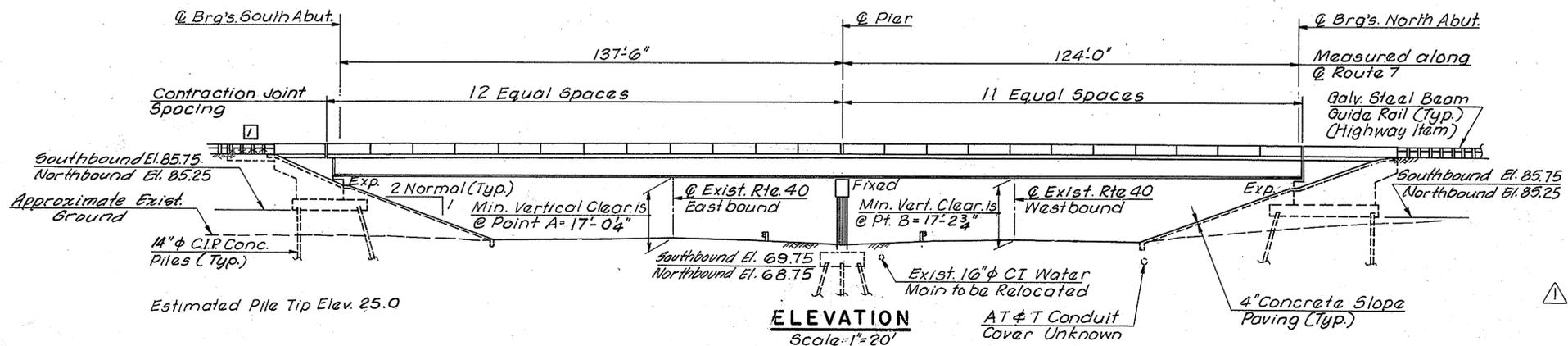
BRIDGE OVER ROUTE U.S. 40
GENERAL PLAN & ELEVATION I



LOCATION PLAN
SCALE: 1" = 2,000'



PLAN
Scale: 1" = 20'



ELEVATION
Scale: 1" = 20'

LEGEND

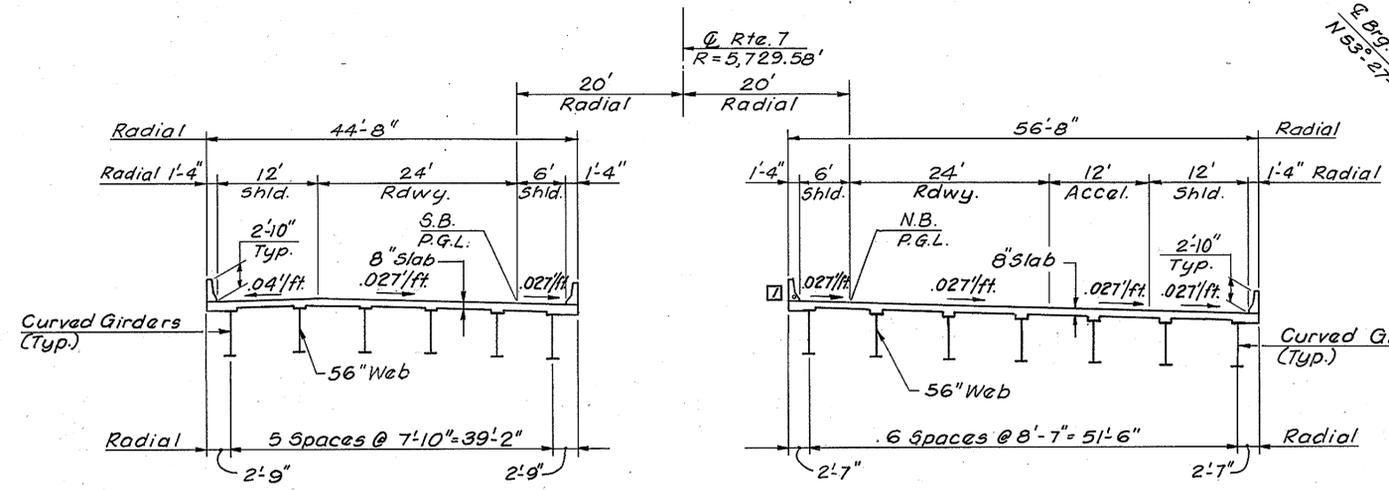
● Boring Number and Location

GENERAL NOTES:

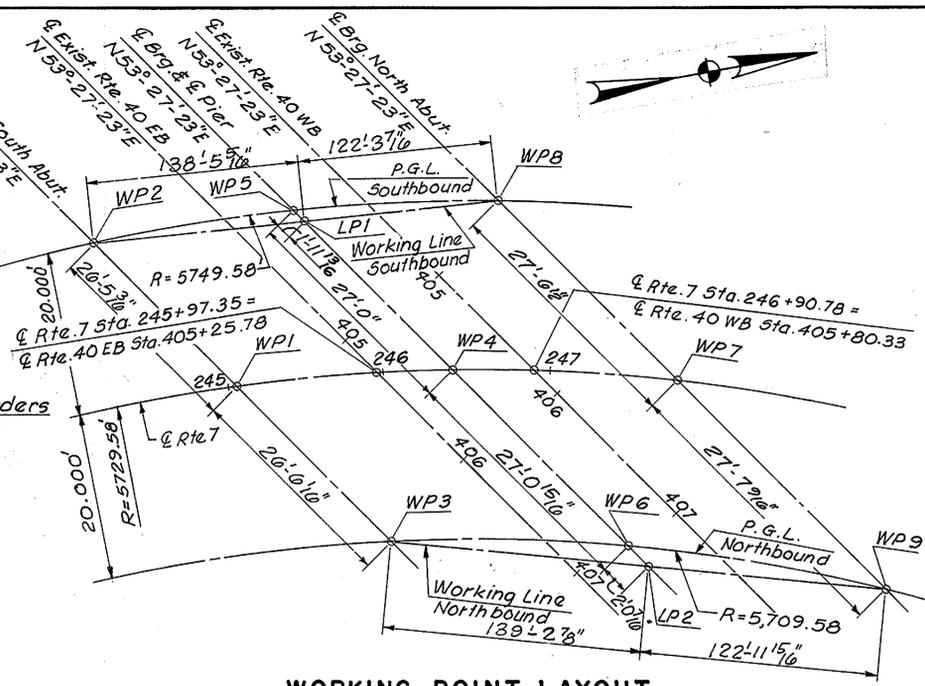
- Design Specifications: 1983 AASHTO Standard Specifications for Highway Bridges with 1984 & 1985 Interim. Welding shall conform to 1981 AASHTO Specifications for welding of Structural Steel Highway Bridges and American Welding Society Structural Welding Code, AWS D.1.1-86.
- Design Criteria: Load Factor Design Method. Live Load - AASHTO HS 20-44 + 25%, Tandem 24 kip axles at 4 foot centers or Delaware 35 ton truck, whichever governs.
- Material and Fabrication: In accordance with the Delaware Standard Specifications, July 1985, with Special and Supplementary specifications.
- Concrete - Specified Compressive strength (F_c): Deck Slab and Parapets.....4,500 psi concrete above Footings.....4,500 psi concrete in Footings.....3,000 psi
- Reinforcement Steel: ASTM A615 (Grade 60). All Deck Slab, Parapet and Approach Slab bars will be epoxy coated.
- Superstructure: Dead Load includes 30 psf provision for future overlay. Structural steel will be ASTM A-572, painted, with F_y = 50,000 psi.
- High Strength Bolts: will be ASTM A325, Type 1 with Mechanical Galvanizing and Painted.
- Foundation: Abutments and Piers supported by Cast-in-Place Concrete Piles, Design Capacity 50 tons minimum.
- ⚠ Traffic on U.S. Rt. 40 shall be protected during construction of the bridge. The contractor shall submit his plan for protection of the traveling public to the engineer for approval. All costs for this protection shall be incidental to item 605001, Steel Structures.

REVISIONS
 2/24/87 JMS/JL
 1 Approach Barrier Rail & Conduit
 0/27/88 AMA
 M. R. T.
 CHKD
 E. R. H.
 DESIGN
 P. M. I.
 PREL. TRACING

**BRIDGE OVER ROUTE U.S. 40
GENERAL PLAN & ELEVATION II**

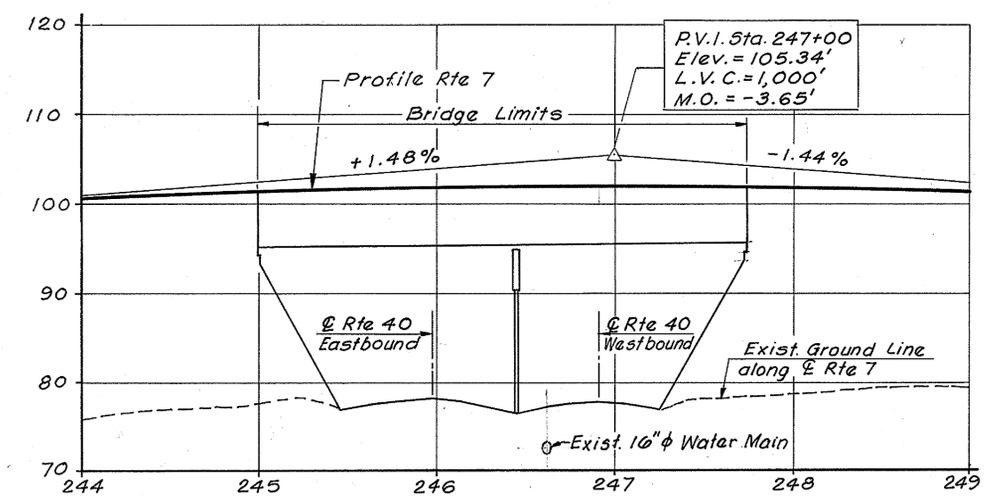


TYPICAL SECTION
Scale: 3/32" = 1'-0"

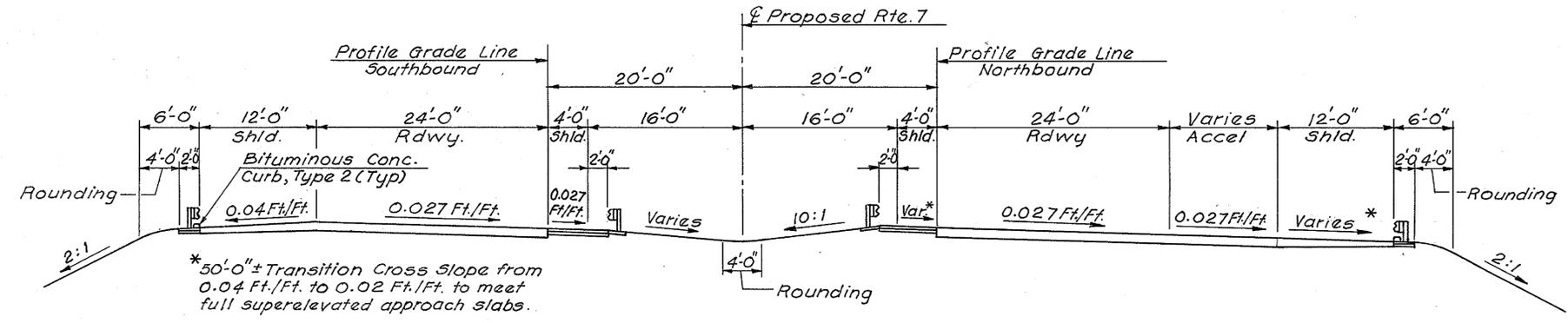


WORKING POINT LAYOUT
Not to Scale

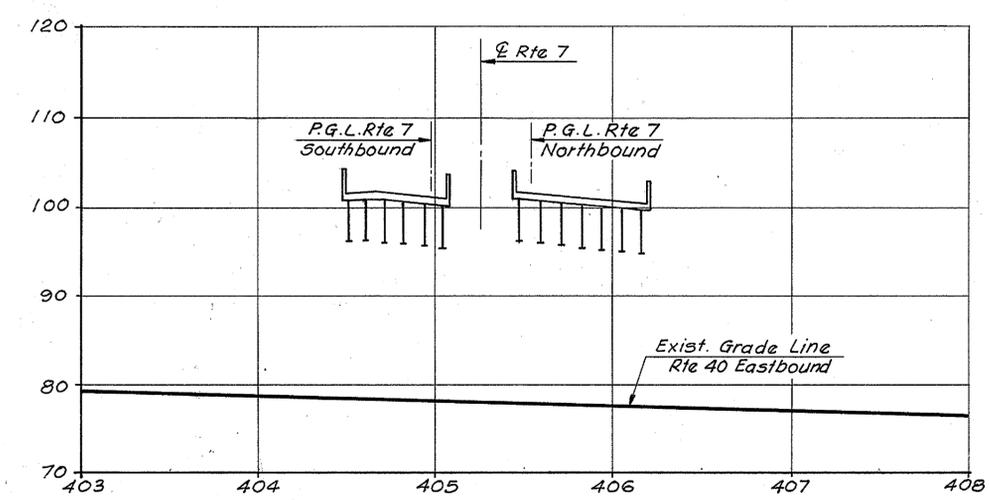
POINT	STATION	COORDINATES	
		NORTH	EAST
WP1	245+06.39	596,028.027	433,245.333
WP2	244+89.14, 20' Lt.	596,012.288	433,224.097
WP3	245+23.81, 20' Rt.	596,043.808	433,266.626
WP4	246+43.89	596,164.988	433,257.469
WP5	246+25.78, 20' Lt.	596,148.911	433,235.777
WP6	246+62.17, 20' Rt.	596,181.110	433,279.223
WP7	247+67.89	596,288.219	433,271.228
WP8	247+48.98, 20' Lt.	596,271.818	433,249.099
WP9	247+86.99, 20' Rt.	596,304.672	433,293.428
LP1	246+27.58	596,150.093	433,237.372
LP2	246+63.05	596,182.321	433,280.857



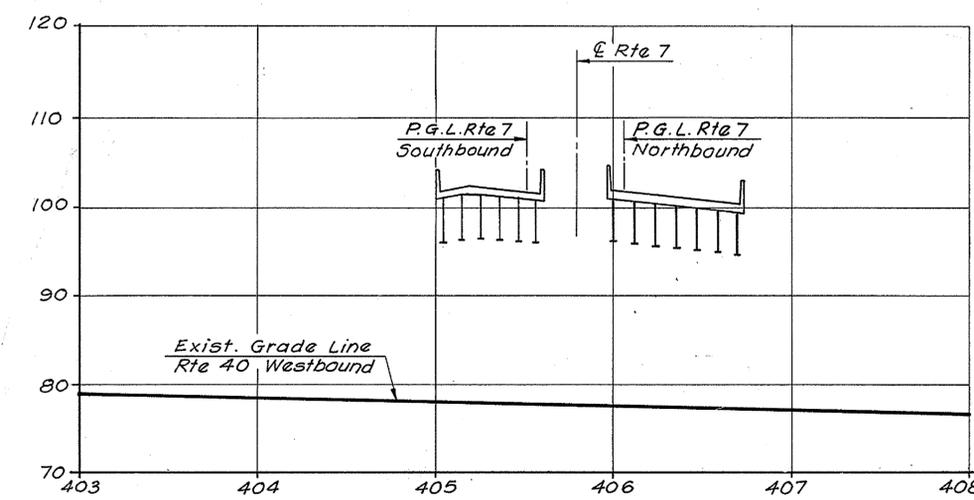
PROFILE ROUTE 7
Scale: Horiz. 1"=50', Vert. 1"=10'



TYPICAL APPROACH SECTION
Scale: 8" = 1'-0"



EXIST. PROFILE RTE 40 EB
Scale: Horiz. 1"=50', Vert. 1"=10'
Note: Profile applied at Roadway @



EXIST. PROFILE RTE 40 WB
Scale: Horiz. 1"=50', Vert. 1"=10'
Note: Profile applied at Roadway @

ESTIMATED QUANTITIES			
SECTION	DESCRIPTION	UNIT	QUANTITY
207000	Excavation and Back fill for Structures	C.Y.	800
210000	Furnishing Borrow Type C for Pipe Utility Trench & Structure Backfill	C.Y.	2,760
**602004	Portland Cement Concrete Masonry, Abutment Footing, Class "B"	C.Y.	305
**602015	Portland Cement Concrete Masonry, Abutment above Footing, Class "A"	C.Y.	585
**602006	Portland Cement Concrete Masonry, Pier Footing, Class "B"	C.Y.	255
**602007	Portland Cement Concrete Masonry, Pier above Footing, Class "A"	C.Y.	140
**602014	Portland Cement Concrete Masonry, Approach Slab, Class "D"	C.Y.	415
**602013	Portland Cement Concrete Masonry, Superstructure, Class "D"	C.Y.	980
**603000	Bar Reinforcement	Lbs.	118,000
**604000	Bar Reinforcement - Epoxy Coated	Lbs.	927,000
**605001	Steel Structures	Lbs.	1,284,000
620002	Cast-in-Place Concrete Piles - 14" Dia.	L.F.	22,060
620006	Steel Shell Test Piles - 14" Dia.	L.F.	505
624001	Concrete Slope Paving, 4"	S.Y.	1,200
715002	8" Perforated Pipe Underdrain	L.F.	380
725001	Guardrail to Barrier Connection (Exit Type)	Ea.	4
725000	Guardrail to Barrier Connection (Approach Type)	Ea.	4
**605513	Prefabricated Expansion Joint System, 5"	L.F.	272
608000	Course Aggregate for Foundation Stabilization and Subfoundation Back Fill	Tons	100
746545	Bridge Electrical System	L.F.	325

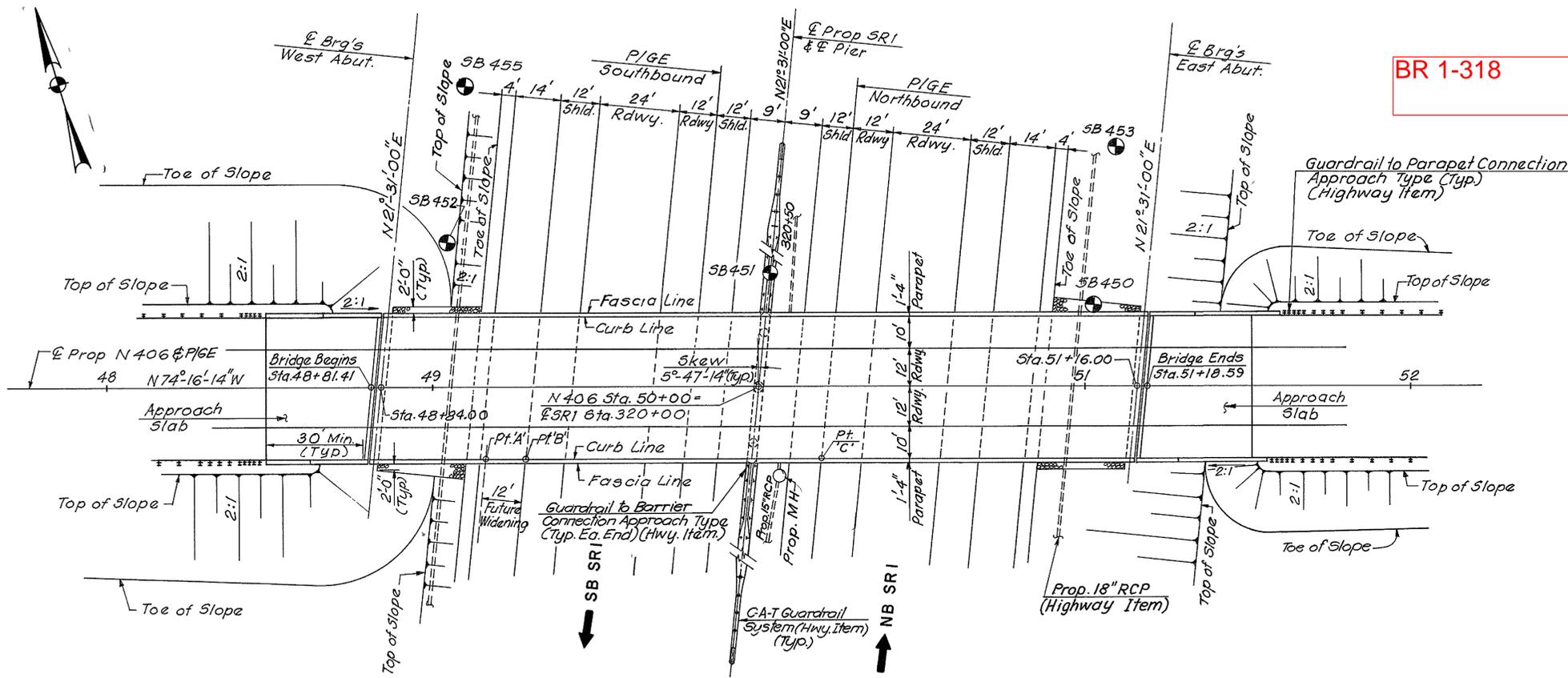
** Estimated Fixed Quantity, See Section 109.06 of the Standard Specifications.

REVISIONS
 APPROACH BARRIER RAIL CONDUIT @ JUNCTION BOX @ 27/88 AMA
 PREL. TRACING N. V. P. DESIGN J. J. S. CHKD. E. R. H.

**SRI, N406 OVERPASS
GENERAL PLAN & ELEVATION I**

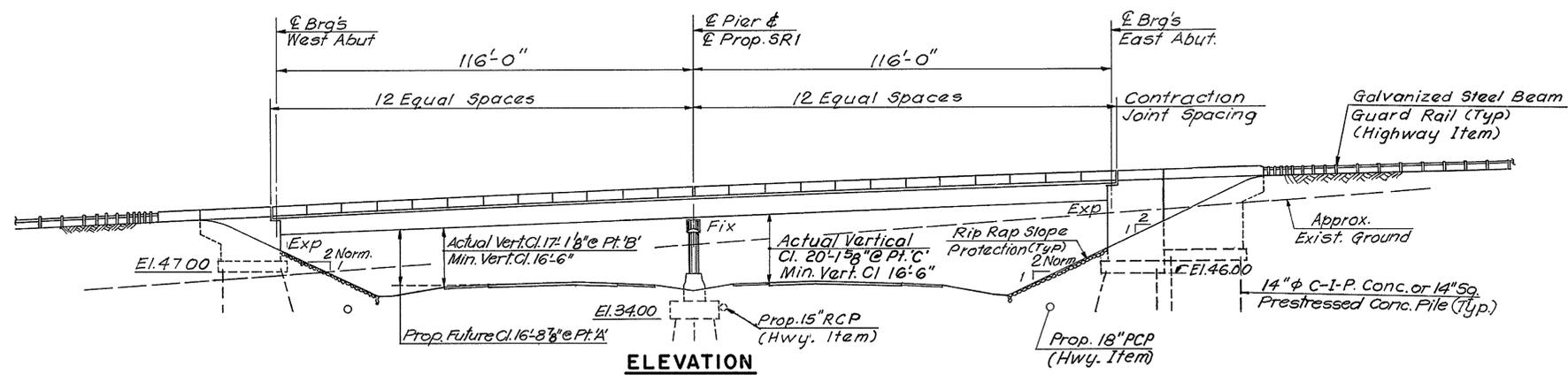
BR 1-318

INDEX OF DRAWINGS	
DWG. NO.	TITLE
1	General Plan and Elevation I
2	General Plan and Elevation II
3	Pile Layout Plan
4	Pile Details
5	West Abutment
6	East Abutment
7	Wingwalls
8	Abutment & Wingwall Details
9	Pier
10	Substructure Details
11	Framing Plan
12	Girder Details
13	Camber Table
14	Bearing and Steel Details
15	Joint and Form Details
16	Deck Slab Plan and Cross Section
17	Finished Deck Elevations
18	Approach Slabs
19	Bar List 1
20	Bar List 2
21	Bar List 3
22	Boring Logs I
23	Boring Logs II
24	West Abutment Form Liners
25	East Abutment Form Liners



PLAN
Scale: 1" = 20'

LEGEND:
 Boring Number and Location



ELEVATION
Scale: 1" = 20'

GENERAL NOTES:

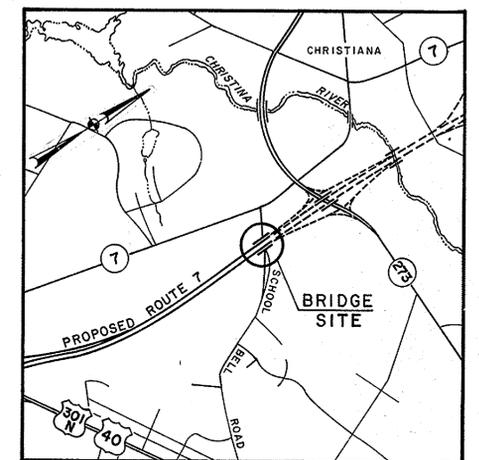
- DESIGN SPECIFICATION:**
1989 AASHTO Standard Specifications for Highway Bridges. Welding shall conform to 1988 AASHTO/AWS Bridge Welding code D1.5-88.
- DESIGN:**
Load factor design method.
- LOADING:**
Live load - AASHTO HS25-44 or Delaware Legal Load, whichever governs. Dead load includes 25 pounds per square foot provision for future overlay and 15 pounds per square foot for use of SIP bridge deck forms.
- MATERIAL AND FABRICATION:**
Delaware Department of Transportation Standard Specifications, dated July 1985, with current modifications, additions and special provisions.
- CONCRETE:**
Specified compressive strength (f_c'):
Deck Slab 4500 psi Class 'D'
Concrete above Footings 4500 psi Class 'A'
Concrete in Footings 3000 psi Class 'B'
Chamfer exposed edges $\frac{3}{4}$ " unless shown otherwise
- REINFORCEMENT STEEL:**
ASTM A615 (Grade 60). All deck slab, approach slab, parapet bars, and bars in top of backwall will be epoxy coated. Epoxy coated bars shall not contact uncoated bars.
- STRUCTURAL STEEL:**
ASTM Designation A572, (AASHTO M270 Gr 50)
 $F_y = 50,000$ psi. Painted with Urethane Paint System.
- HIGH STRENGTH BOLTS:**
ASTM A325, (AASHTO M164) Type I, Mechanically Galvanized Primed and Painted.
- FOUNDATION DESIGN CRITERIA:**
14" ϕ Cast-in-Place Concrete Piles, or 14" Sq. Prestressed Conc. Alt. Piles. Max. Design Cap. = 60 Tons.
Superstructure not constructed until 2 months following placement of Approach Fill behind the West Abutment.
- WAVE EQUATION NOTE:**
The Contractor will be responsible for submitting a wave equation analysis in accordance with the modifications to the Standard Specifications, Subsection 616.15. The wave equation analysis must be certified by a Professional Engineer.

11 **EARTHQUAKE DESIGN**
Method in accordance with AASHTO Guide Specifications for Seismic Design of Highway Bridges, Category A

REVISIONS
 CHD
 JLS
 DESIGN
 NVP
 PREL. TRACKING
 05/25

**BRIDGE OVER SCHOOL BELL RD.
GENERAL PLAN & ELEVATION-I**

INDEX OF DRAWINGS	
DWG. NO.	TITLE
31	General Plan and Elevation-I
32	General Plan and Elevation-II
33	Boring Logs
34	Abutment Pile Layout-Southbound Rdwy.
35	Abutment Pile Layout-Northbound Rdwy.
36	South Abutment-Southbound Roadway
37	North Abutment-Southbound Roadway
38	South Abutment-Northbound Roadway
39	North Abutment-Northbound Roadway
40	Abutment Details-I
41	Abutment Details-II
42	Substructure Details
43	Framing Plan and Girder Details
44	Crossframes and Bearing Details
45	Joint and Form Details
46	Deck Slab Plan and Cross Section-Southbound Rdwy.
47	Deck Slab Plan and Cross Section-Northbound Rdwy.
48	Approach Slabs
49	Slope Paving
50	Bar List - Abutments Southbound Roadway
51	Bar List - Abutments Northbound Roadway
52	Bar List - Deck Slabs and Approach Slabs
52A	Approach End Guard Rail Barrier



LOCATION PLAN
SCALE: 1" = 2,000'

BR 1-319 N&S

GENERAL NOTES:

Design Specifications: 1983 AASHTO Standard Specifications for Highway Bridges with 1984 & 1985 Interims. Welding shall conform to 1981 AASHTO Specifications for Welding of Structural Steel Highway Bridges and American Welding Society Structural Welding Code, AWS D.1.1-86.

Design Criteria: Load Factor Design Method. Live Load - AASHTO HS 20-44 + 25%. Tandem 24 kip axles at 4 foot centers or Delaware 35 ton truck, whichever governs.

Material and Fabrication: In accordance with the Delaware Standard Specifications, July 1985, with special and supplementary specifications.

*Concrete - Specified Compressive Strength (F_c):
Deck Slab and Parapets.....4,500 psi
Concrete above Footings.....4,500 psi
Concrete in Footings.....3,000 psi*

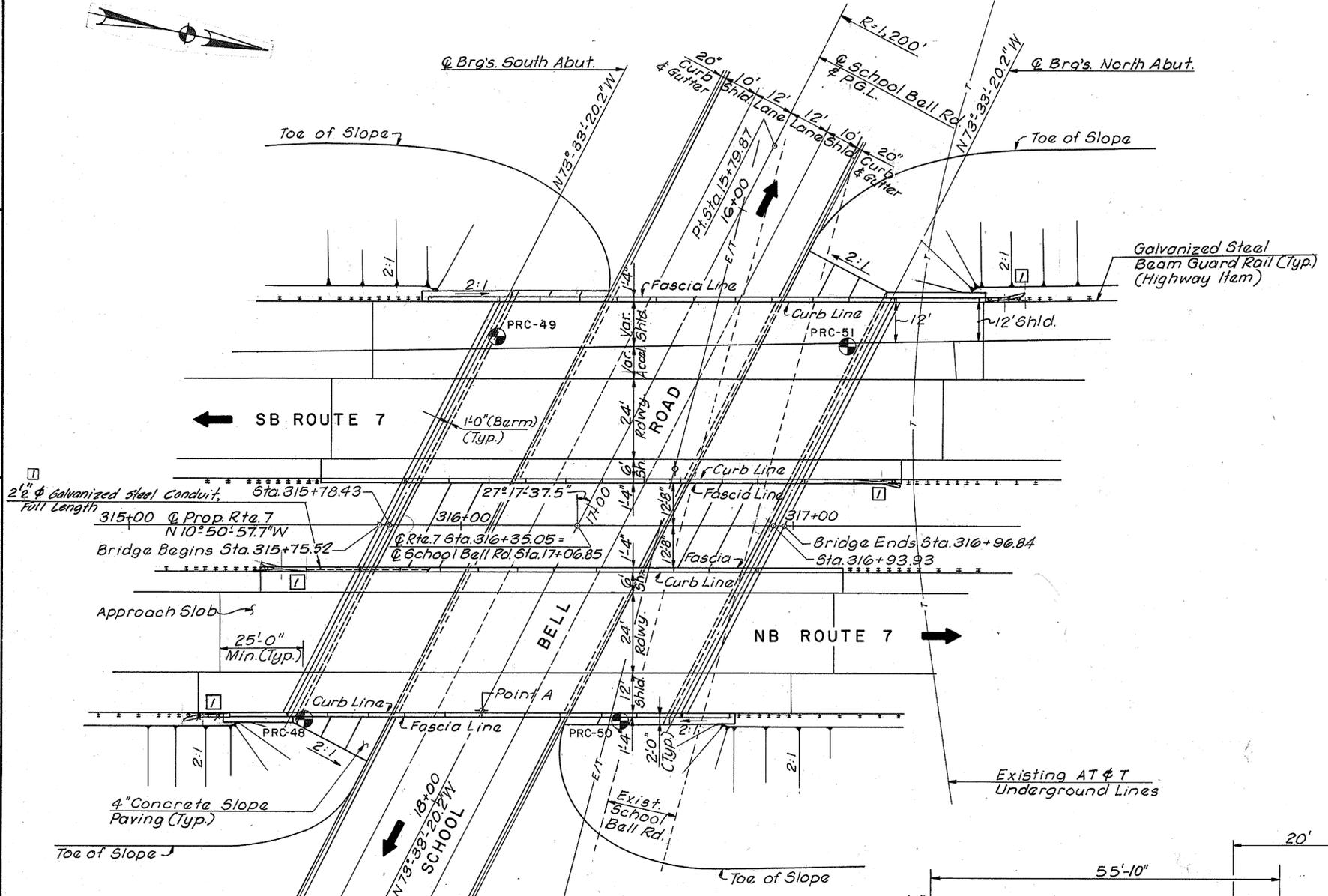
*Reinforcement Steel: ASTM A615 (Grade 60).
All Deck Slab, Parapet and Approach Slab bars will be epoxy coated.*

Superstructure: Dead Load includes 24 psf provision for future overlay. Structural Steel will be ASTM A-572, painted, with F_y = 50,000 psi.

High Strength Bolts: will be ASTM A325, Type I with mechanical galvanizing and Pointed.

Foundation: Abutments supported by cast-in-Place concrete piles, design capacity 50 tons minimum.

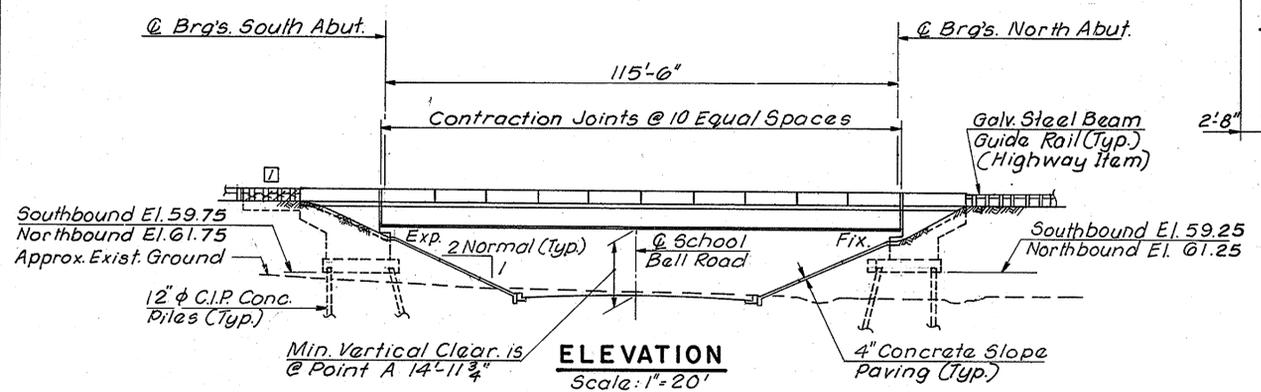
△ Traffic on School Bell Rd. shall be protected during construction of the bridge. The contractor shall submit his plan for protection of the traveling public to the engineer for approval. All costs for this protection shall be incidental to item 605001, Steel Structures.



PLAN
Scale: 1" = 20'

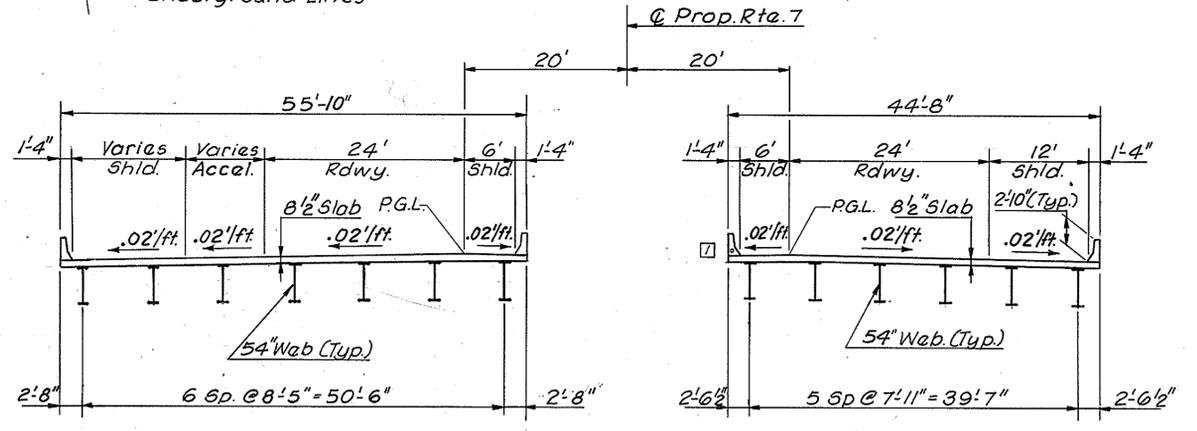
LEGEND

● Boring



ELEVATION
Scale: 1" = 20'

Estimated Pile Tip El. 25.0



TYPICAL SECTION
Scale: 3/32" = 1'-0"

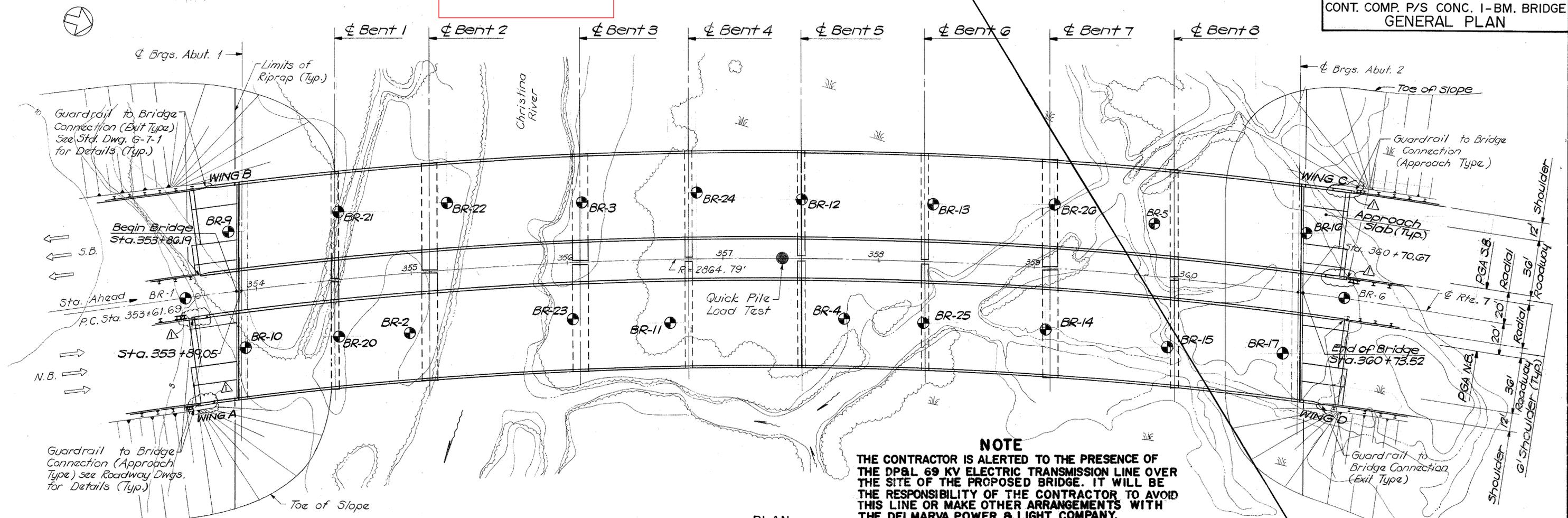
REVISIONS
 1. Added note 2/24/87, JM SL.
 2. Approach Barrier-Rail & Conduit, 08/27/88 AMM

PREL. TRACING P. M. I.
 DESIGN E. R. H.
 CHKD. M. R. T.

ROUTE - 7 OVER CHRISTINA RIVER
CONT. COMP. P/S CONC. I-BM. BRIDGE
GENERAL PLAN

BR 1-329 N&S

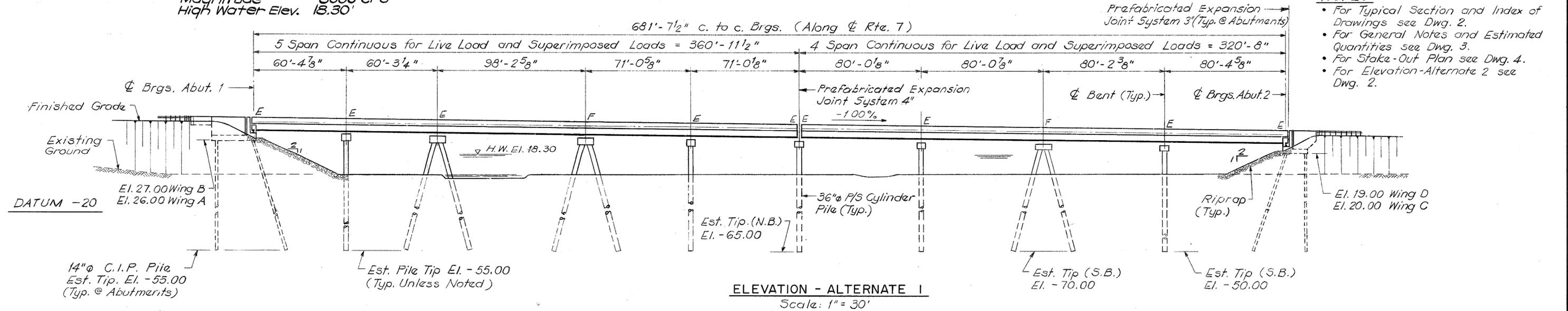
DP&L 69 KV
TRANSMISSION LINE



NOTE
THE CONTRACTOR IS ALERTED TO THE PRESENCE OF THE DP&L 69 KV ELECTRIC TRANSMISSION LINE OVER THE SITE OF THE PROPOSED BRIDGE. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID THIS LINE OR MAKE OTHER ARRANGEMENTS WITH THE DELMARVA POWER & LIGHT COMPANY.

PLAN
Scale: 1"=30'

Hydraulic Data
Design Flood: Frequency 100 yr.
Magnitude 3000 CFS
High Water Elev. 18.30'



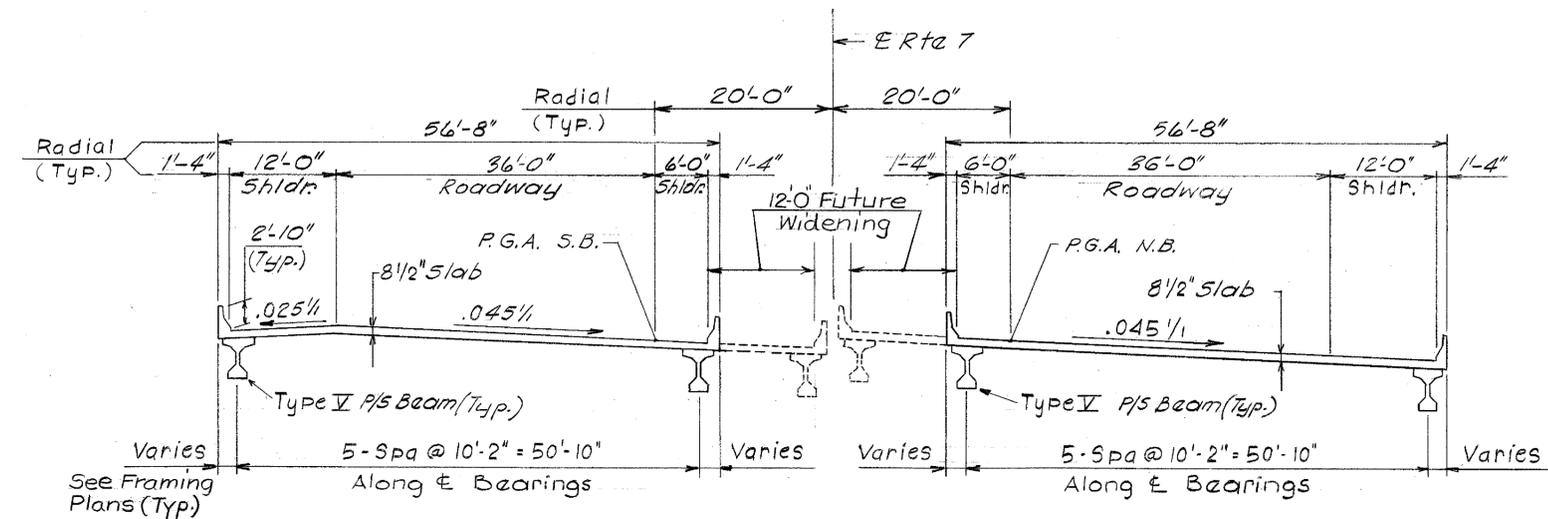
ELEVATION - ALTERNATE 1
Scale: 1"=30'

- NOTES**
- For Typical Section and Index of Drawings see Dwg. 2.
 - For General Notes and Estimated Quantities see Dwg. 3.
 - For Stake-Out Plan see Dwg. 4.
 - For Elevation-Alternate 2 see Dwg. 2.

REVISIONS
Revised as shown
CHK 12-20-94

PREL. TRACING
KM
DESIGN RPM
CHKD

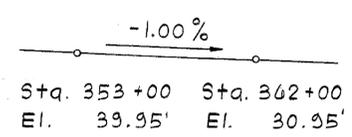
ROUTE -7 OVER CHRISTINA RIVER
CONT. COMP. P/S CONC. 1-BM. BRIDGE
TYPICAL SECTION & INDEX



TYPICAL SECTION
Scale: 1" = 10'

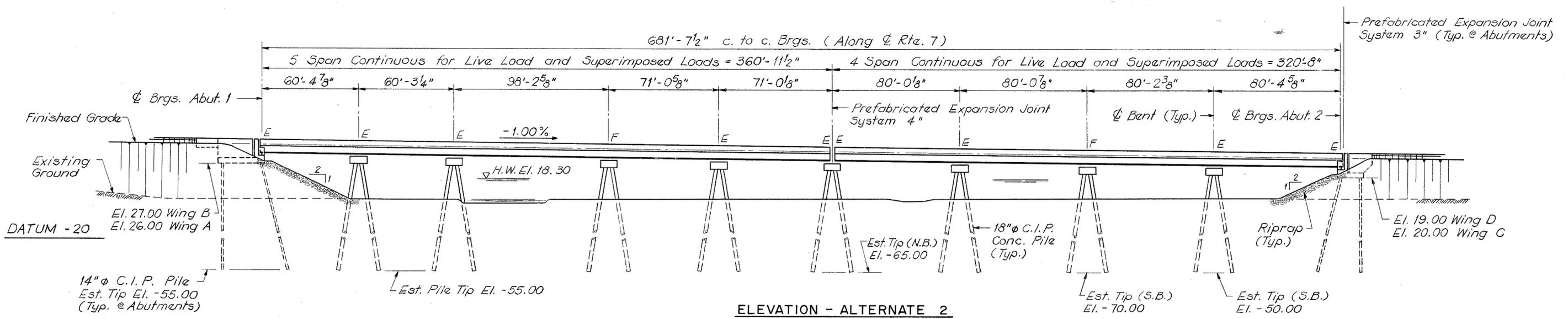
P.I. Sta. 362+64.95
Dc = 2°00'00"
Δ = 35°00'00"
R = 2864.79'
Lc = 1,750.00'
Tan. = 903.26'

HORIZONTAL CURVE DATA



VERTICAL DATA

INDEX OF DRAWINGS	
NO.	TITLE
1	General Plan
2	Typical Section & Index
3	General Notes & Quantities
4	Stake-Out-Plan
5	Abutment 1 - Southbound
6	Abutment 1 - Northbound
7	Abutment 2 - Southbound
8	Abutment 2 - Northbound
9	Wings A, B, C and D
10	Footing Plans
11	Abutment Details
12	Abutment 1 Bar List
13	Abutment 2 Bar List
14	Bents 1, 4, 5, 6 & 8 SB - Alt. 1
15	Bents 1, 4, 5, 6 & 8 NB - Alt. 1
16	Bents 2, 3 & 7 SB - Alt. 1
17	Bents 2, 3 & 7 NB - Alt. 1
18	Bent Bar Lists - Alt. 1
19	Bents 1, 4, 5, 6 & 8 SB - Alt. 2
20	Bents 1, 4, 5, 6 & 8 NB - Alt. 2
21	Bents 2, 3 & 7 SB - Alt. 2
22	Bents 2, 3 & 7 NB - Alt. 2
23	Bent Bar Lists - Alt. 2
24	Bent Details
25	Pile Details
26	Bent Dimensions
27	Framing Plan I
28	Framing Plan II
29	Girder Details
30	Deck Plan - Southbound
31	Deck Plan - Northbound
32	Deck Cross Sections
33	Deck Details
34	Diaphragm Details I
35	Diaphragm Details II
36	Diaphragm Details III
37	Deck Elevations I
38	Deck Elevations II
39	Deck Elevations III
40	Superstructure Bar Lists
41	Expansion Joint Details
42	Approach Slab Details
43	Approach Slab Bar List
44	Test Borings
45	Test Borings
46	Test Borings



ELEVATION - ALTERNATE 2
Scale: 1" = 30'

REVISIONS

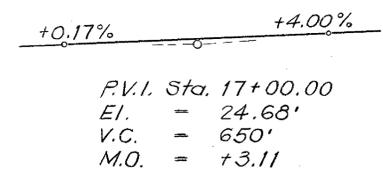
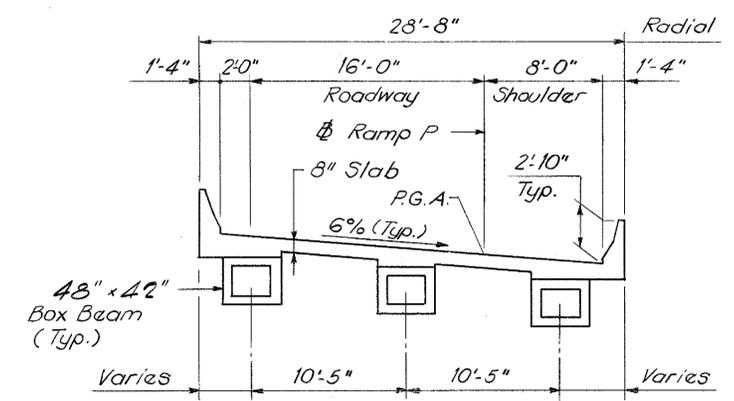
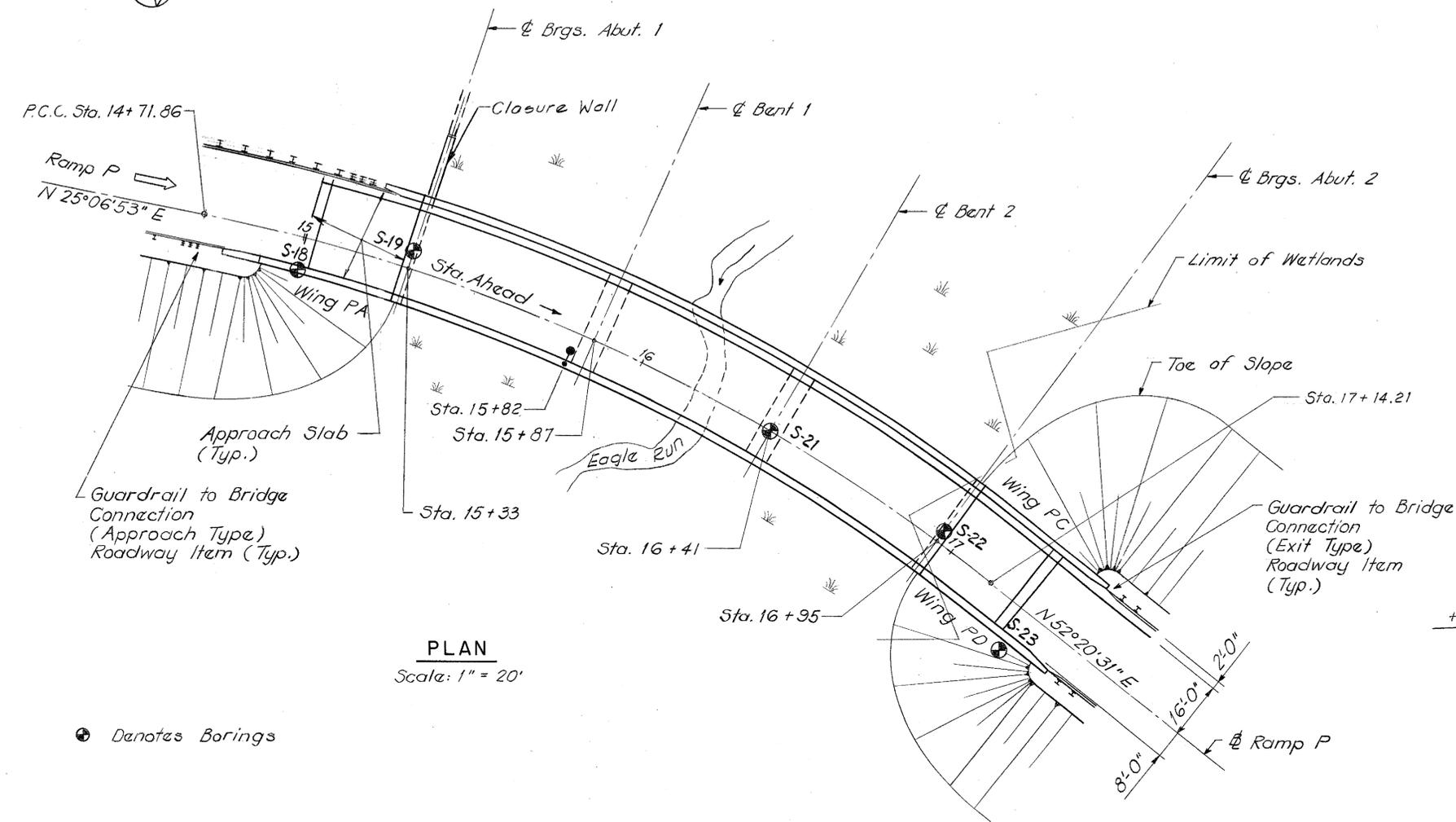
PREL. TRACING KM DESIGN RPM CHKD

DWG. NO.	CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
2	83-101-02	NEW CASTLE	F-1045 (26)	287	492

**RAMP P
OVER EAGLE RUN
3 SPAN CONT. COMP. P/S CONC. BOX BM. BRIDGE
GENERAL PLAN**

BR 1-331A

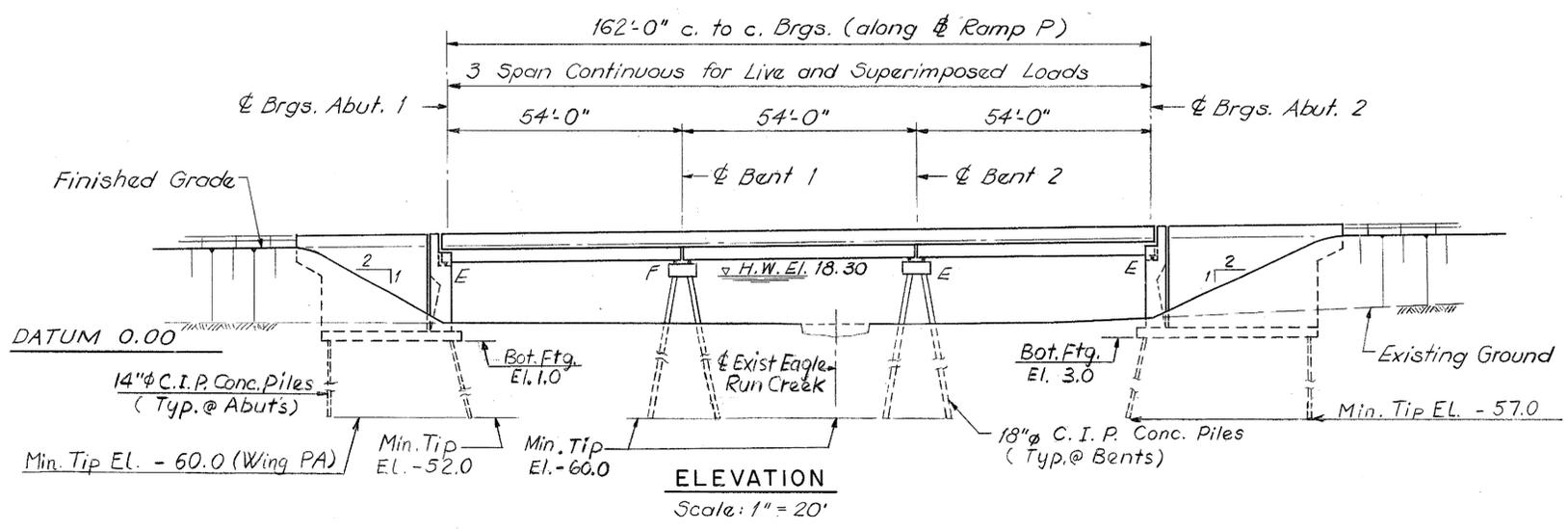
REVISIONS



HORIZONTAL

P.I. Sta. 15+95.37
Δ = 27°13'38" Rt.
D = 11°14'04.09"
T = 123.51'
L = 242.35'
R = 510.00'

CURVE DATA FOR RAMP P



HYDRAULIC DATA

Design Flood: Frequency 100 Years
Magnitude 828 CFS
High Water Elev. 18.30

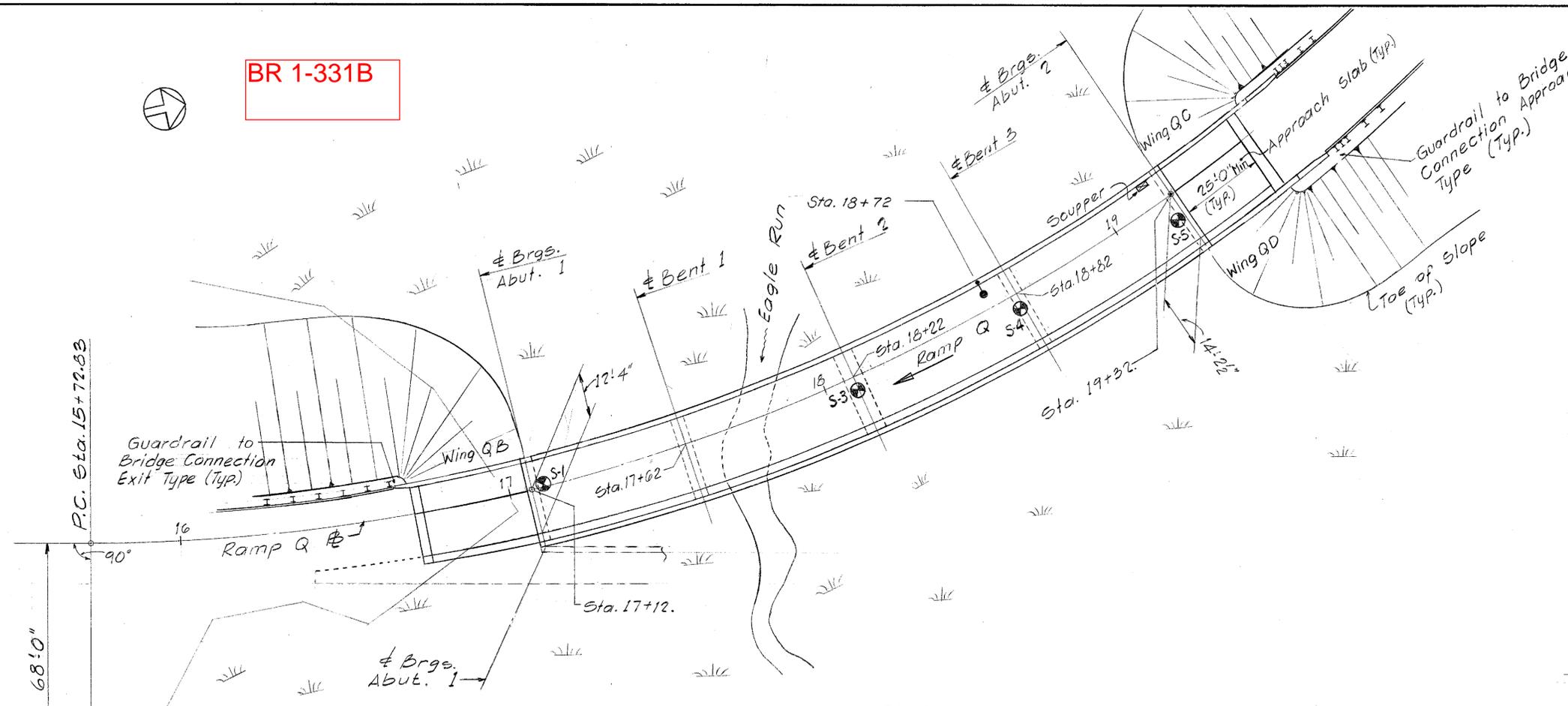
PREL. TRACING
K.M.
DESIGN CHECK - HA - MS - OHIO - M.S.

DWG. NO.	CONTRACT	COUNTY	FEDERAL AID PROJECT #	SHEET #	TOTAL SHEETS
81	83-101-02	NEW CASTLE	F-1045 (26)	366	492

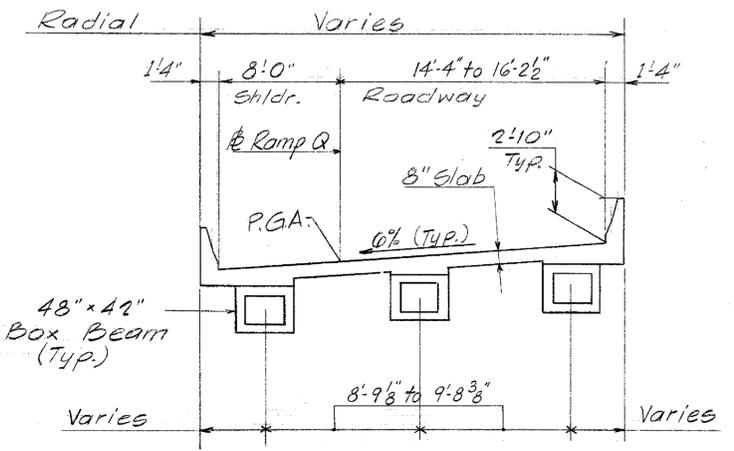
**RAMP Q
OVER EAGLE RUN
4 SPAN CONT. COMP. P/S CONC. BOX BM. BRIDGE
GENERAL PLAN**

BR 1-331B

REVISIONS



PLAN
Scale: 1" = 20'



TYPICAL SECTION
Scale: 1" = 6'



P.V.I. Sta. = 19+50.
El. = 24.36'
V.C. = 180.00'
M.O. = +0.57

VERTICAL

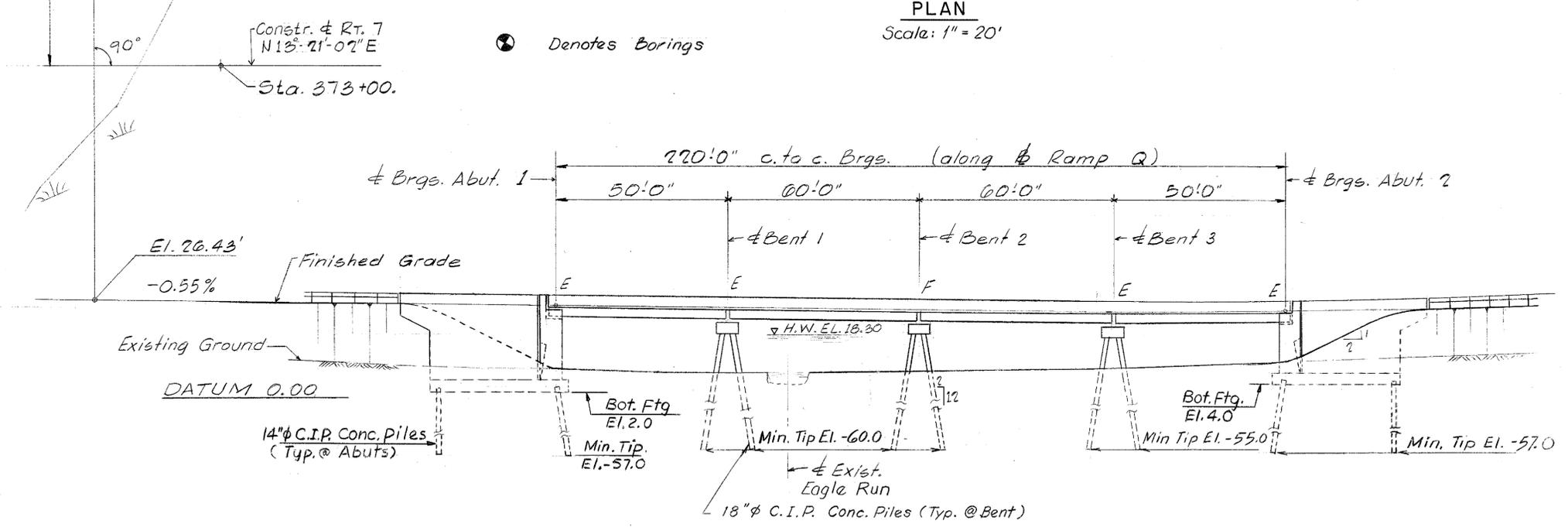
P.I. Sta. = 18+32.76
Δ = 50° 35' 30" Lt.
D = 10° 25' 02.7"
T = 259.93'
L = 435.05'
R = 550.00'

HORIZONTAL

CURVE DATA FOR RAMP Q

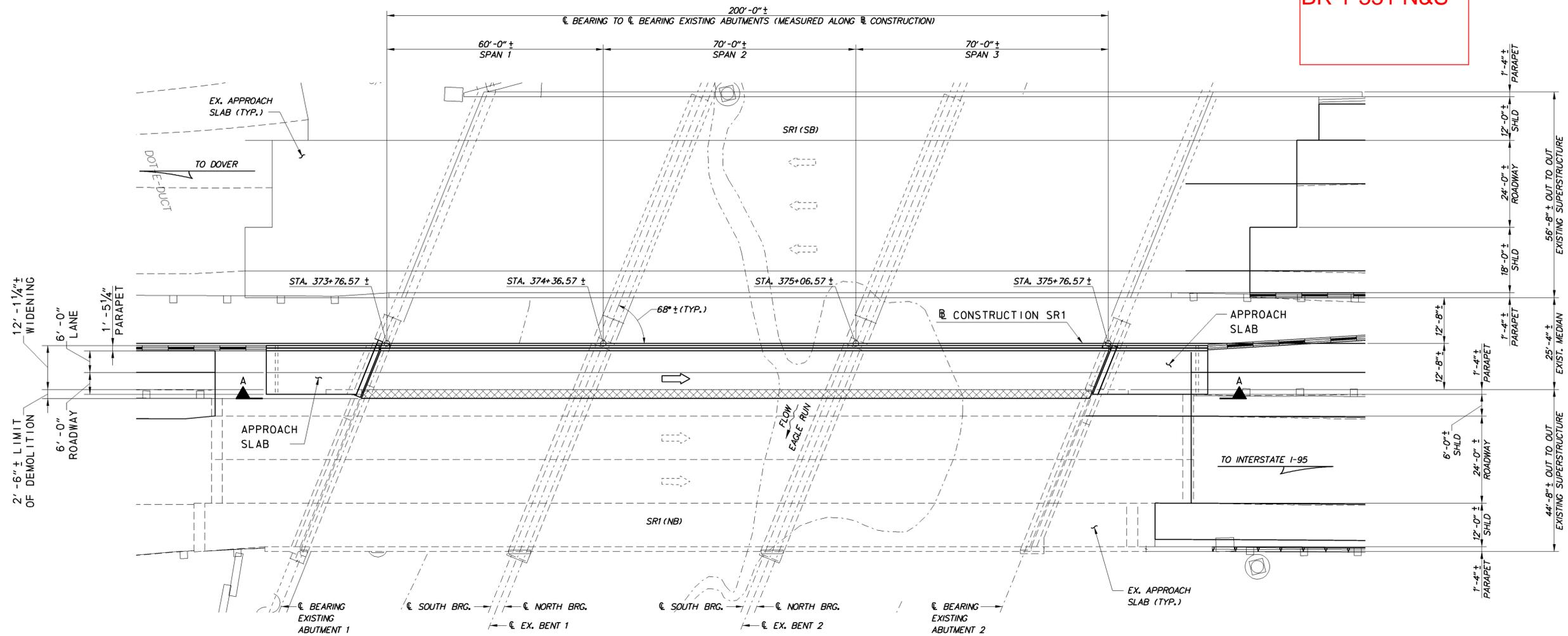
HYDRAULIC DATA

Design Flood: Frequency 100 Years
Magnitude 378 CFS
High Water Elev. 18.30



ELEVATION
Scale: 1" = 20'

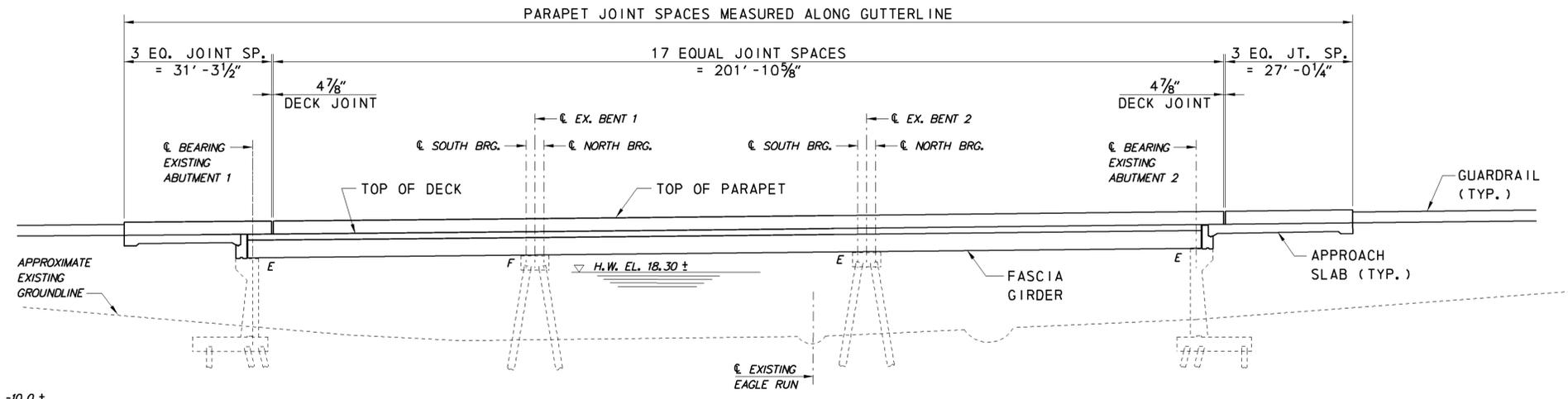
DESIGN_CHK - HA - MS - CHD
PREL. TRACING MS



PLAN

SCALE: 1/16" = 1' - 0"

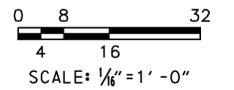
LEGEND



SECTION A-A

SCALE: 1/16" = 1' - 0"

- CROSS REFERENCE NOTES:
- FOR GENERAL NOTES AND PROFILES, SEE SHEET S8-2.
 - FOR SEQUENCE OF CONSTRUCTION, SEE SHEET S8-4.



7/1/2010 2:11:32 PM M:\PROJECTS\2003\03059_DELTRNPK\SR1WALL\CADD\2809003\PLANS\PE01_BR-S8-SR1.DGN

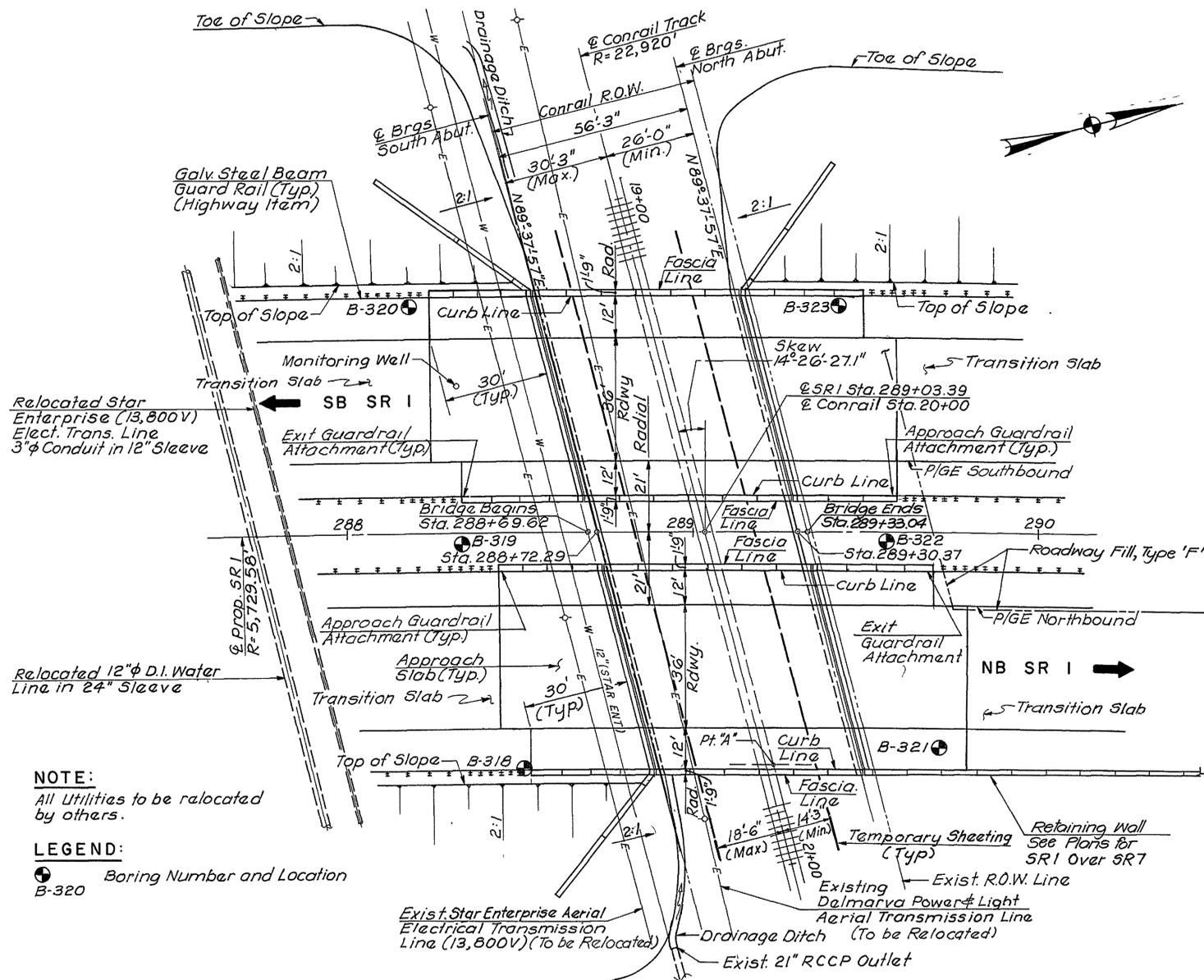
ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	331N
28-090-03	DESIGNED BY:	MDM
COUNTY	CHECKED BY:	
NEW CASTLE		

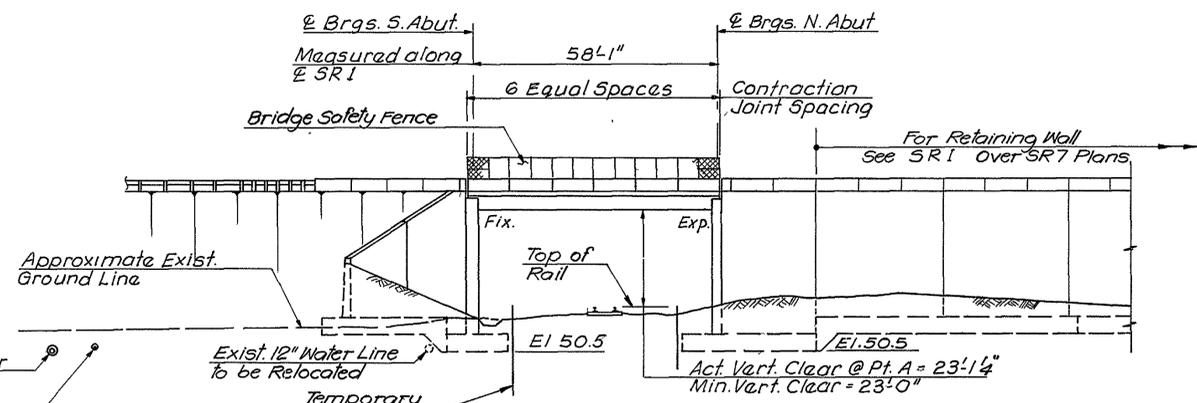
S8-1
SHEET NO.
513
TOTAL SHTS.
803

**SR I OVER CONRAIL
GENERAL PLAN & ELEVATION I**

BR 1-893 N&S



PLAN (ALT. A)
Scale: 1" = 20'



ELEVATION (ALT. A)
Scale: 1" = 20'

INDEX OF DRAWINGS	
DWG NO.	TITLE
1	General Plan and Elevation I
2	General Plan and Elevation II
3	South Abutment-Northbound Roadway, Alt. A
4	South Abutment Reinforcement-NB Rdwy., Alt. A
5	South Abutment-Southbound Roadway, Alt. A
6	South Abutment Reinforcement-SB Rdwy., Alt. A
7	North Abutment-Southbound Roadway, Alt. A
8	North Abutment Reinforcement-SB Rdwy., Alt. A
9	North Abutment-Northbound Roadway, Alt. A
10	North Abutment Reinforcement-NB Rdwy., Alt. A
11	Wingwalls, Alt. A
12	Abutment Details I, Alt. A
13	Abutment Details II, Alt. A
14	Wingwall Details, Alt. A
15	Substructure Details, Alt. A
16	South Abutment, Northbound Roadway, Alt. B
17	South Abutment, Southbound Roadway, Alt. B
18	North Abutment, Southbound Roadway, Alt. B
19	North Abutment, Northbound Roadway, Alt. B
20	Abutment and Wall Details, Alt. B
21	Substructure Details, Alt. B
22-30	Option 1-Mech. Stab. Earth Wall (Reinforced Earth Wall)
31-34	Option 2-Mech. Stab. Earth Wall (Retained Earth Wall)
35	Framing Plan
36	Girder and Steel Details
37	Bearing and Form Details
38	Deck Joint Details
39	Deck Slab Plan & Cross Section-SB Roadway
40	Deck Slab Plan & Cross Section-NB Roadway
41	Finished Deck Elevations
42	Approach Slabs-Southbound Roadway, Alt. A
43	Approach Slabs-Northbound Roadway, Alt. A
44	Approach Slabs-Southbound Roadway, Alt. B
45	Approach Slabs-Northbound Roadway, Alt. B
46	Transition Slab Details
47	Bridge Safety Fence
48-54	Bar Lists 1-7
55	Boring Logs I
56	Boring Logs II
15A	Form Liners, Alt. A.

NOTE: General Plan and Elevation for Alt. B is Similar, For Details see Dwgs. 23-25 and 31-32.

GENERAL NOTES:

- DESIGN SPECIFICATIONS:**
-1989 AASHTO standard Specifications for Highway Bridges. Welding shall conform to 1988 AASHTO/AWS Bridge Welding Code D-1.5-88.
- DESIGN:**
Load Factor Design Method.
- LOADING:**
Live Load-AASHTO HS25-44 or Delaware Legal Load whichever governs. Dead Load includes 25 pounds per square foot provision for future overlay and 15 pounds per square foot for use of Bridge Deck Forms.
- MATERIAL AND FABRICATION:**
Delaware Department of Transportation Standard Specifications dated July 1985 with current modifications, additions and special provisions.
- CONCRETE:**
Specified Compressive Strength (f_c):
Deck Slab 4,500 psi, Class 'D'
Concrete Above Footings 4,500 psi, Class 'A'
Concrete in Footings 3,000 psi, Class 'B'
Chamfer exposed edges 2" unless shown otherwise.
- REINFORCEMENT STEEL:**
ASTM A615 (Grade 60) All Deck Slab, Approach Slab, Parapet Bars, and Bars in top of backwall will be Epoxy Coated. Epoxy Coated Bars shall not contact uncoated Bars.
- STRUCTURAL STEEL:**
ASTM Designation A572, (AASHTO M270, Gr.50) F_y = 50,000 psi. Painted with Urethane Paint System.
- HIGH STRENGTH BOLTS:**
ASTM A325, (AASHTO M164) Type I, Mech. Galv. Primed and Painted.
- FOUNDATION DESIGN CRITERIA:**
Maximum allowable bearing pressure = 2.5 TSF.
Maximum 1/2" differential settlement between superstructure supports.
- SEDIMENT AND EROSION CONTROL:**
Control Devices Located on Roadway Drawings.
- EARTHQUAKE DESIGN:**
Method in accordance with AASHTO Guide Specifications for Seismic Design of Highway Bridges. Category A.

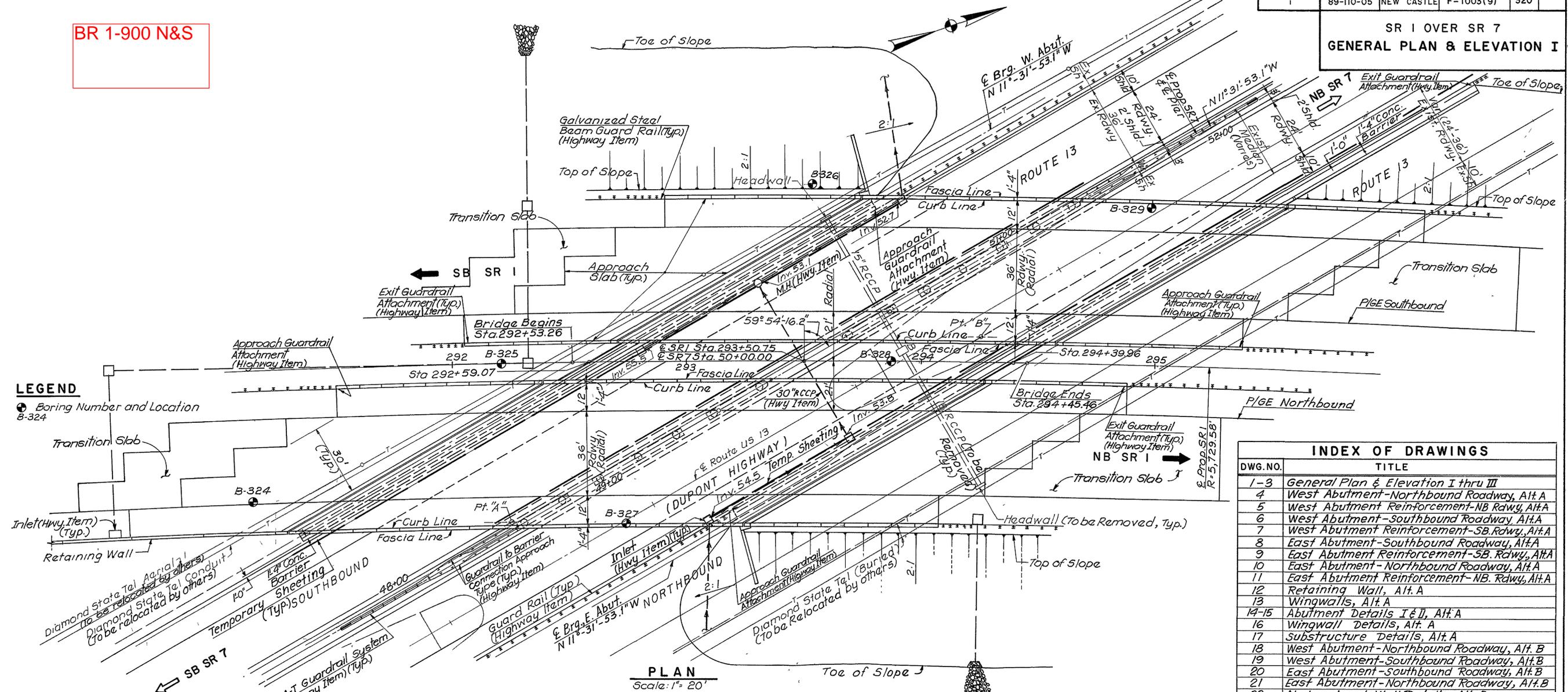
REVISIONS

PREL TRACING PM DESIGN ADH CHHD JTL

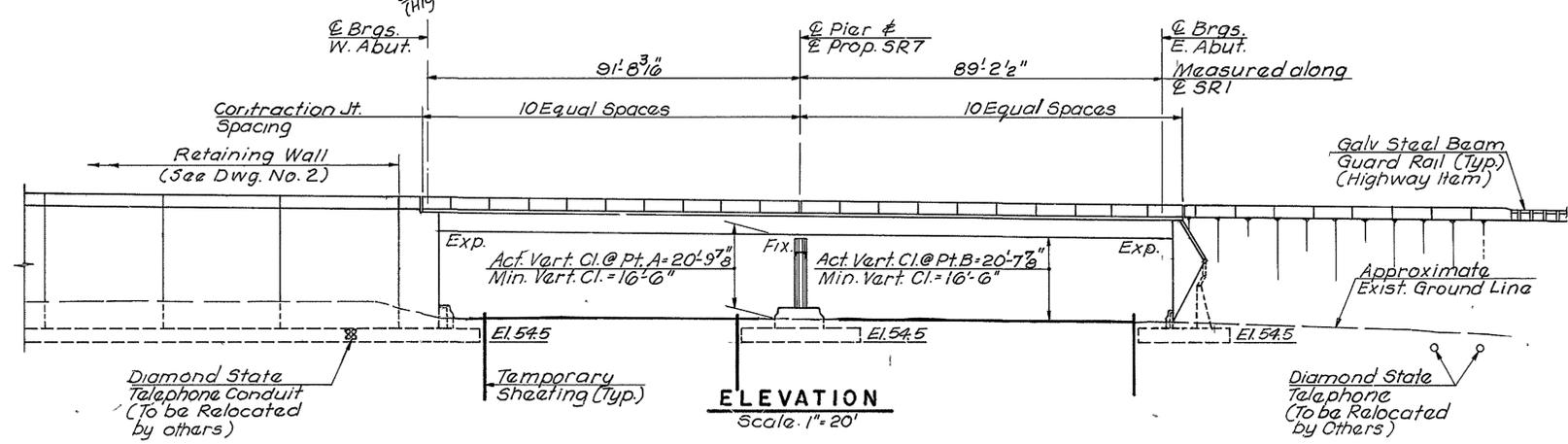
GEO GRAPHICS 01/13

**SR I OVER SR 7
GENERAL PLAN & ELEVATION I**

BR 1-900 N&S



PLAN
Scale: 1" = 20'



ELEVATION
Scale: 1" = 20'

LEGEND
 ● Boring Number and Location
 B-324

INDEX OF DRAWINGS

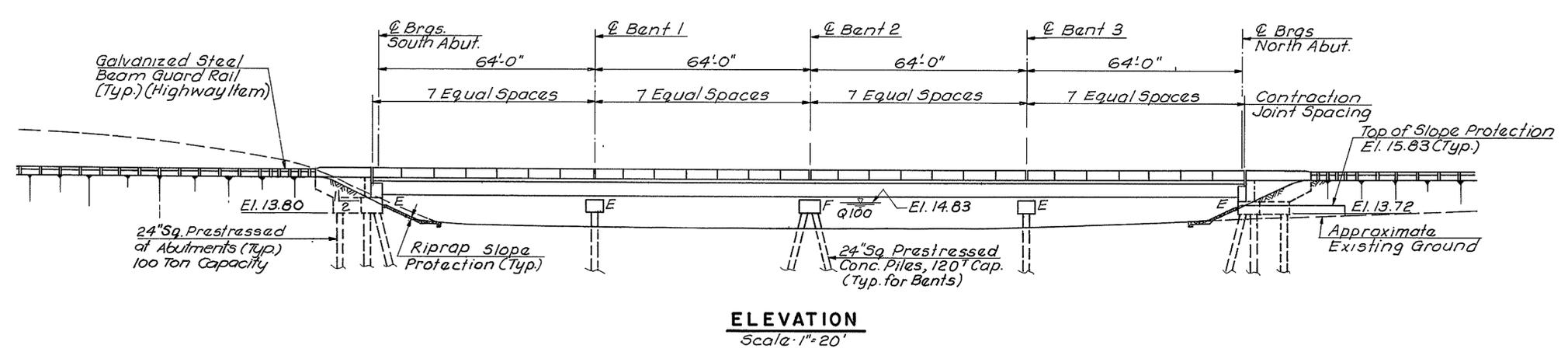
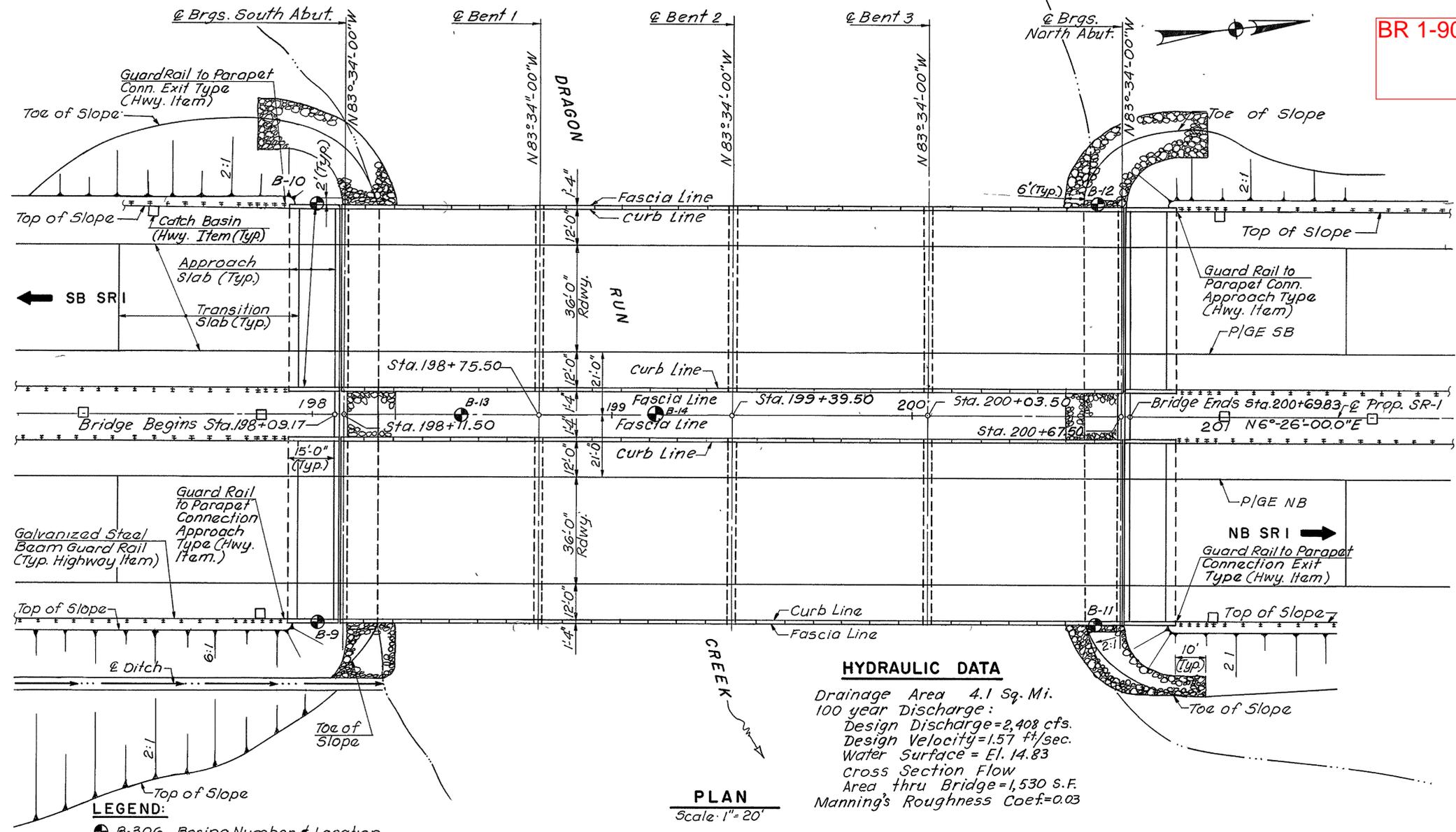
DWG. NO.	TITLE
1-3	General Plan & Elevation I thru III
4	West Abutment-Northbound Roadway, Alt. A
5	West Abutment Reinforcement-NB Rdwy, Alt. A
6	West Abutment-Southbound Roadway, Alt. A
7	West Abutment Reinforcement-SB Rdwy, Alt. A
8	East Abutment-Southbound Roadway, Alt. A
9	East Abutment Reinforcement-SB Rdwy, Alt. A
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REVISIONS
 ERH
 CHKD
 TAP
 DESIGN
 PM
 PREL. TRACING
 04/15/15

**SR I OVER DRAGON RUN CREEK
GENERAL PLAN & ELEVATION I**

BR 1-901 N&S

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1	General Plan and Elevation I
2	General Plan and Elevation II
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6	Wingwalls
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18	Approach Slab
19	Transition Slab Details
20-24	Bar Lists I-5
25	Boring Logs I
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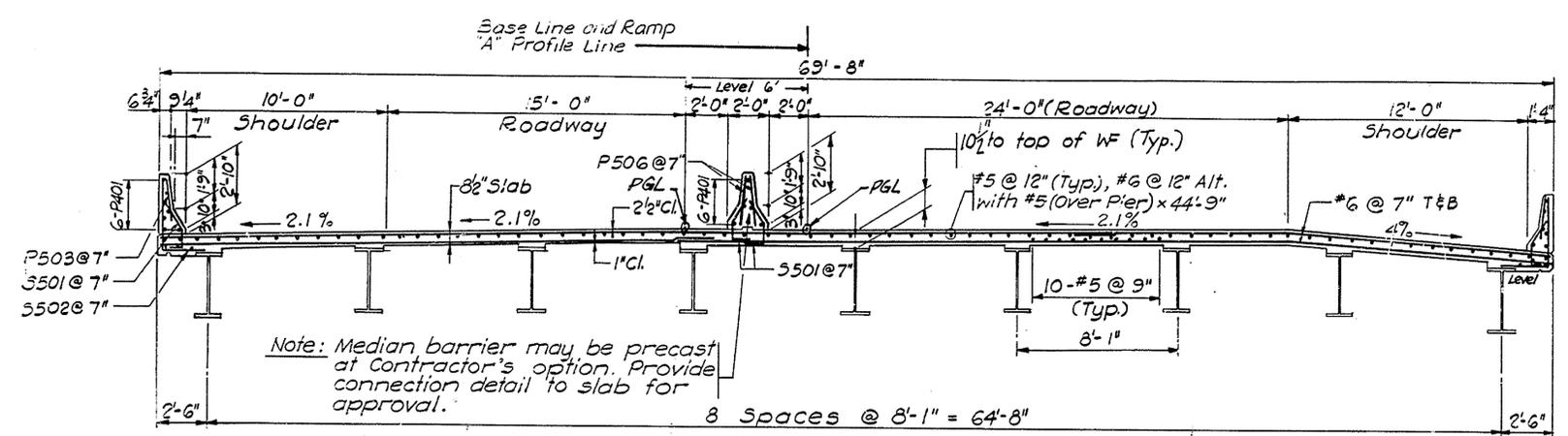


- GENERAL NOTES:**
- DESIGN SPECIFICATION:**
1989 AASHTO Standard Specifications for Highway Bridges including Interims. Welding shall conform to 1988 AASHTO/AWS Bridge Welding Code D1.5-88.
 - DESIGN:**
Load Factor Design Method.
 - LOADING:**
Live load - AASHTO HS25-44 or Delaware Legal Load, whichever governs. Dead load includes 25 Pounds per square foot provision for future overlay and 15 Pounds per square foot for use of SIP Bridge deck forms.
 - MATERIAL AND FABRICATION:**
Delaware Department of Transportation Standard Specifications dated July 1985, with current modifications, additions and special provisions.
 - CONCRETE:**
Specified Compressive Strength (fc')
 Deck Slab ... 4500 psi Class 'D'
 Concrete for Prestressed Beams ... 5000 psi (fc'=4500psi)
 Concrete above Footings & Parapets ... 4500 psi Class 'A'
 Concrete in Footings ... 3000 psi Class 'B'
 Chamfer exposed edges 3/4" unless shown otherwise.
 - REINFORCEMENT STEEL:**
AASHTO M31 (ASTM A615) Gr. 60. All deck slab, approach slab, parapet bars, vert. bars in diaphragm and bars in top of backwall shall be epoxy coated. Epoxy coated bars shall not contact uncoated bars.
 - STRUCTURAL STEEL:**
Structural steel for Expansion Devices shall conform to AASHTO M270 (ASTM A36) Grade 36.
 - PRESTRESSING STEEL:**
Prestressing steel shall be seven wire Low-Relaxation strands conforming to AASHTO M203 (ASTM A416), Grade 270.
 - DRAINAGE:**
Deck drainage shall be provided by openings through the Parapet.
 - FOUNDATION:**
24" Sq. Prestressed Conc. Piles
 - WAVE EQUATION NOTE:**
The Contractor will be responsible for submitting a wave equation analysis in accordance with the modifications to the Standard Specifications, Subsection 618.15. The wave equation analysis must be certified by a Professional Engineer.
 - EARTHQUAKE DESIGN:**
Method in accordance with AASHTO Guide Specifications for Seismic Design of Highway Bridges, Category A.

REVISIONS
 CHKD ADH
 DESIGN JJS
 PM
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BR 1-310

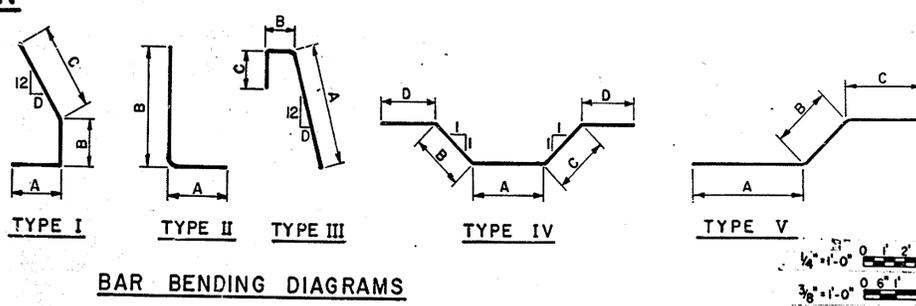
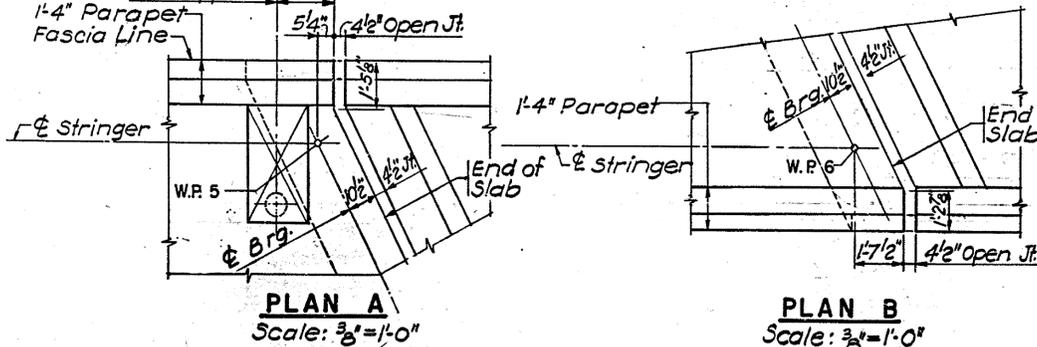
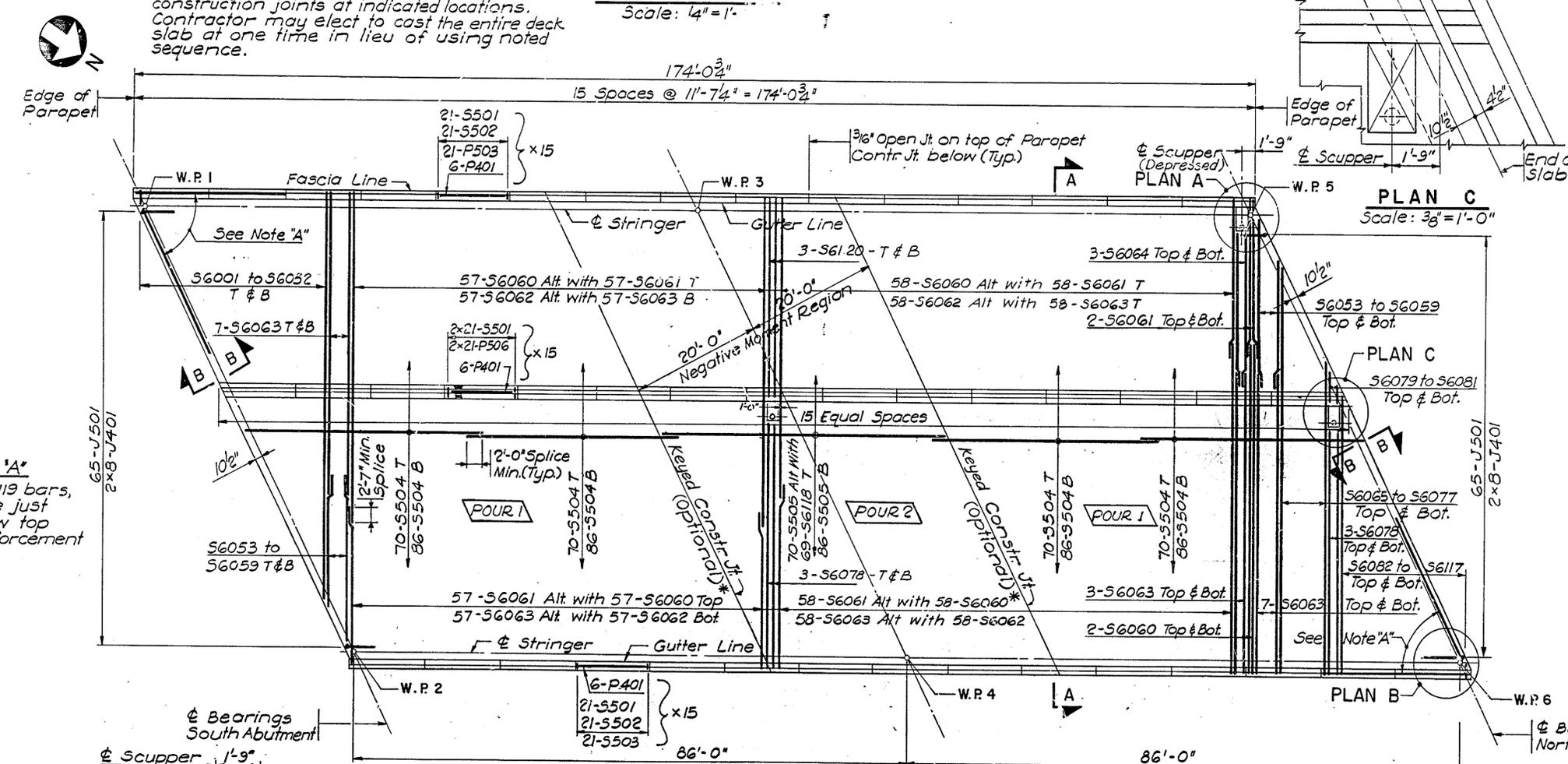
CONTRACT	COUNTY	FEDERAL AID PROJECT #	SHEET #	TOTAL SHEETS
83-101-04	NEW CASTLE	F-1045 (20)	B12	120
RAMPS A, B & C OVER RT. 13				



BAR SCHEDULE FOR DECK SLAB
ALL BARS EPOXY COATED

NO. REQD	MARK	SIZE	LENGTH	TYPE	A	B	C	D	E	R
2 Ea	S6001 to #6		1-3to59-7	STR						
4 Ea	S6052 to #6		19-3to26-1	STR						
234	S6060	#6	48-0	STR						
234	S6061	#6	23-11	STR						
230	S6062	#6	27-11	STR						
264	S6063	#6	44-0	STR						
6	S6064	#6	23-9	STR						
2 Ea	S6065 to #6		59-6to45-9	STR						
12	S6078	#6	35-11	STR						
2 Ea	S6079 to #6		7-0to5-0	STR						
2 Ea	S6081 to #6		1-0to1-0	STR						
69	S6118	#6	44-9	STR						
14	S6119	#6	20-0	STR						
6	S6120	#6	30-0	STR						
8	SS601*	#6	6-0	IV	1-7	0-3	1-2	1-6		
8	SS602*	#6	6-5	V	4-0	1-2	1-3			
16	SS603*	#6	7-0	STR						
32	J401	#4	7-11	STR						
130	J501	#5	2-8	I	0-10	0-10	1-0			
1260	S501	#5	3-8	I	1-0	0-10	1-10	10		
630	S502	#5	5-9	II	2-4	3-5				
630	P503	#5	2-8	STR						
624	S504	#5	34-7	STR						
156	S505	#5	44-9	STR						
630	P506	#5	2-8	STR						
270	P401	#4	11-3	S'R						

* AT SCUPPER



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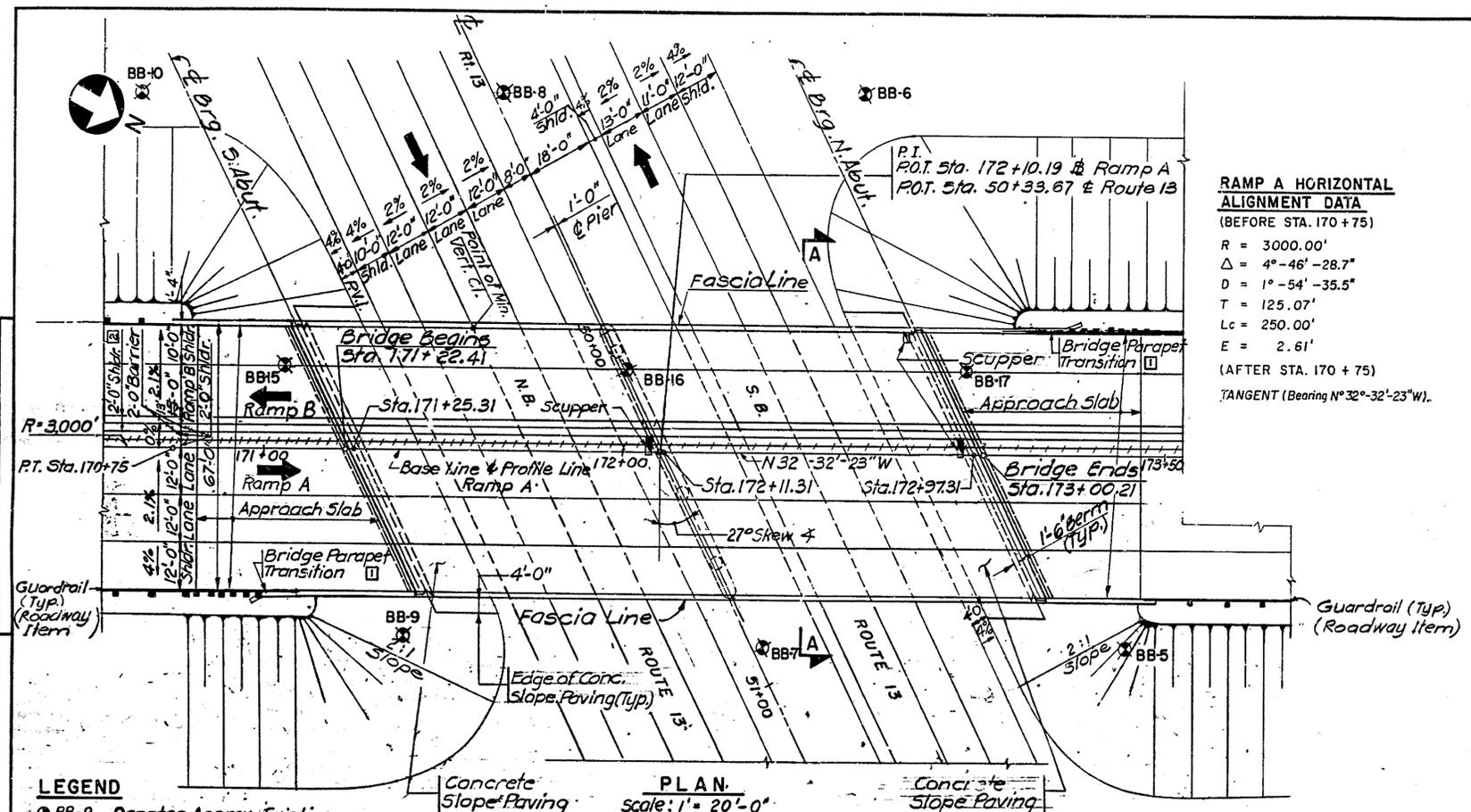
**DECK SLAB
PLAN AND SECTION**

D. P. K.
T. D. B.
C. I. M.

SCALE
As Noted

APPROVED BY
BRIDGE ENGINEER

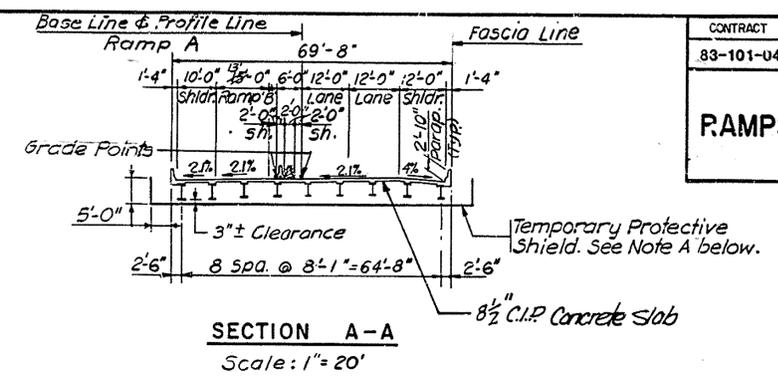
CHKD
DESIGN
FILED
TRACING



RAMP A HORIZONTAL ALIGNMENT DATA
(BEFORE STA. 170+75)

R = 3000.00'
 $\Delta = 4^\circ - 46' - 28.7''$
D = 1° - 54' - 35.5"
T = 125.07'
Lc = 250.00'
E = 2.61'

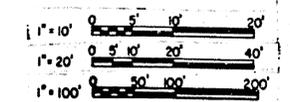
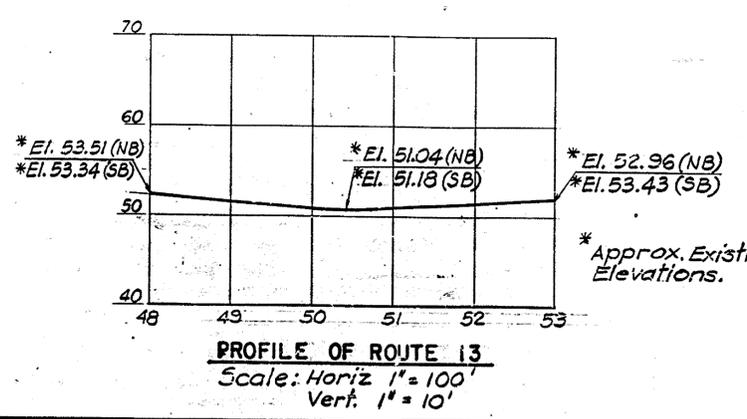
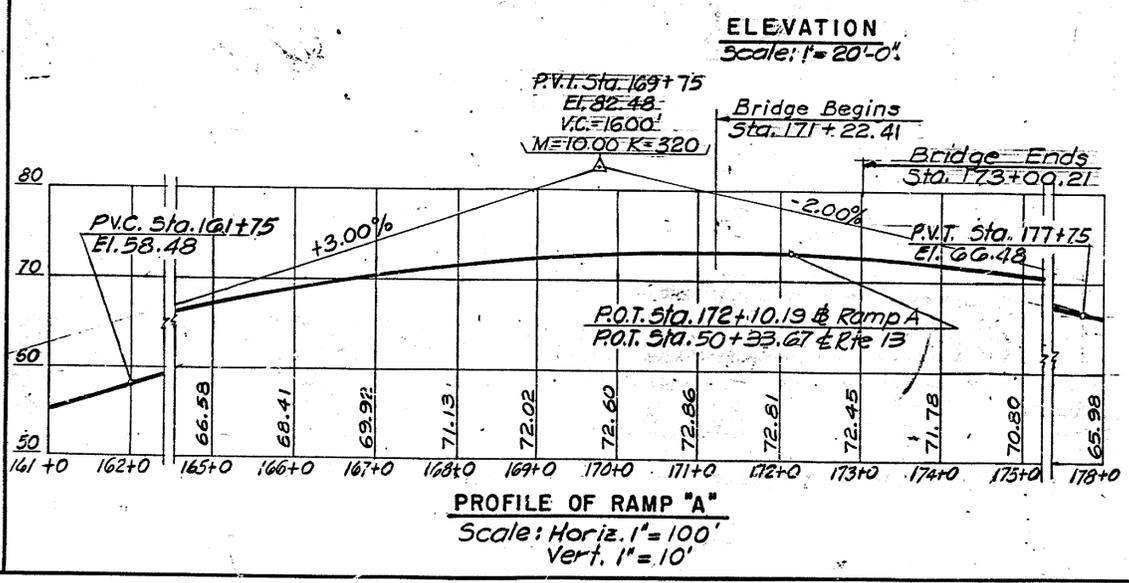
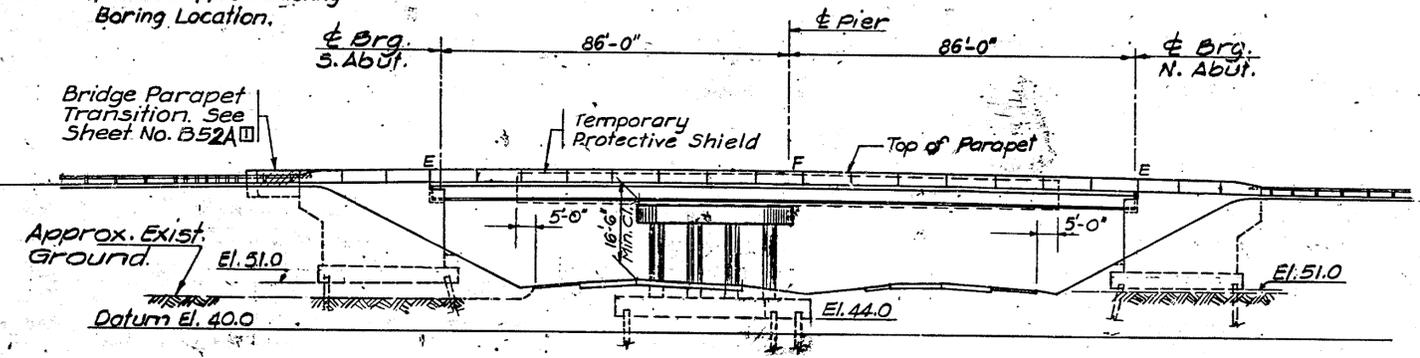
(AFTER STA. 170+75)
TANGENT (Bearing N° 32° - 32' - 23" W).



Note A: Contractor shall keep areas below the bridge clear of all debris by installing a Temporary Protective Shield (see Section A-A). As a minimum, shield shall be capable of carrying 100 p.s.f. with an allowance of 50% for impact. Contractor shall submit shield design for approval. See Elevation, this sheet, for longitudinal extent of shield.

LIST OF DRAWINGS	
SHEET NO.	TITLE
B1	GENERAL PLAN AND ELEVATION
B2	GENERAL NOTES AND QUANTITIES
B3	SOUTH ABUTMENT - PLAN AND ELEVATION
B4	NORTH ABUTMENT - PLAN AND ELEVATION
B5	ABUTMENTS - SECTIONS AND DETAILS
B6	ABUTMENT WINGWALLS
B7	ABUTMENT BAR SCHEDULES
B8	PIER - PLANS AND ELEVATION
B9	FRAMING PLAN
B10	STRINGER DETAILS
B11	BEARINGS
B12	DECK SLAB - PLAN AND SECTION
B13	PREFABRICATED EXPANSION JOINT SYSTEM AND DECK SLAB DETAILS
B14	APPROACH SLAB - PLAN AND SECTIONS
B15	MISCELLANEOUS DETAILS
B16	BORING LOGS I
B17	BORING LOGS II
B53	GUARDRAIL TO BARRIER CONNECTION AND BRIDGE PARAPET TRANSITION.

LEGEND
 ● BB-9 Denotes Approx. Existing Boring Location.



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GENERAL PLAN AND ELEVATION

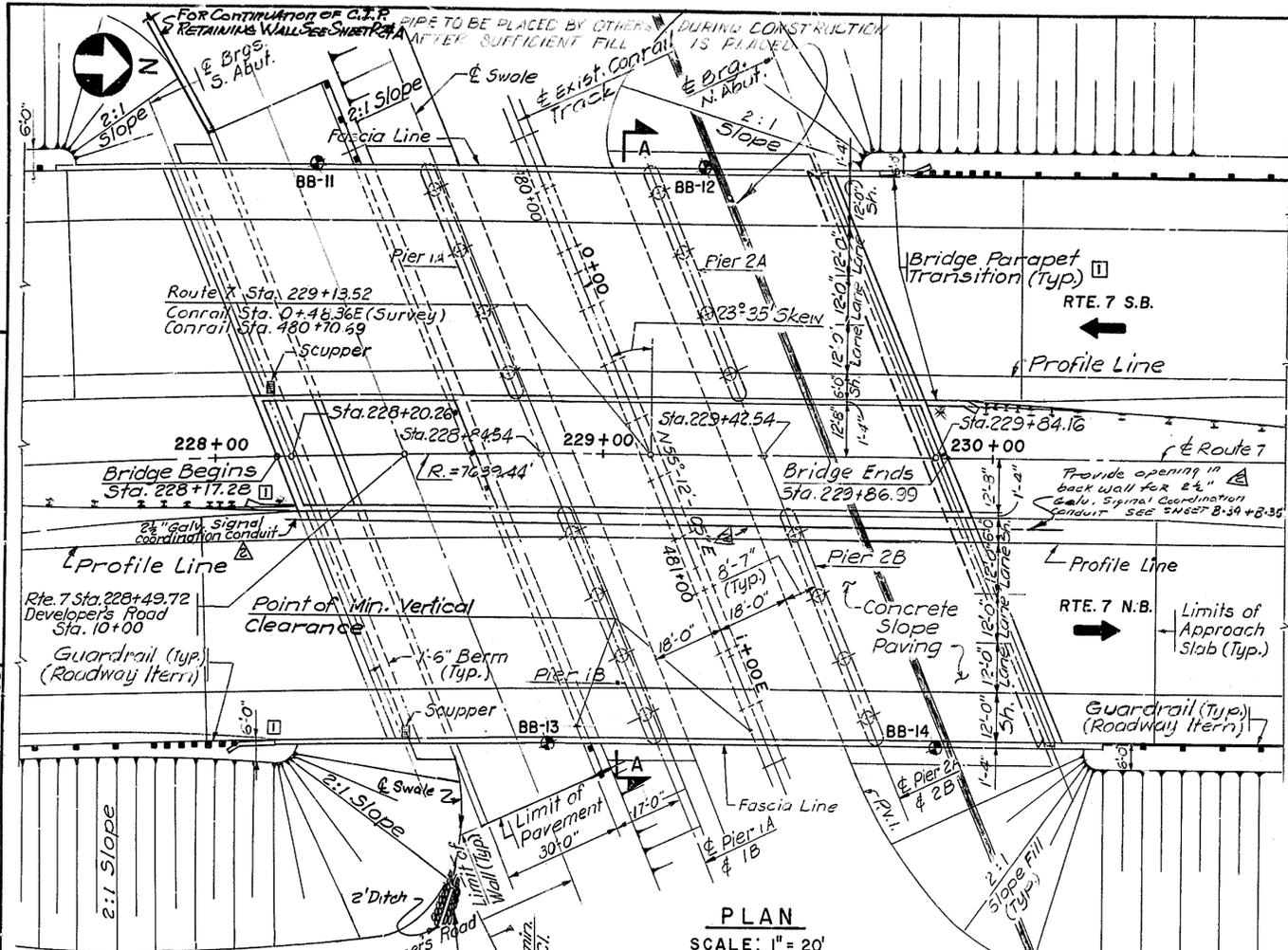
D. E. J. S.	SCALE	APPROVED BY
T. A. C.	As Noted	
C. P. K.		BRIDGE ENGINEER

REVISIONS
 CHD.
 DESIGN
 PREL. TRACING

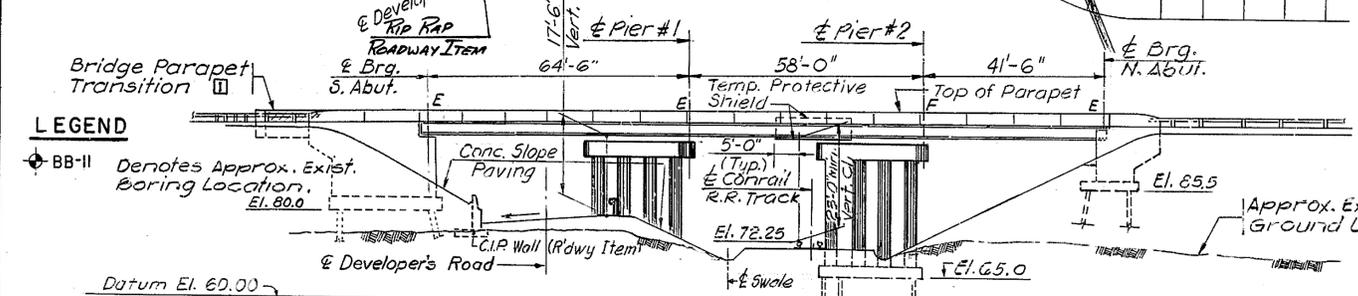
BR 1-315 N&S

CONTRACT	COUNTY	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
83-101-04	NEW CASTLE	F-1045 (20)	B 18A	126A

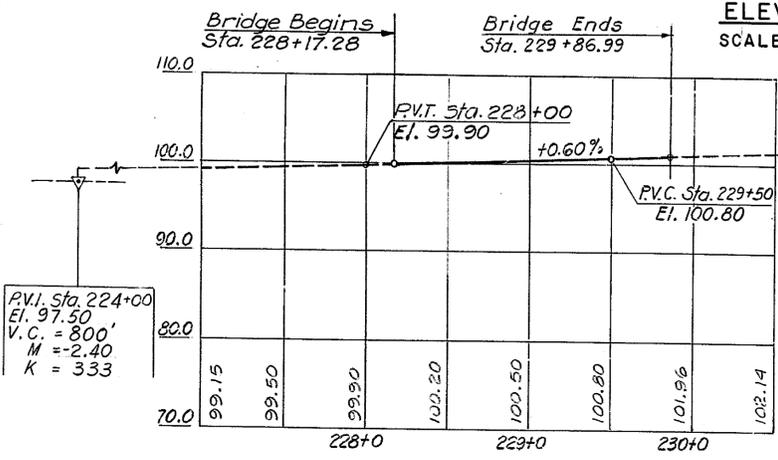
ROUTE 7 OVER CONRAIL



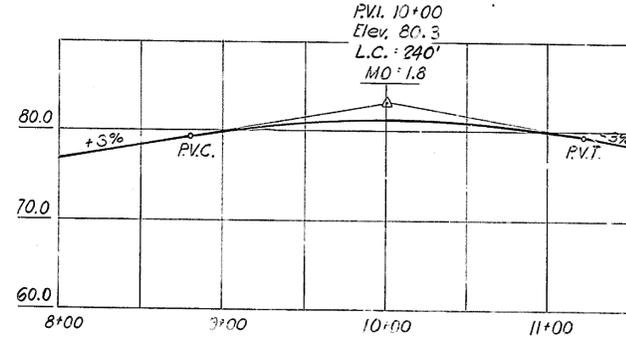
PLAN
SCALE: 1" = 20'



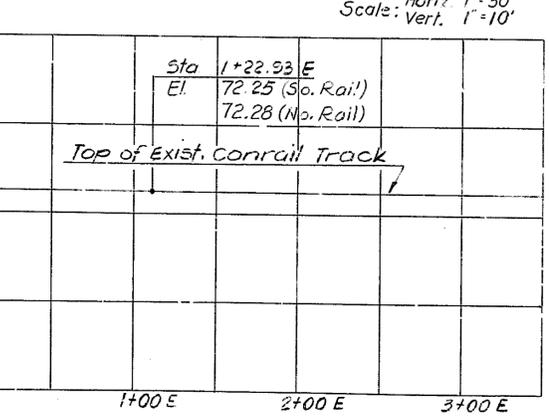
ELEVATION
SCALE: 1" = 20'



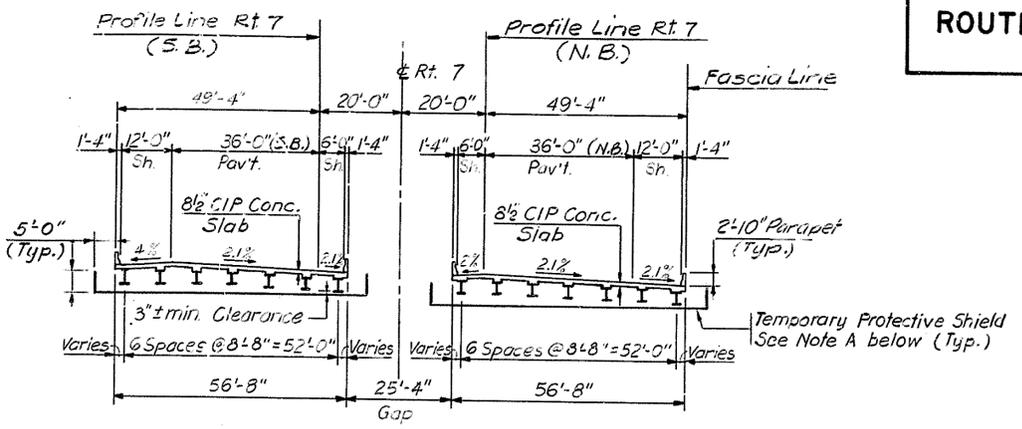
PROFILE OF ROUTE 7
Scale: Horiz. 1" = 50'
Vert. 1" = 10'



PROFILE OF DEVELOPER'S ROAD
Scale: Horiz. 1" = 50'
Vert. 1" = 10'



PROFILE OF CONRAIL R. R.
Scale: Horiz. 1" = 50'
Vert. 1" = 10'



SECTION A-A
SCALE: 1" = 20'

NOTE A: Contractor shall keep all areas below the bridges clear of all debris by installing a Temporary Protective Shield (See Section A-A). Contractor shall coordinate shield requirements and details with the Conrail Authorities. As a minimum, shield shall be capable of carrying 100 p.s.f. with an allowance of 50% for impact. Contractor shall submit shield design for approval. See Elevation, this sheet, for longitudinal extent of shield.

ROUTE 7 HORIZONTAL ALIGNMENT DATA
 R = 7639.44'
 Δ = 22°-20'-01"
 D = 00°-45'-00"
 T = 1508.05'
 LC = 2977.81'
 E = 147.42'

LIST OF DRAWINGS	
SHEET NO.	TITLE
B18	GENERAL PLAN AND ELEVATION
B19	GENERAL NOTES AND QUANTITIES
B20	SOUTH ABUTMENT I - PLAN AND ELEVATIONS
B21	SOUTH ABUTMENT II - PLAN AND ELEVATIONS
B22	NORTH ABUTMENT I - PLAN AND ELEVATIONS
B23	NORTH ABUTMENT II - PLAN AND ELEVATIONS
B24	ABUTMENTS - SECTIONS AND DETAILS
B25	ABUTMENT BAR SCHEDULE
B26	PIER 1A - PLANS AND ELEVATION
B27	PIER 1B - PLANS AND ELEVATION
B28	PIER 2A - PLANS AND ELEVATION
B29	PIER 2B - PLANS AND ELEVATION
B30	PIER BAR SCHEDULES
B31	FRAMING PLAN
B32	STRINGER DETAILS
B33	BEARINGS
B34	DECK SLAB - PLAN AND SECTION
B35	PREFABRICATED EXPANSION JOINT SYSTEM AND DECK SLAB DETAILS
B36	APPROACH SLAB - PLAN AND SECTIONS
B37	MISCELLANEOUS DETAILS
B1	BORING LOGS
B53	GUARDRAIL TO BARRIER CONNECTION AND BRIDGE PARAPET TRANSITION.

NEW SHEET-3/19/88

DELAWARE
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DIVISION OF HIGHWAYS

GENERAL PLAN AND ELEVATION

D. E. J. S. SCALE APPROVED BY
 T. A. C. As Noted
 C. P. K. BRIDGE ENGINEER

