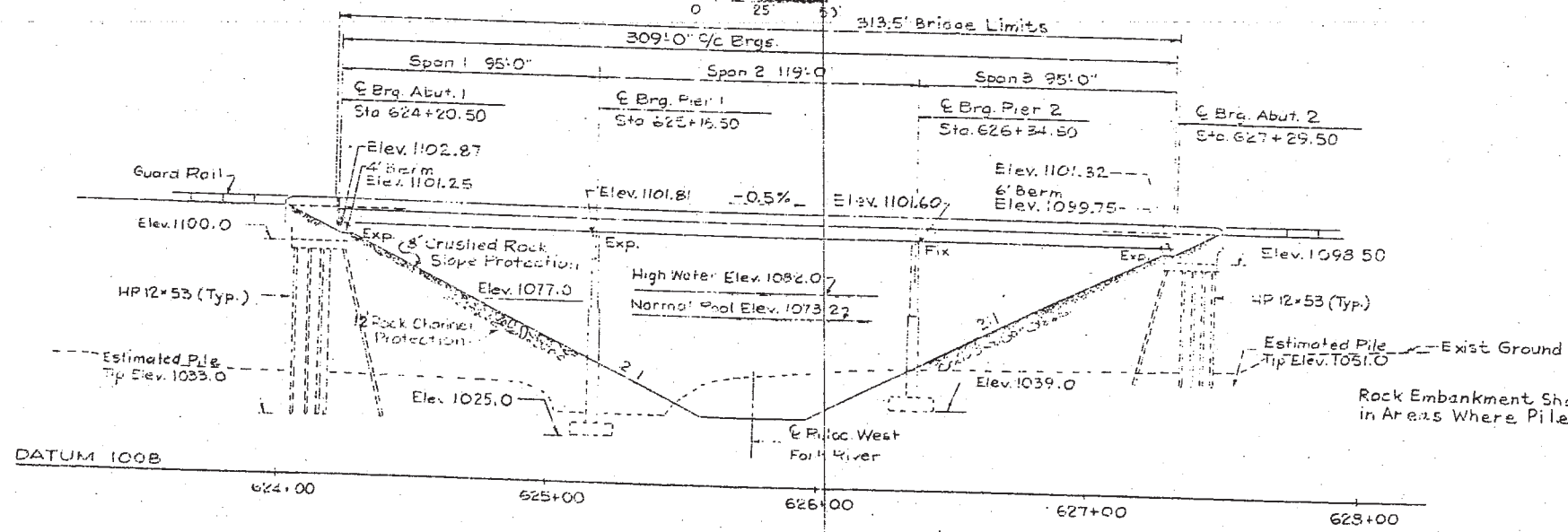
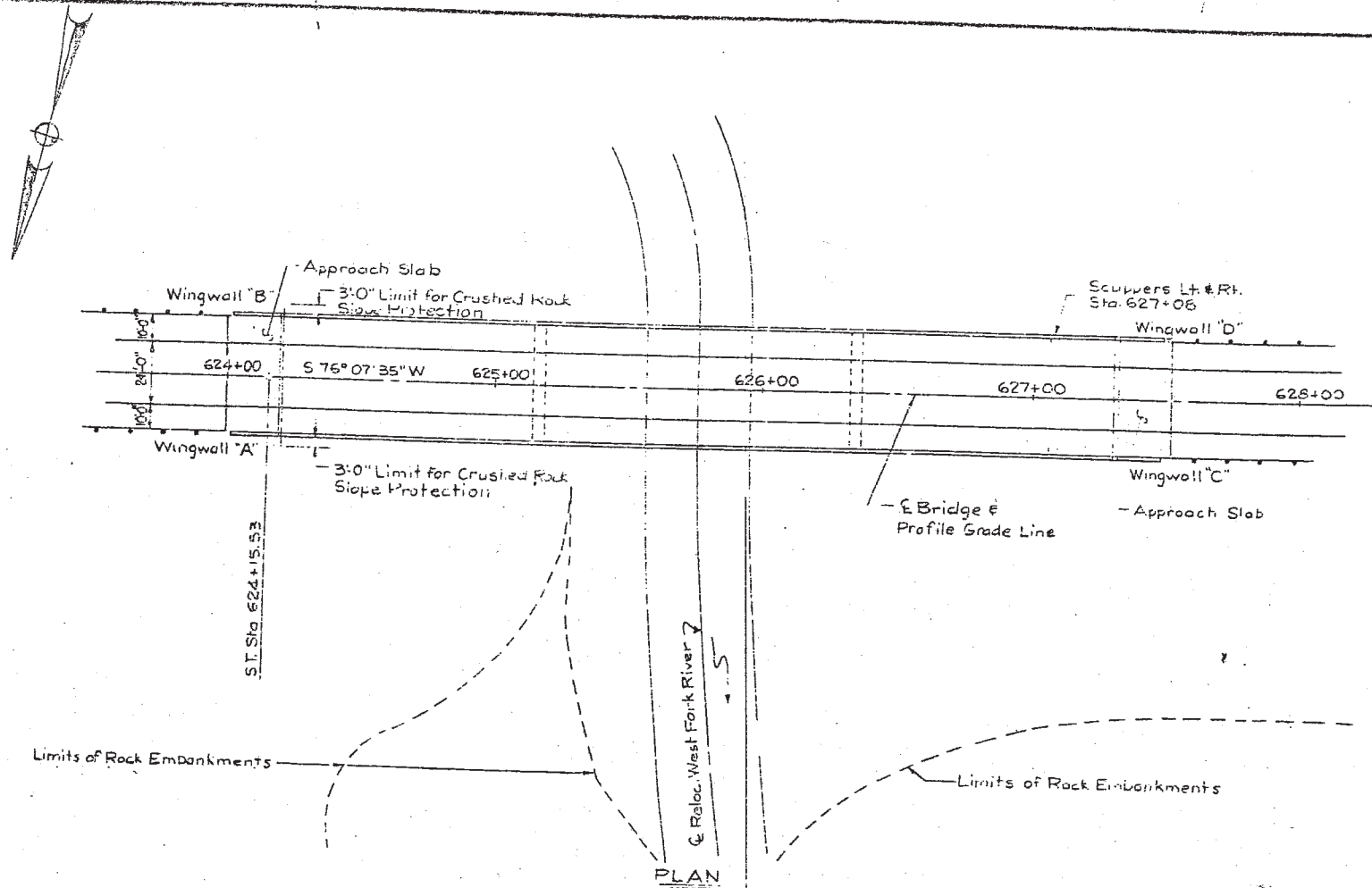
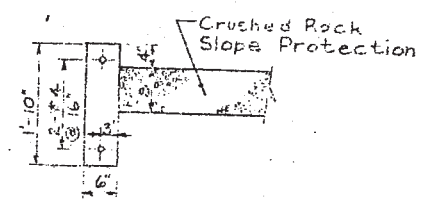


Public Road Dist.	State Dist. No.	State Proj. No.	Federal Proj. No.	Fiscal Year	County	Sheet No.	Total Sheets
W. VA	7	U321-19-14.11		19	LEWIS	93	478



FOR BORING LOCATIONS
SEE SHEET NO. 112



CONCRETE SIDE
PILE DETAIL



WEST VIRGINIA DEPARTMENT OF HIGHWAYS			
RELOCATED U.S. 19 OVER WEST FORK RIVER GENERAL PLAN AND ELEVATION			
MICHAEL BAKER, JR., INC. CONSULTING ENGINEERS CHARLESTON, W. VA. BEAVER, PA.			
DESIGNED BY G.H.	CHECKED BY J.T.	DATE 6-73	REVISIONS DATE BY 4-1979 SCALE AS SHOWN BRIDGE NO. 3231 DWG. NO. 1
DETAILED BY R.J.R.	CHECKED BY G.H.	DATE 4-79	
TRACED BY R.J.R.	CHECKED BY G.H.	DATE 5-71	

21-19-14.06

Public Road Div.	State Dist. No.	State Proj. No.	Federal Proj. No.	Fiscal Year	County	Sheet No.	Total Sheets
W. VA.	7	U321- 19- 14, 11		19	LEWIS	110	478

S-1
STA. 624+21
22' LT. E
GROUND ELEV. 1047.0

A	B	C		Elevation	Depth
7			TOPSOIL, Dk. Brown, Damp, Loose	1046.0	1.0'
10	1.5'	2-3-5	SAND, Silty, Brown, Damp Soft.	1044.0	3.0'
9	3.0'	2-3-4			
9	4.5'	2-2-2			
12	6.0'	1-2-2	SAND, Some Silt, Brown, Damp, Very Loose to Loose.		
14	7.5'	1-2-2		1039.5	7.5'
14	9.0'	1-1-2	SAND, Some Silt, Wet, Very Loose.		9.0'
16	12.5'	2-3-4	SAND, Trace Silt, Gray Wet, Loose.		
15	12.0'	1-2-2		1033.5	13.5'
15	13.5'	1-2-75			
17.0'	89%		CLAYSHALE, Gray, Soft, Highly Weathered, Poorly Developed Laminar, Close to Moderately Fractured, Fair Recovery	1028.5	18.5'
22.0'	86%		SILTSTONE-Gray, Med. Hard, Fresh, With Zones of Sandy Laminar, Laminated, Moderately Fractured		
27.0'	81%			1020.0	27.0'

End of Boring @ 27'-0"

S-2
STA. 624+21
22' RT. E
GROUND ELEV. 1045.5

A	B	C		Elevation	Depth
5	1.5'	1-3-4	TOPSOIL, Dk. Brown, Damp, Loose	1045.0	0.5'
13	3.0'	2-4-4	SILT, Some Fine Sand, Some Clay, Brown, Damp, Loose		
15	4.5'	1-2-2			
22	6.0'	3-3-2		1039.5	6.0'
20	7.5'	1-1-1	SAND, Some Gravel, Trace Silt, Trace Clay, Gray, Wet, Very Loose to Loose		
19	9.0'	1-2-3			
16	10.5'	2-2-11		1034.0	11.5'
75	12.0'	7-26-75	SHALE-Gray, Very Soft	1033.5	12.0'
			CLAYSHALE, Gray, Soft to Med. Hard, Slightly Weathered, Laminated, Close Fractured	1031.5	14.0'
17.0'	72%		CLAYSTONE, Gray, Soft, Weathered, Indistinct Bedding, Moderately Fractured		
			SANDSTONE, Gray, Hard, Fresh, Fine Grained With Siltstone Seams Between 20.7 And 21.6	1026.8	18.7'
22.0'	100%			1023.5	22.0'

End of Boring @ 22'-0"

S-3
STA. 625+31
12 LT. E
GROUND ELEV. 1037.8

A	B	C		Elevation	Depth
12	1.5'	7-22-75	CLAYSHALE, Gray, Damp, Dense, Mixed With Some Sand	1036.3	1.5'
18	3.5'	45%	SILTSTONE-CLAYSTONE INTERBEDDED, Gray, Soft to Med. Hard, Weathered, Very Close Fractures, Poor Recovery	1032.3	5.5'
5.5'	35%				
7.0'	100%		SILTSTONE, Gray, Med. Hard, Sandy, Fresh, Close Fractures, Good Recovery	1030.1	7.7'
			SHALE (REDSTONE) Black, Soft, Fresh With Fragmentary Cleat, Fair Recovery	1028.1	9.7'
12.0'	100%		CLAYSTONE, Gray, Soft, Fresh, Indistinct Bedding, Sandy to Moderately Fractured, Good Recovery	1025.8	12.0'
			SILTSHALE, Gray, Med. Hard, Fresh, Laminated, Moderately Fractured, Good Recovery	1023.2	14.6'
17.0'	85%		CLAYSTONE, Gray, Soft, Fresh, Indistinct Bedding, Very Close to Moderately Fractured, With Few Very Fine Pyrite Crystals Disseminated Between 15.0 And 17.0	1020.3	17.5'
22.0'	90%		SILTSHALE, Gray, Med. Hard to Hard, Sandy, Fresh, Laminated, Moderately Fractured, Good Recovery	1015.5	22.0'

End of Boring @ 22'-0"

S-4
STA. 625+06
12 RT. E
GROUND ELEV. 1038.9

A	B	C		Elevation	Depth
1	1.5'	1-1-1	FILL, Brown, Damp	1037.4	1.5'
1	3.0'	1-1-3	SANDY SILT, Trace Gravel, Dark Gray, Wet, Very Loose	1035.9	3.0'
7	4.5'	1-3-20	SAND, Coarse, Some Gravel, Trace Silt, Gray, Wet, Medium Dense		
25	6.0'	12-20-40		1032.4	6.5'
50	7.5'	20-75	CLAYSHALE, Gray, Wet, Very Soft, Discon. Lensed	1031.4	7.5'
100			SILTSTONE, Gray, Med. Hard, With Soft Seams, Weathered, Very Highly Fractured With Clay, Sandy, Fair Recovery (0.2')	1030.1	8.8'
			CLAY (REDSTONE) Black, Soft, Fresh With Fragmentary Cleat, Fair Recovery (0.2')	1028.9	10.0'
12.0'	60%		CLAYSTONE, Gray, Soft, Slightly Weathered, Indistinct Bedding, Close Fractures, Poor Recovery	1024.9	14.0'
17.0'	62%		CLAYSTONE, Gray, Medium Hard, Fresh, Indistinct Bedding, Very Close to Moderately Fractured, With Few Very Fine Pyrite Crystals Disseminated Between 15.0 And 17.0	1020.9	18.0'
22.0'	54%		SILTSTONE, Gray, Hard, Sandy, Fresh, Indistinct Bedding, Moderately Fractured, Grading Into Fine Grained SANDSTONE Between 20.3' And 21.4'	1016.9	22.0'

End of Boring @ 22'-0"

REV.	DATE	BY	REVISIONS	DATE	BY
DESIGNED BY	CHJ		CHECKED BY	B.C.	
DATE	12-78		DATE	12-78	
TRACED BY	SJS/RJK		CHECKED BY	CHJ	
DATE			DATE		

WEST VIRGINIA DEPARTMENT OF HIGHWAYS			
RELOCATED U.S. 19 OVER WEST FORK RIVER TEST BORINGS			
MICHAEL BAKER, JR., INC. CONSULTING ENGINEERS CHARLESTON, W. VA.			
DATE	12-78	SCALE	3/8" = 1'-0"
BRIDGE NO.	3231	DWG. NO.	18

Public Road Div.	State Dist. No.	State Proj. No.	Federal Proj. No.	Local Proj. No.	County	Station	Total Station
W. VA.	7	U321-19-14, 11		19	LEWIS	111	478

S-5
STA 626+43
12 LT. C
GROUND ELEV. 1054.7

S-6
STA 626+27
12 RT. C
GROUND ELEV. 1054.0

S-7
STA 627+36
26 LT. C
GROUND ELEV. 1054.7

S-8
STA 627+30
22 RT.
GROUND ELEV. 1055.1

			Elevation	Depth
A	B	C		
13	1.5'	3-4-4	TOPSOIL, Brown, Damp, Med. Dense	1054.3 0.3'
15	3.0'	4-5-7	SAND, Some Gravel, Little Silt, Little Clay, Brown, Damp, Medium Dense, with Sand Stone Cobble Between 4.0' and 4.5'	
40	4.5'	11-14-10		
32	6.0'	9-9-12		
19	7.5'	4-8-30		
35	9.0'	12-9-12	SAND and GRAVEL, Little Silt, Little Clay, Brown, Med. Medium Dense	1047.2 7.5'
27	10.5'	7-7-20		1044.2 10.5'
75	12.0'	25-25-10	CLAY, Reddish-Brown, Damp, Hard, Highly Decomposed (Claystone)	1041.7 13.0'
97	13.0'	38-46	CLAYSTONE, Dark Gray, Soft, Weathered, Indistinct Bedding	1033.7 14.0'
	16.0'	4-6-10	SILTSTONE, Gray Medium Hard, Sandy, Fresh, Highly Fractured With Vertical Joints, and Soft Seams, Poor Recovery	
	22.0'	55%	CARBONACEOUS SHALE Black, Soft	1024.7 24.3'
	27.0'	64%	COAL (REDSTONE) Black, Soft, Good Quality, No Significant Partings	1027.3 27.4'
	32.0'	46%	CLAYSTONE, Gray, Soft, Indistinct Bedding, Close Fractures, Poor Recovery	1023.7 31.0'
			SILTSHALE, Gray, Med. Hard, Fresh, Close to Moderately Fractured	1022.7 32.0'
End of Boring @ 32.0				

1 W.L.
BOTTOM OF FTG. PIER #2 ELEV. 1039

2 W.L.

			Elevation	Depth
A	B	C		
12	1.5'	2-2-4	TOPSOIL, Brown, Damp, Loose	1053.7 0.3'
15	3.0'	2-4-6	SILTY CLAY, Trace Gravel, Brown, Damp, SHIF	
21	4.5'	5-8-10		
22	6.0'	8-10-12	SANDY SILT, Trace Clay, Trace Gravel, Brown-Gray, Damp, Medium Dense	1048.0 6.0'
17	7.5'	13-12-12	SANDY SILT, Some Gravel, Loose	1046.5 7.5'
30	9.0'	2-8-23	CLAYSTONE, Gray, Very Soft, Decomposed, With Iron Staining	1045.0 9.0'
76	10.5'	15-40-36	SILTSTONE, Gray, Soft, Sandy, Weathered, With Very Soft, Claystone Seams, Very Closely Fractured, Poor Recovery	1042.0 12.0'
55	12.0'	43-60-98	SANDSTONE, Gray, Hard, Fine Grained, Fresh, Laminated, Some Silty, Zones Moderately Fractured, Good Recovery	1039.0 15.0'
	17.0'	72%	SILTSTONE, Gray, Medium Hard, With Soft Seams, Fresh, Close to Moderately Fractured, Poor Recovery, Few Fine Scattered Pyrite Crystals	1037.0 17.0'
	22.0'	54%	COAL (REDSTONE) Black, Soft, Fractured, Poor Recovery (0.4')	1029.0 25.0'
			CLAYSTONE, Gray, Soft, Indistinct Bedding, Fresh, Moderately Fractured, Poor Recovery	1027.0 27.0'
			SILTSTONE, Gray, Med. Hard, Fresh, Close to Moderately Fractured, Dark Gray, Laminated, Below 130 ft. 51.0' Good Recovery	1026.0 28.0'
	32.0'	53%		1022.0 32.0'
End of Boring @ 32.0				

1 W.L.
BOTTOM OF FTG. PIER #2 ELEV. 1039

2 W.L.

			Elevation	Depth
A	B	C		
9	1.5'	2-6-12	SILT CLAY, Brown, Med. Med. Soft, Some Gravel	1052.8 1.5'
20	3.0'	15-39-75	SHALE, Gray, Damp, Very Soft, Decomposed, Some Iron Staining	1051.3 3.0'
98	5.0'	80%	SANDSTONE, Gray, With Brown Staining, Hard, Weathered, Fine Grained, Laminated, Close to Moderately Fractured	
	10.0'	100%	CLAYSTONE, Gray, Soft, Slightly Weathered, Slightly Developed Laminations, Moderately Fractured	1045.8 8.5'
			CLAYSTONE, (REDBEDS) Reddish Brown, Very Soft to Soft, Weathered, Slightly Developed Laminations, Moderately Fractured, Poor Recovery	1044.3 10.0'
	15.0'	52%		1039.3 15.0'
End of Boring @ 15.0				

1 W.L.

2 W.L.

			Elevation	Depth
A	B	C		
12	1.5'	2-3-22	(a)	1054.6 0.3'
42	2.5'	42-75	SHALE, Gray, Damp, Very Soft, Laminated, Weathered	1053.6 1.5'
	4.5'	65%	(c)	1051.7 3.4'
	7.0'	96%	(d)	1050.0 5.1'
			SANDSTONE, Gray, Hard, Fresh, Medium Grained, Very Thin to Thinly Bedded, Generally Moderately Fractured	
	12.0'	100%		1043.1 12.0'
End of Boring @ 12.0				

- (a) TOPSOIL, Brown, Damp, Loose
(b) CLAY, Brown, Damp, Very Soft, Grading to Weathered Shale, Heavy Iron Staining
(c) SANDSTONE, Gray, Hard, Slightly Weathered, Medium Grained, with Diagonal Clay Filled Joint
(d) CLAYSHALE, Gray, Soft to Medium Hard, Containing Some Sand, Moderately Weathered, Fairly Developed Laminations, Very Close Fractures, Poor Recovery, with Vertical Joint Between 4.8' & 5.0'

GENERAL NOTES

- Column "A" — Denotes Blows Per Foot on Casing
Column "B" — Denotes Depth of Lower Limit of Spoon Sample or Bottom of Core Run
Column "C" — Denotes Blows for Each 6 inches on Spoon Sampler or Percent of Core Recovery
• Size of Casing - 3 1/2" I.D.
• Weight of Hammer on Casing - 500 Pounds
• Size of Sampling Spoon - 1 7/8" inches I.D.
• Standard Split Spoon
• Weight of Hammer on Spoon - 140 Pounds
• Drop of Hammer on Spoon - 30 inches
• Size of Core - 2 1/8 inches Diameter
• Drop of Hammer on Casing - 24 inches
• 1 W.L. - Indicates Ground Water Elevation at 0 Hours
• 2 W.L. - Indicates Ground Water Elevation at 24 Hours

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS

RELOCATED U.S. 19 OVER
WEST FORK RIVER
TEST BORINGS

MICHAEL BAKER, JR., INC.
CONSULTING ENGINEERS
CHARLESTON, W. VA.

BEAVER, PA.

REV.	SHEET	DATE	BY	DATE	SCALE	BRIDGE NO.	DWG. NO.
DESIGNED BY	GHJ	CHECKED BY	B.C.	DATE	12-78	3231	19
DETAILED BY	GHJ	CHECKED BY	GHJ	DATE	12-78		
TRACED BY		CHECKED BY		DATE			

Public Road Dist.	State Dist. No.	State Proj. No.	Federal Proj. No.	Fiscal Year	County	Sheet No.	Total Sheets
W.VA.	7	U321-19-14.11		19	LEWIS	112	478

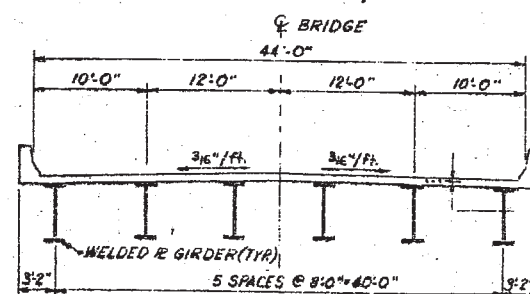
CORE BORING SCHEDULE					
BORING NO.	STATION	OFFSET	LOCATION	EST. DEPTH	DRILED DEPTH
S-1	624+21	22' LT.	RELOC. U.S. 19	22'	27'
S-2	624+21	22' RT.	"	22'	22'
S-3	625+31	12' LT.	"	16'	22'
S-4	625+36	12' RT.	"	16'	22'
S-5	626+43	12' LT.	"	22'	32'
S-6	626+47	12' RT.	"	22'	32'
S-7	627+35	26' LT.	"	16'	15'
S-8	627+30	22' RT.	"	16'	12'

⊕ Structure Boring Location.

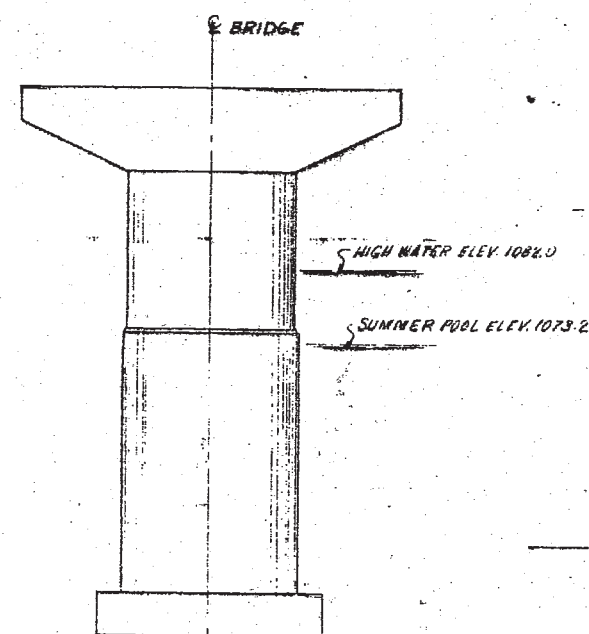
FOUNDATION RECOMMENDATIONS

- ABUTMENT NO. 1-50 TON CAPACITY STEEL HP 12-53 PILES
 - PIER NO. 1-SPREAD FOOTING, MAX. ALLOW. BEARING PRESSURE 5 TONS PER. SQ. FT.
 - PIER NO. 2-SPREAD FOOTING, MAX. ALLOW. BEARING PRESSURE 5 TONS PER. SQ. FT.
 - ABUTMENT NO. 2-50 TON CAPACITY STEEL HP 12-53 PILES
- NOTE: ALL PILES SHALL BE POINT BEARING PILES

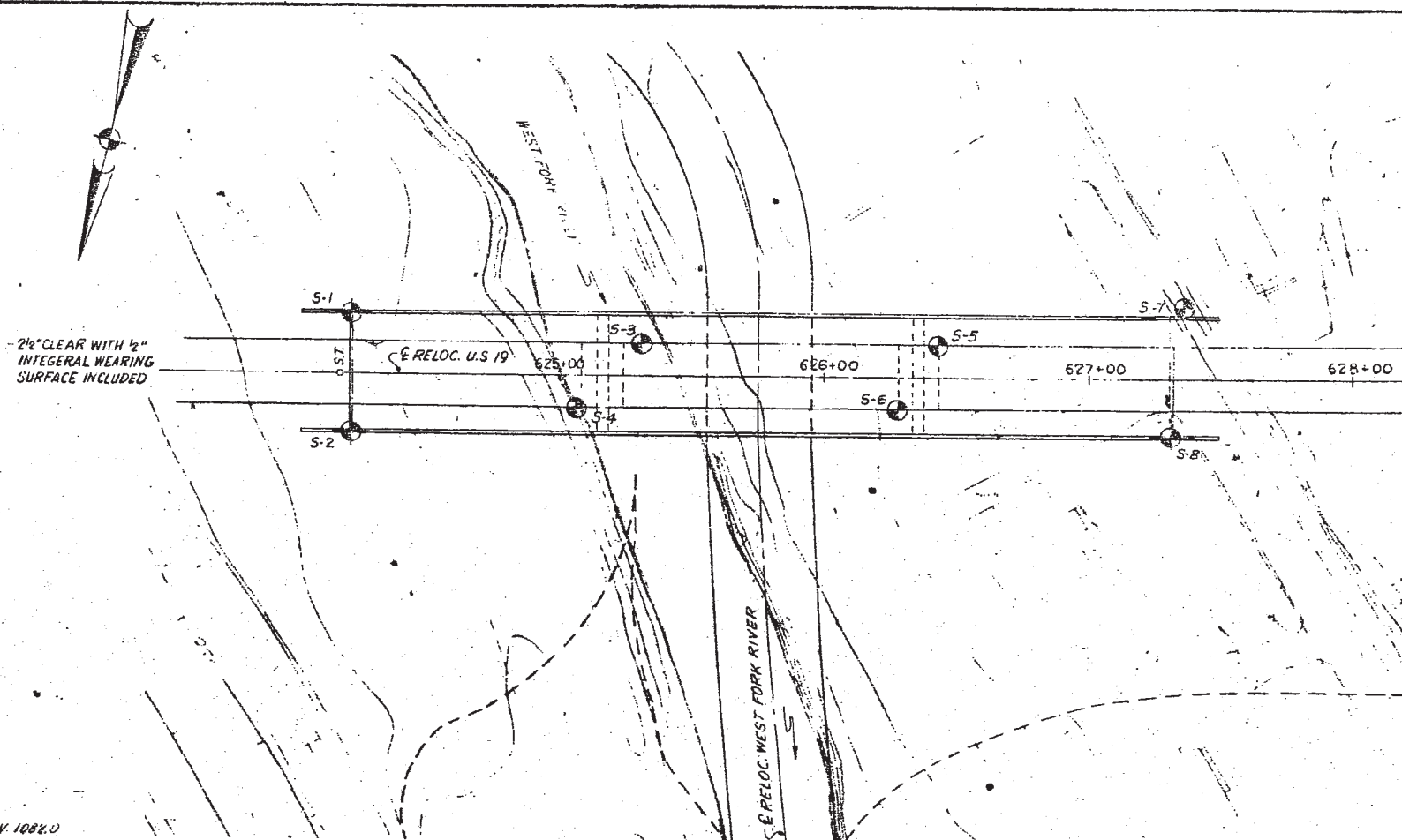
WEST VIRGINIA DEPARTMENT OF HIGHWAYS			
RELOCATED U.S. 19 OVER WEST FORK RIVER SITUATION PLAN			
MICHAEL BAKER, JR., INC. CONSULTING ENGINEERS CHARLESTON, W. VA. BEAVER, PA.			
DESIGNED BY CHKD BY TRACED BY	GHJ RJK RJK	DATE 10-78 10-78 10-78	SCALE AS SHOWN
REVISIONS	DATE	BY	



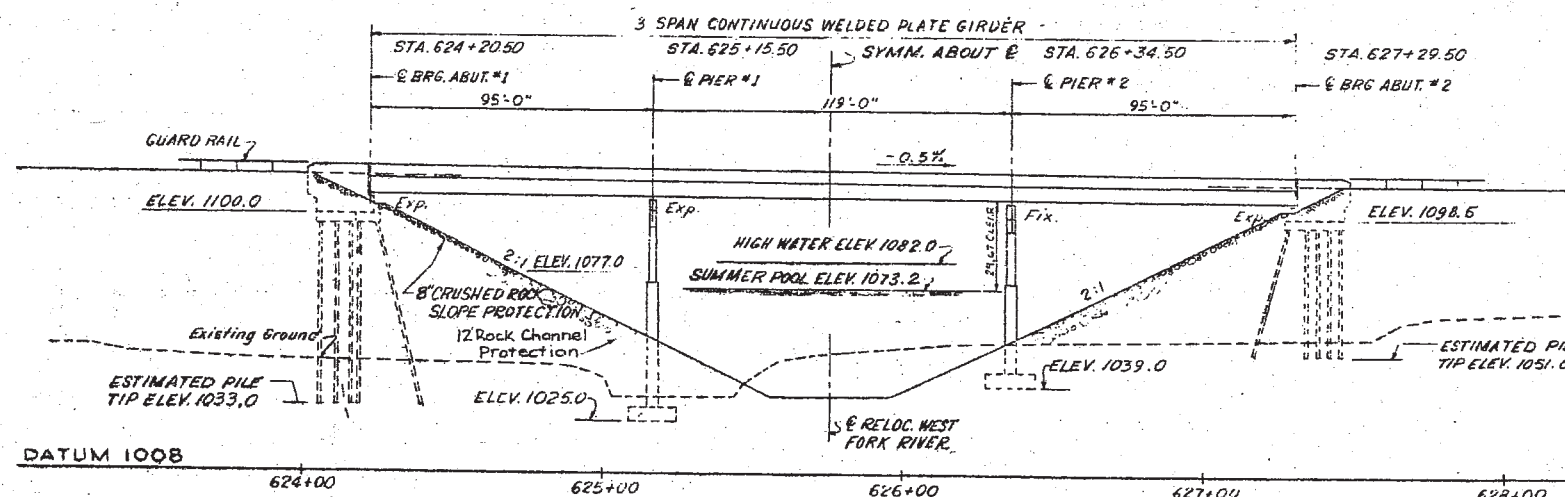
TYPICAL DECK SECTION



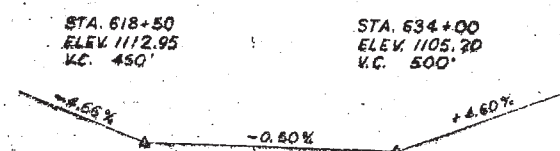
TYPICAL PIER ELEVATION



PLAN



ELEVATION



VERTICAL CURVE DATA