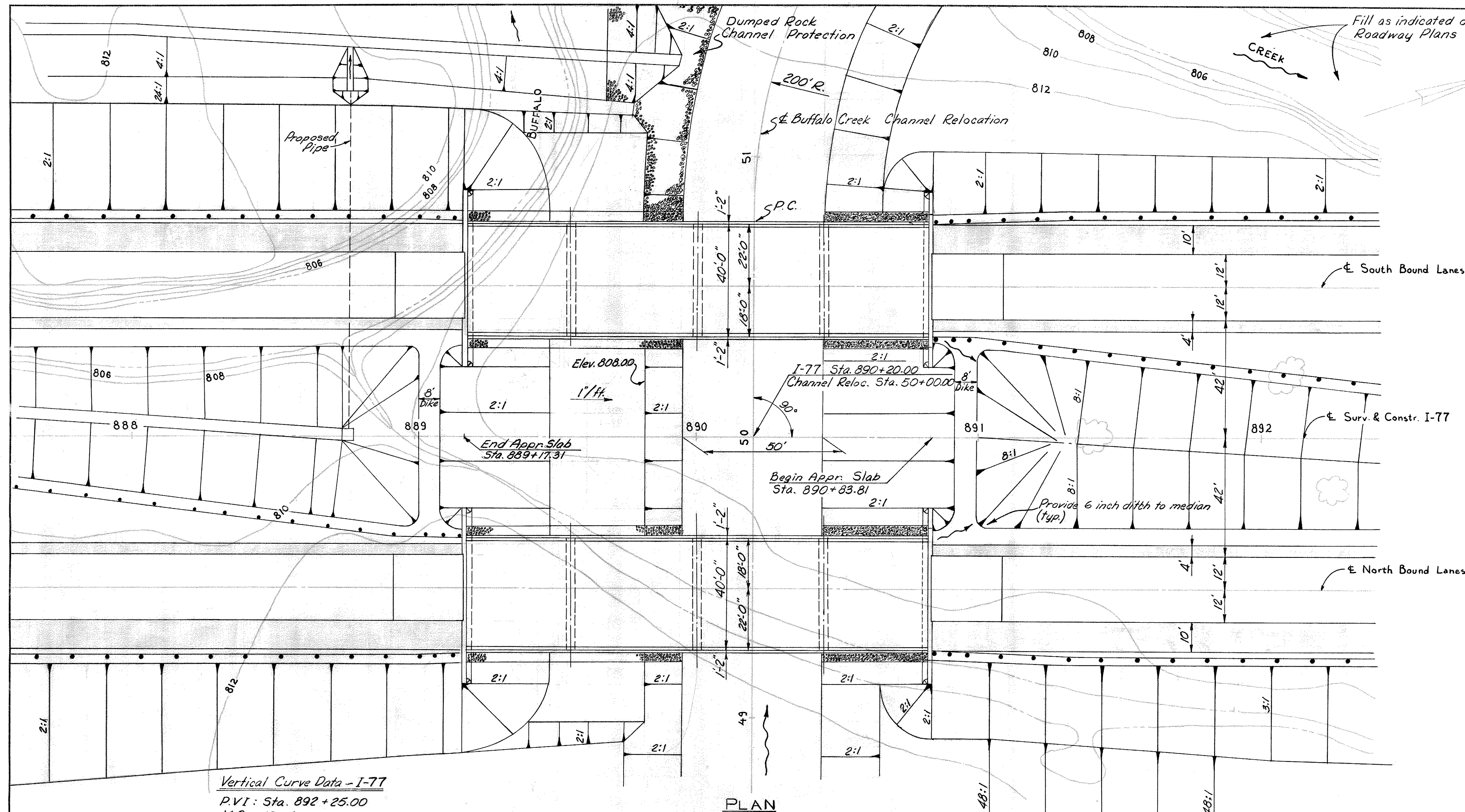
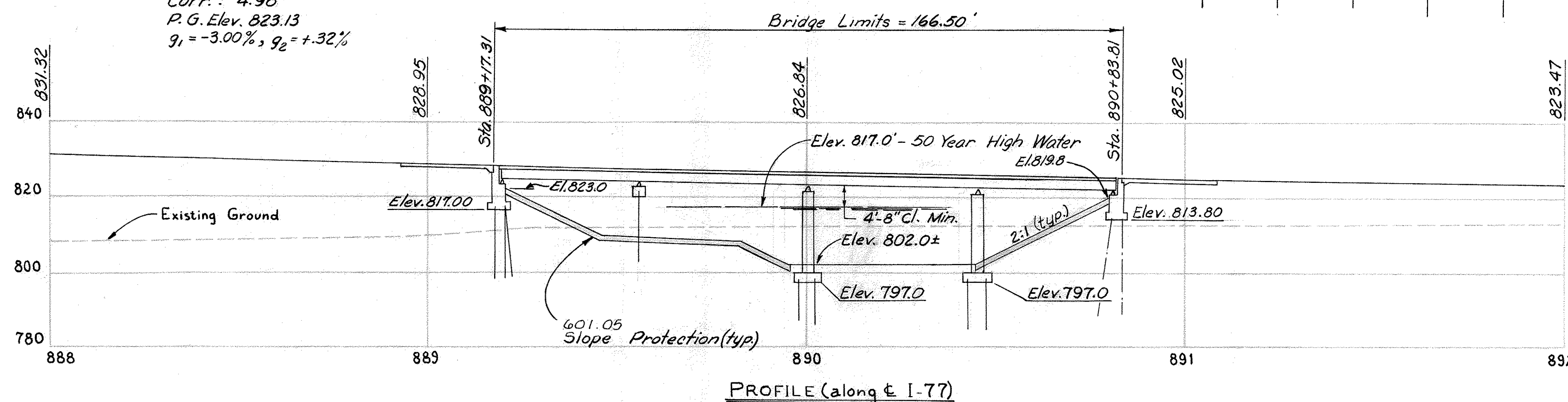


NOBLE - GUERNSEY COUNTIES
NOB-77-16.28 / GUE-77-0.00



Vertical Curve Data - I-77

P.V.I. : Sta. 892 + 25.00
V.C. : 1200'
Elev. : 818.15
Corr. : 4.98'
P.G. Elev. 823.13
 $g_1 = -3.00\%$, $g_2 = +32\%$



NOTES

Drainage Area = 40 square miles
 Predicted High Water Elev. = 817.0' (50 yr.)
 50 Year Q = 6000 cfs
 Proposed Gross Waterway = 1375 square feet.
 (below predicted high water.)

Estimated average pay length for piles

Estimated average pay length

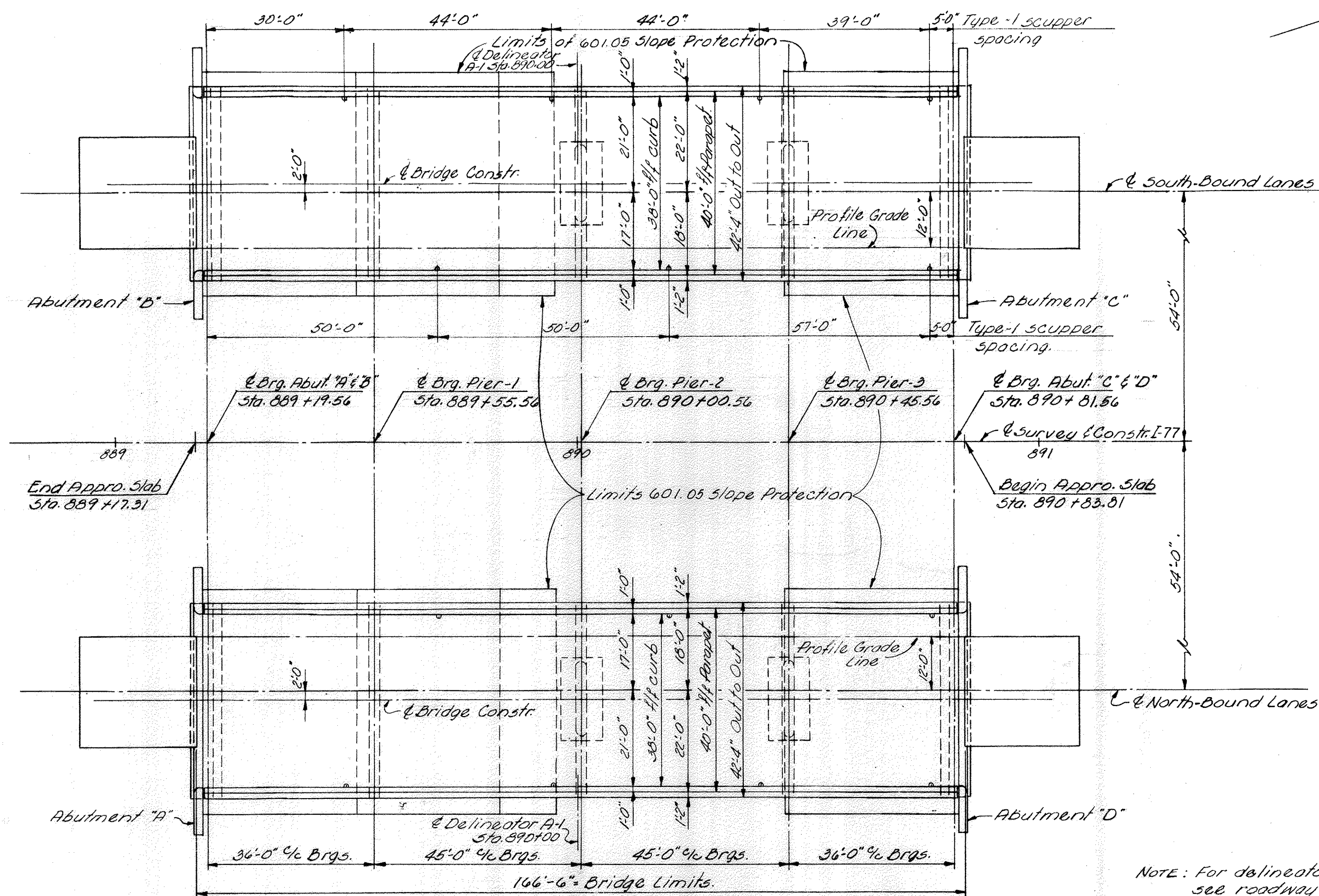
Piers No.1	57'
Piers No.2	25' to 35'
Piers No.3	13' to 25'
North Abutments	20' to 32'
South Abutments	55'

601.05 shall be included in Structure Quantities. 601.08 and additional channel work shall be included in Roadway Quantities. For additional channel relocation details see Roadway Plans.

ALDEN E. STILSON & ASSOCIATES, LIMITED
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COLUMBUS, OHIO

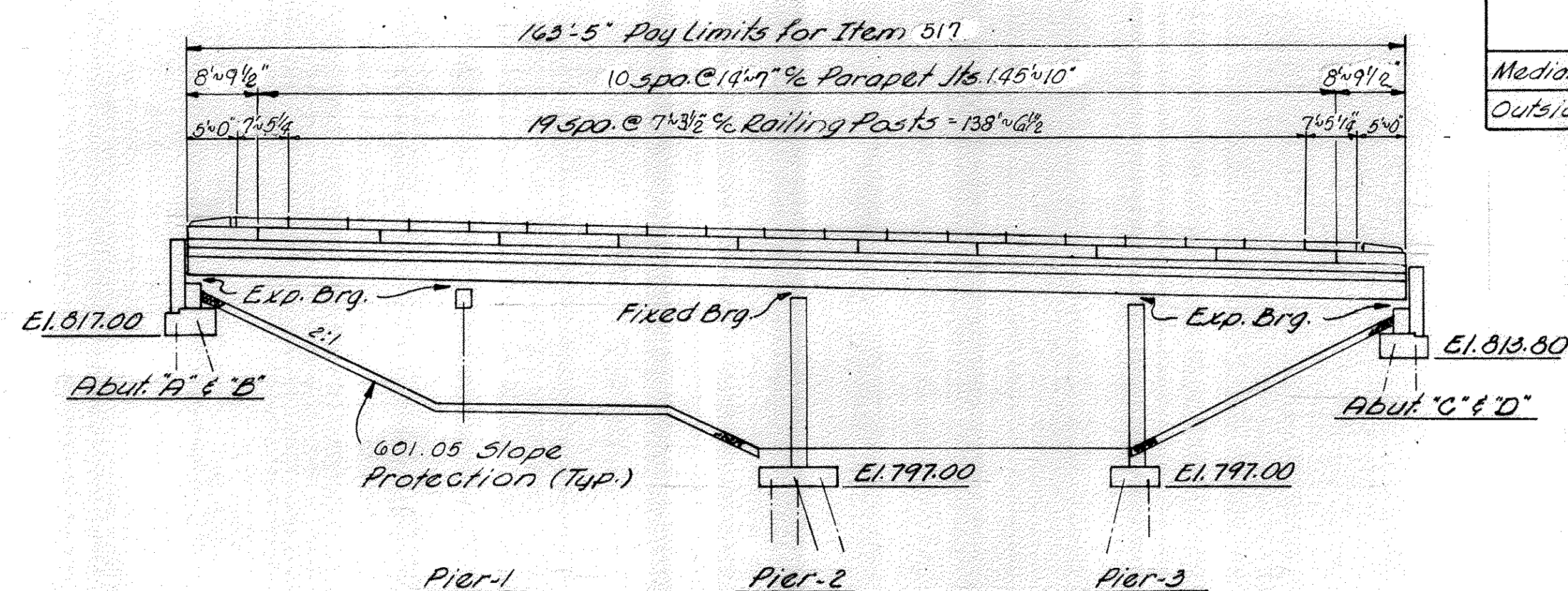
SITE PLAN
BRIDGE N^o NOB-77-1679 L&R
I-77 OVER BUFFALO CREEK
NOBLE COUNTY STA. 889+17.31
STA. 890+83.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
A.N.A.	A.N.A.	Hennigan	fwd	TLU	6-1-65	



PLAN

NOTE: For delineator details
see roadway plans.



ELEVATION

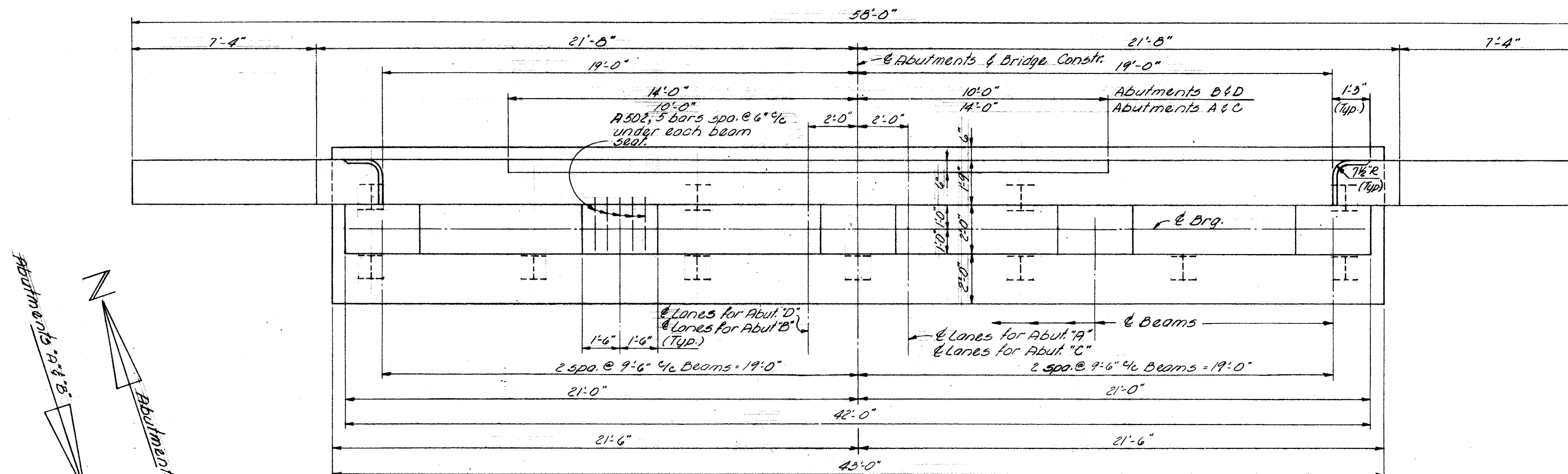
BULB ANGLE GUTTER ELEVATIONS																		
	SPAN-1					SPAN-2				SPAN-3				SPAN-4				
	Q.Brg. S.Abut.	.25 pt.	.50 pt.	.75 pt.	Q.Brg. Pier-1	.20 pt.	.50 pt.	.80 pt.	Q.Brg. Pier-2	.20 pt.	.50 pt.	.80 pt.	Q.Brg. Pier-3	.25 pt.	.50 pt.	.75 pt.	Q.Brg. N.Abut.	
Median side bulb angle gutter	828.44	828.25	828.06	827.87	827.67	827.49	827.22	826.95	826.76	826.59	826.34	826.08	825.91	825.75	825.59	825.43	825.27	
Outside bulb angle gutter	828.38	828.19	828.00	827.80	827.61	827.43	827.16	826.88	826.70	826.53	826.28	826.02	825.85	825.69	825.53	825.37	825.20	

Elevations shown above are the elevations required at the bulb of the bulb angle gutters before the concrete deck is placed so that proper allowance will be made for the dead load deflections caused by the weight of the concrete.

For end post reinforcing & details
see Std. Dwg. BR-1-65

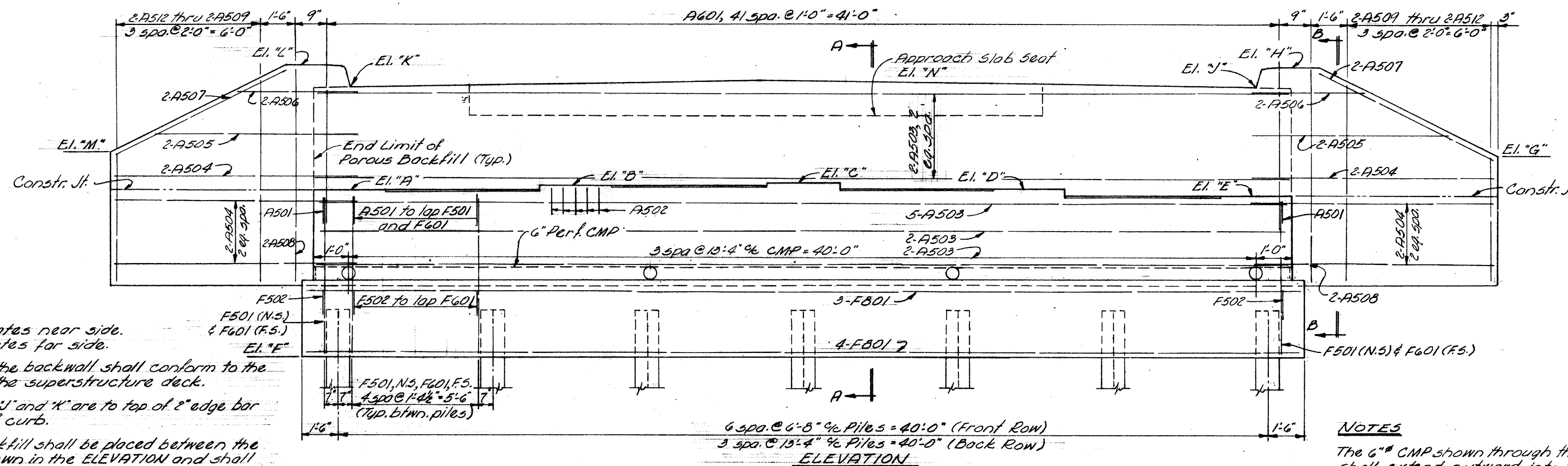
ALDEN E. STILSON & ASSOCIATES, LIMITED CONSULTING ENGINEERS COLUMBUS, OHIO					
GENERAL PLAN & ELEVATION BRIDGE No. NOB-77-1679 L&R I-77 OVER BUFFALO CREEK NOBLE COUNTY					
STA-889+17.31 STA-890+83.81					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
WITHEM	BAB		fwd	TLU	6-1-65

NOBLE - GUERNSEY COUNTIES
NOB-77-16.28 / GUE-77-0.00



PLAN

NOTE:
All piles shall be 10 BP42. Batter
entire front row



ELEVATION

NOTES

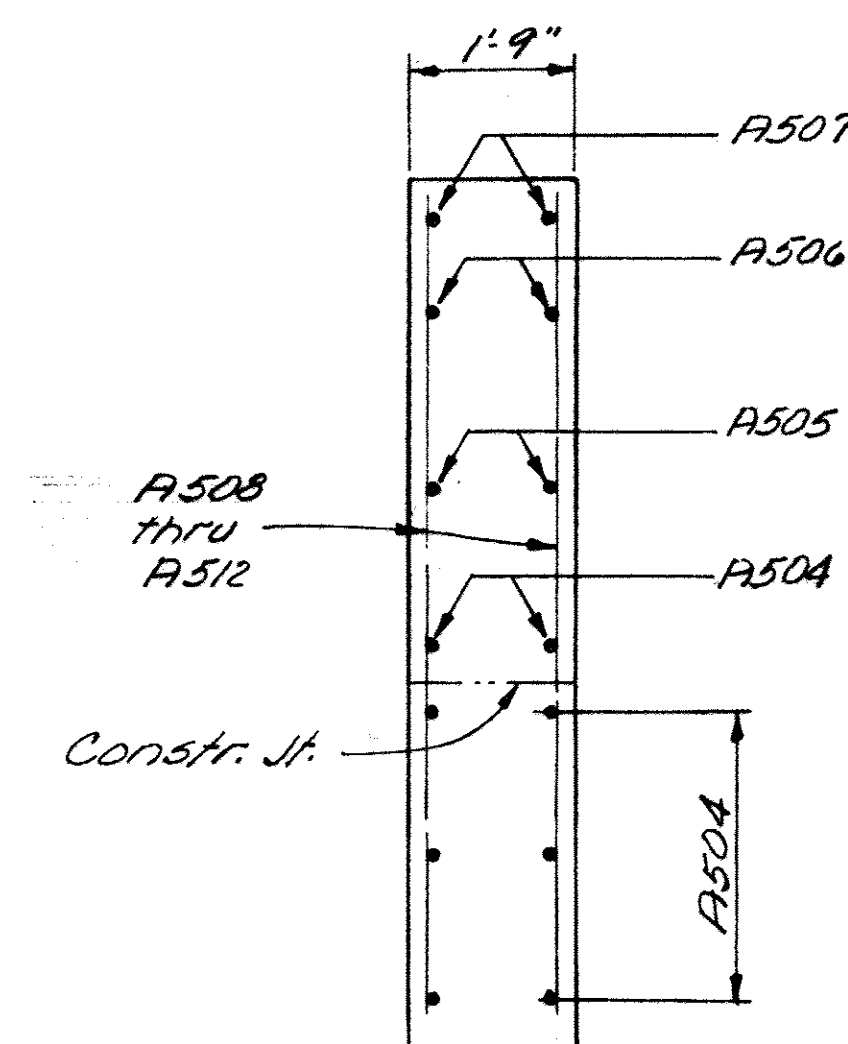
N.S. indicates near side.
F.S. indicates far side.

The top of the backwall shall conform to the
crown of the superstructure deck.

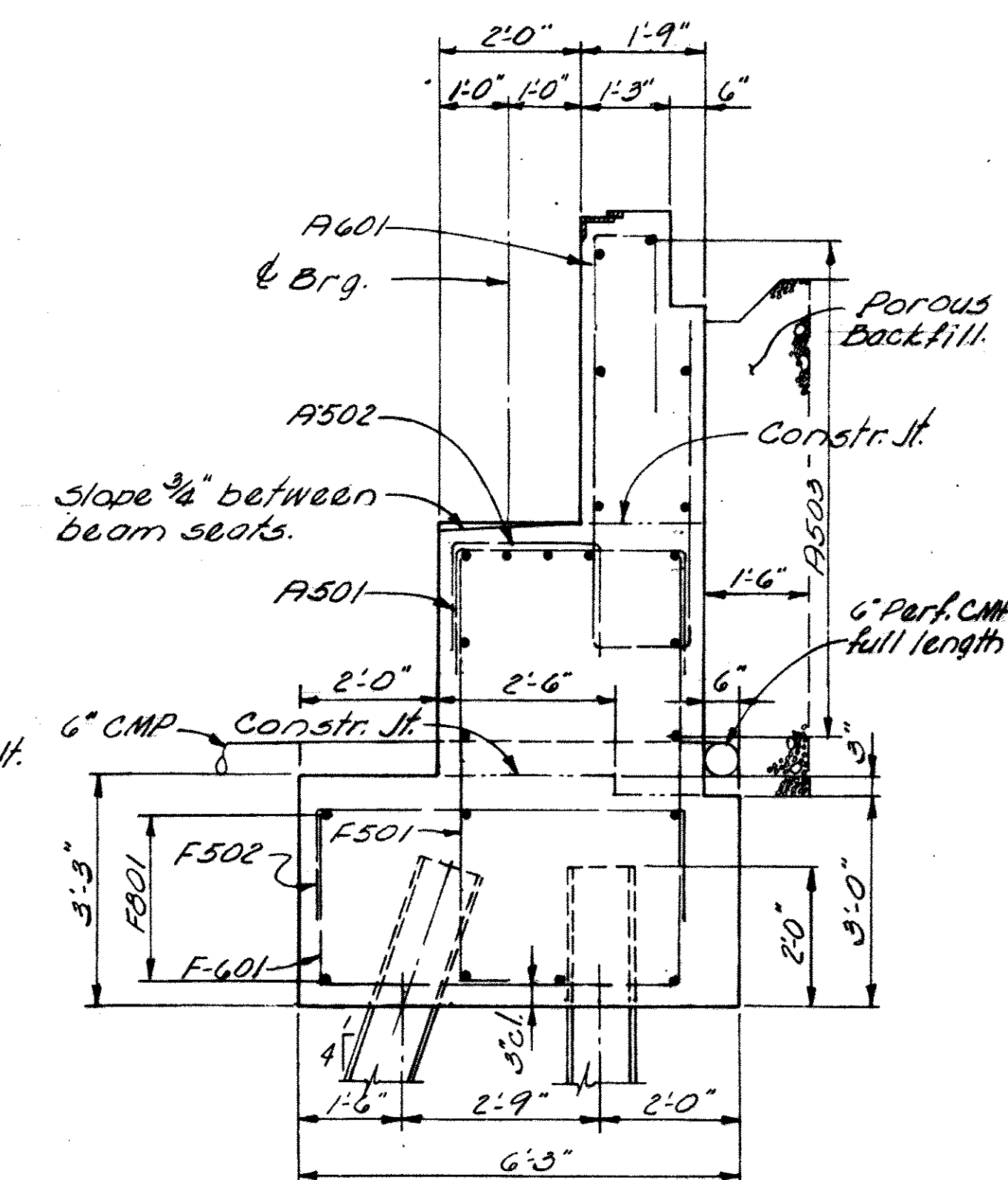
Elevations 'J' and 'K' are to top of 2" edge bar
at face of curb.

Porous backfill shall be placed between the
limits shown in the ELEVATION and shall
extend upward to the approach slab or to
the bottom of the stabilized shoulders or
to the surface of the earth shoulders.
Excavation therefor, in excess of that
required for construction of the abutment, shall
be considered as paid for in the bid price
per cu. yd. paid for porous backfill.

LOCATION	A	B	C	D	E	F	G	H	J	K	L	M	N
ABUTMENT "A"	823.98	824.13	824.28	824.19	824.04	817.00	825.65	829.32	828.47	828.41	829.26	825.59	827.23
ABUTMENT "B"	824.04	824.19	824.28	824.13	823.98	817.00	825.59	829.26	828.41	828.47	829.32	825.65	827.23
ABUTMENT "C"	820.80	820.95	821.10	821.01	820.86	813.80	822.41	826.08	825.23	825.17	826.02	822.35	823.96
ABUTMENT "D"	820.86	821.01	821.10	820.95	820.80	813.80	822.35	826.02	825.17	825.23	826.08	822.41	823.96



SECTION B-B



SECTION A-A

NOTES

The 6" CMP shown through the abutment
shall extend outward into the crushed
aggregate slope protection.

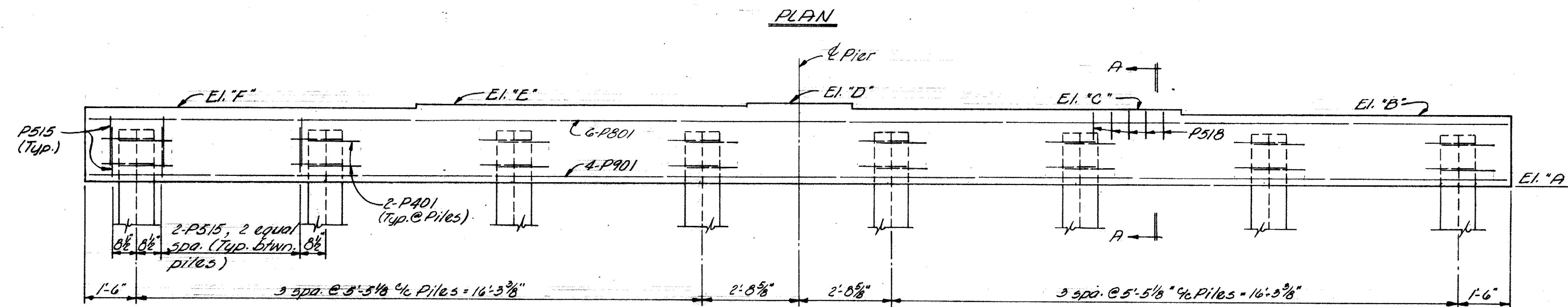
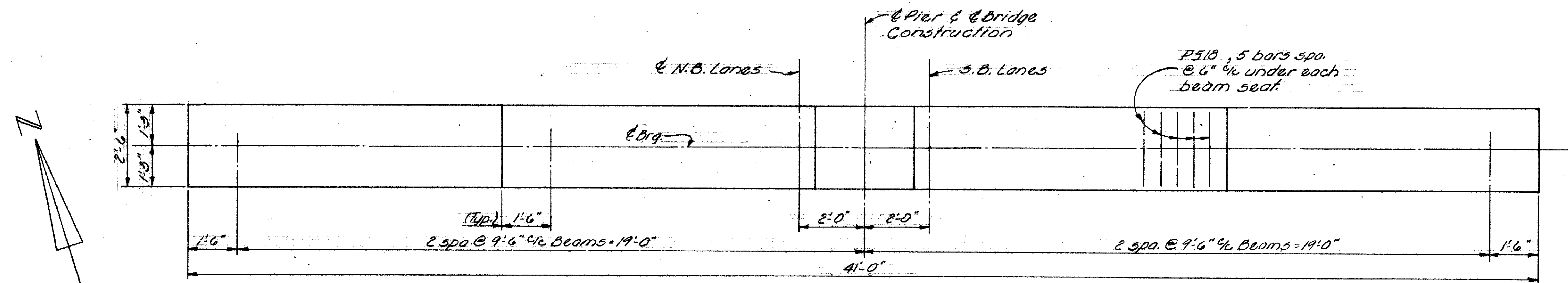
Outside ends of 6" Perforated CMP shall
be capped.

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COLUMBUS, OHIO

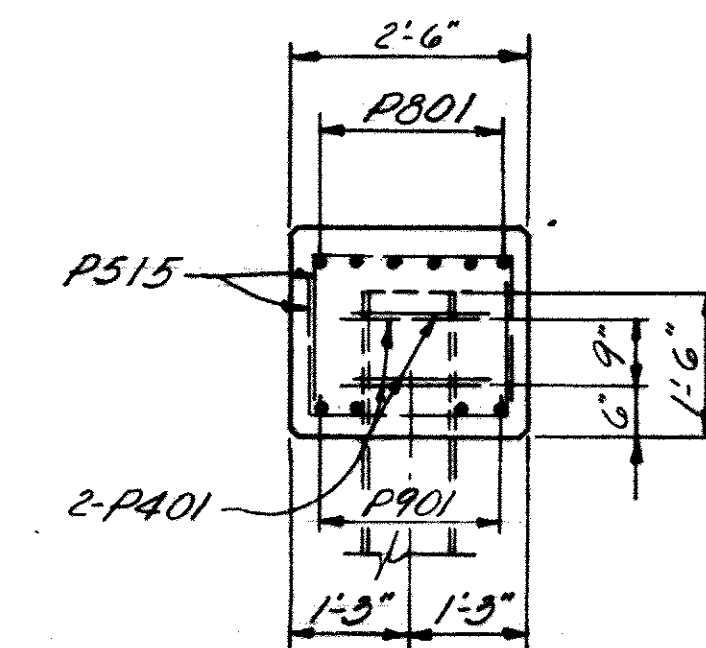
ABUTMENT DETAILS
BRIDGE No. NOB-77-1679 L&R
I-77 OVER BUFFALO CREEK

NOBLE COUNTY
STA-839+17.31
STA-890+83.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEM	BOB		fwd	TLU	6-1-65	



NOTE - All piles shall be 12BP53 steel piles

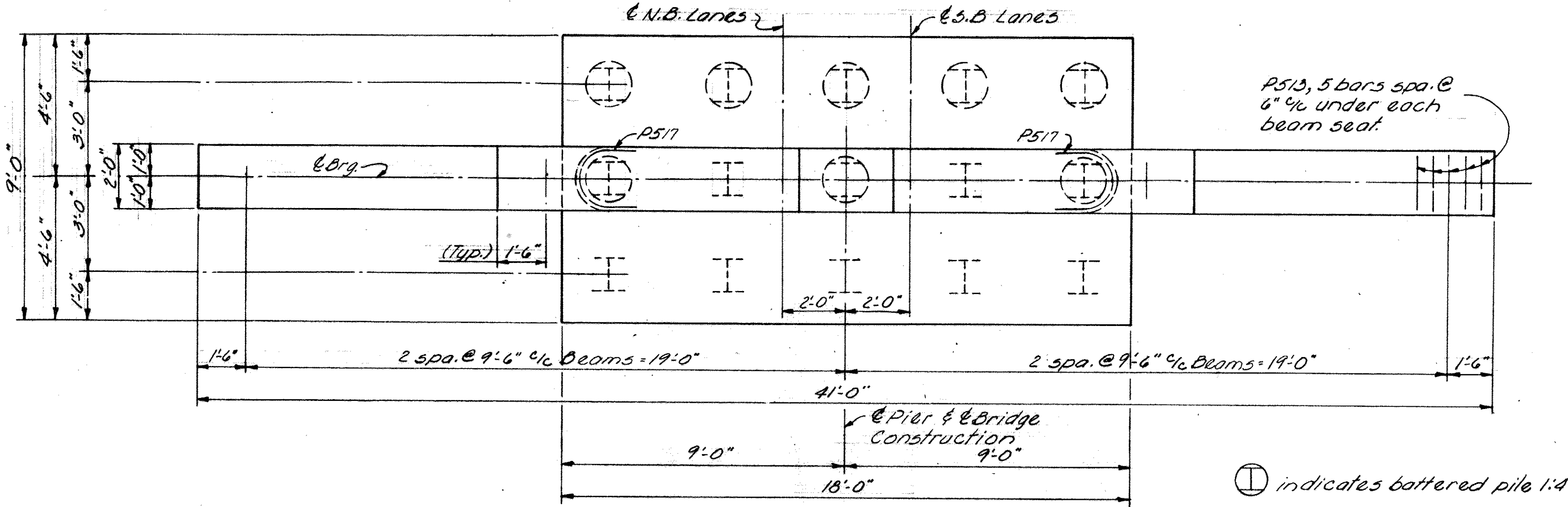


ELEVATIONS						
LOCATION	A	B	C	D	E	F
North Bound	820.98	822.98	823.13	823.28	823.19	823.04
South Bound	820.98	823.04	823.19	823.28	823.13	822.98

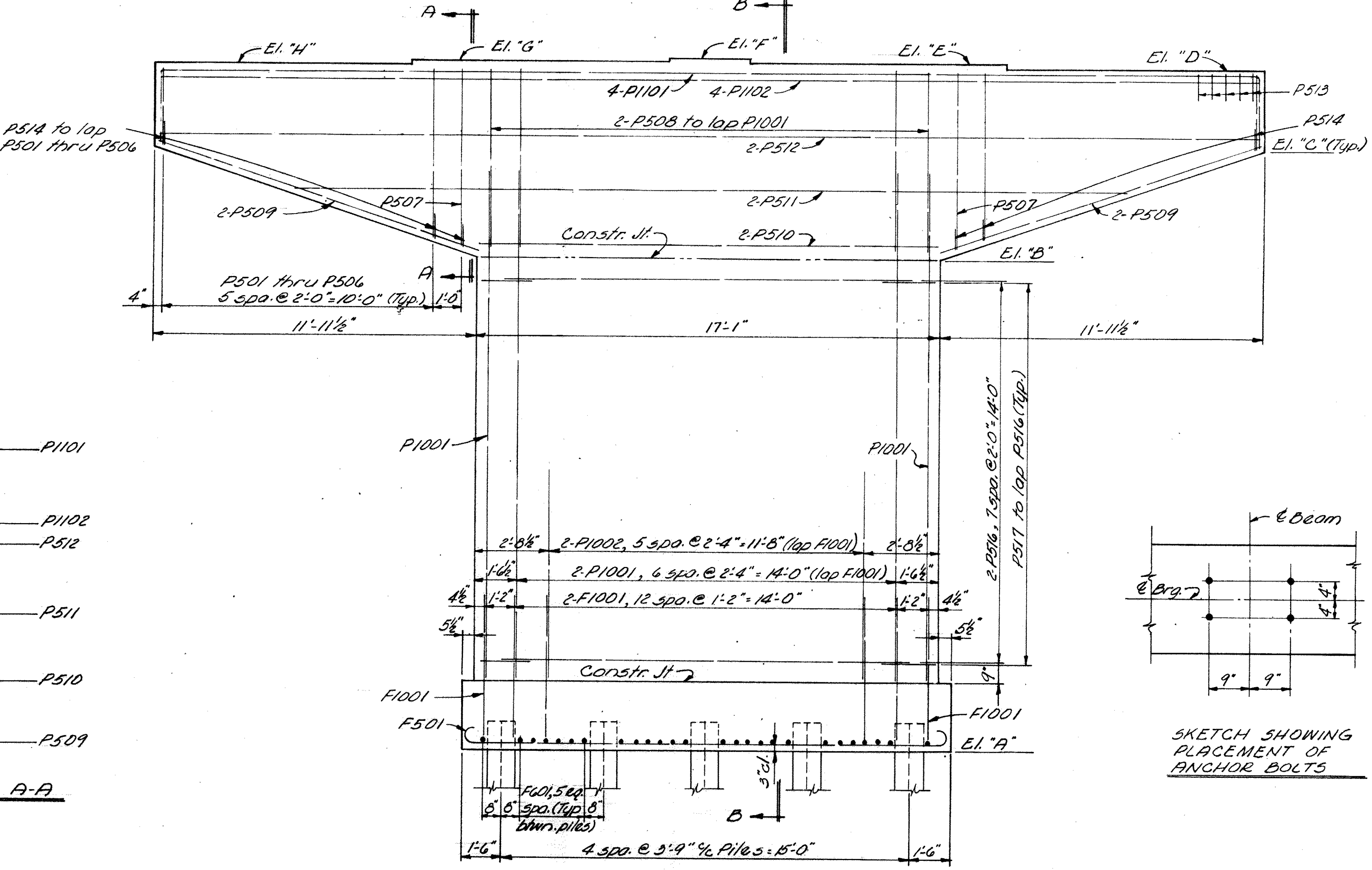
ALDEN E. STILSON & ASSOCIATES, LIMITED CONSULTING ENGINEERS COLUMBUS, OHIO							
PIER-1 DETAILS							
BRIDGE NO. NOB-77-1679 L & R							
I-77 OVER BUFFALO CREEK							
NOBLE COUNTY STA 889+17.91 STA 890+83.81							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
WITHEM	BSP		FWD	TLU	6-65		

NOBLE-GUERNSEY COUNTIES
NOB-77-16.28 / GUE-77-0.00

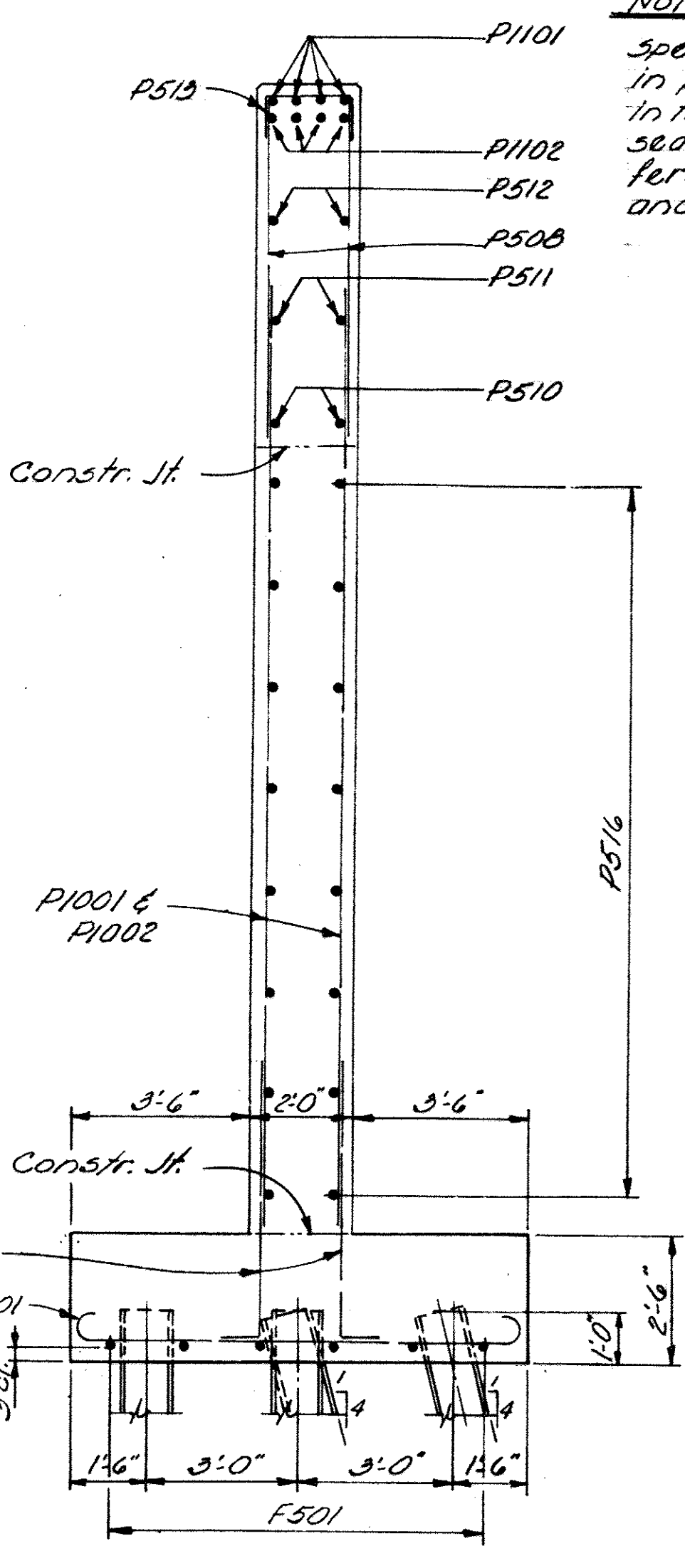
ELEVATIONS								
LOCATION	A	B	C	D	E	F	G	H
North Bound	797.00	815.04	819.06	822.06	822.21	822.36	822.27	822.12
South Bound	797.00	815.04	819.06	822.12	822.27	822.36	822.21	822.06



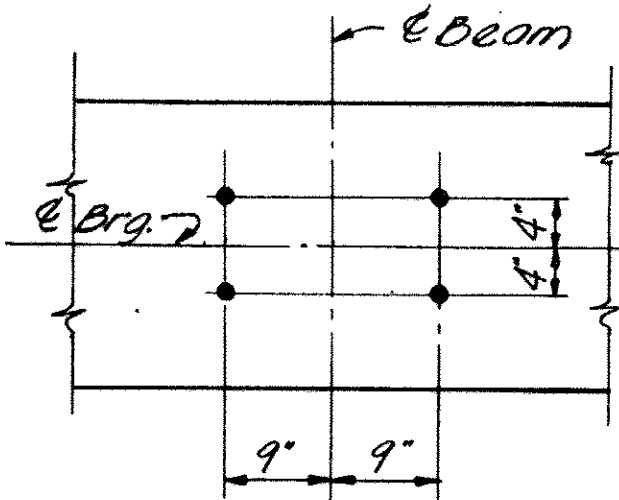
⊙ indicates battered pile 1:4
⊥ indicates vertical pile
All piles shall be 10BPA2 steel piles.



SECTION A-A



SECTION B-B

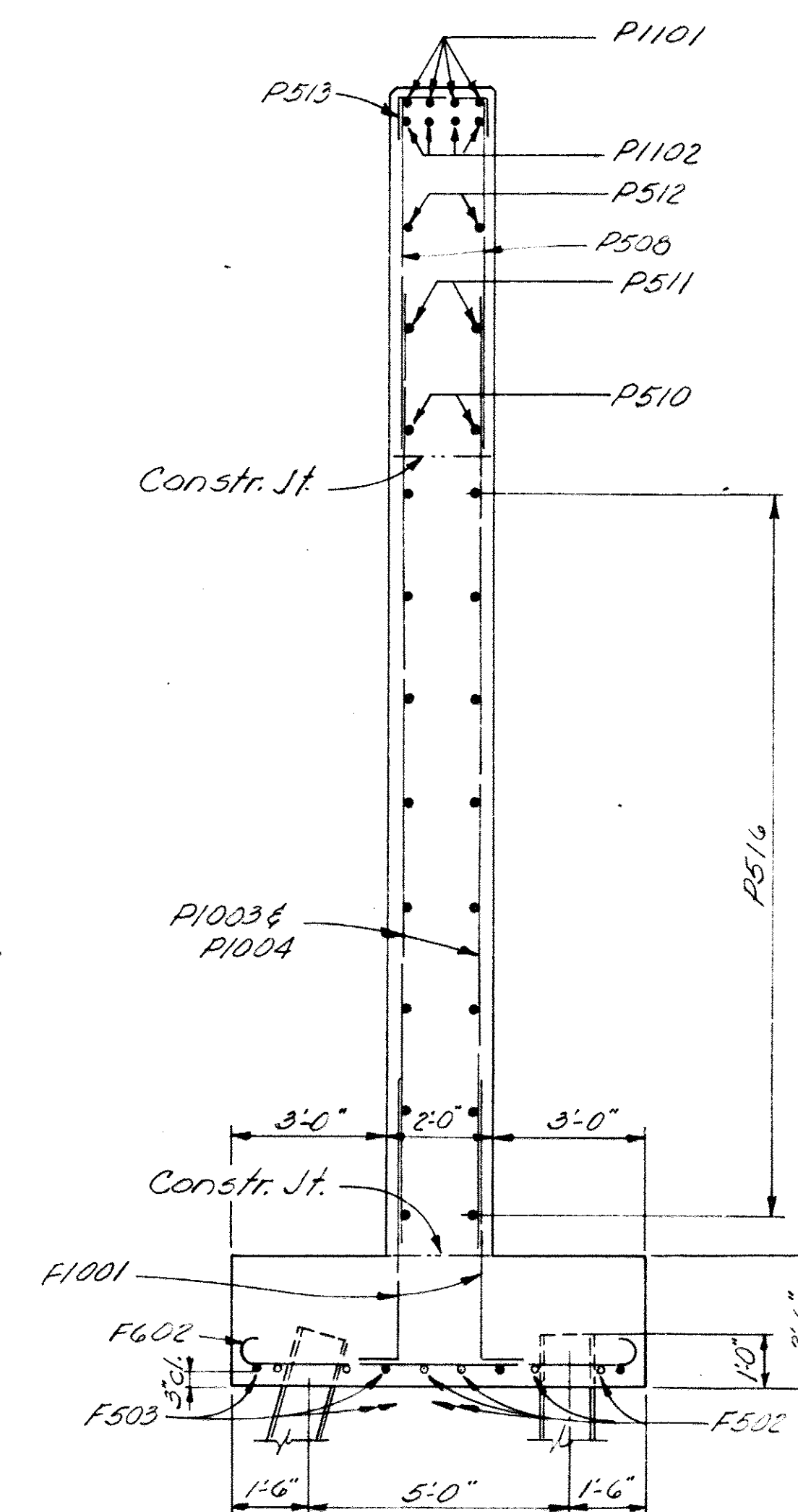


SKETCH SHOWING PLACEMENT OF ANCHOR BOLTS

NOTE
Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

ALDEN E. STILSON & ASSOCIATES, LIMITED CONSULTING ENGINEERS COLUMBUS, OHIO							
PIER-2 DETAILS BRIDGE No. NOB-77-1679 L&R I-77 OVER BUFFALO CREEK NOBLE COUNTY STA 889+17.31 STA 890+83.81							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
WITHEM	PAO		FWD	TLU	6/65		

ELEVATIONS								
LOCATION	A	B	C	D	E	F	G	H
North Bound	797.00	814.23	818.22	821.22	821.37	821.51	821.43	821.28
South Bound	797.00	814.23	818.22	821.25	821.43	821.51	821.37	821.22



The drawing consists of two main parts: a cross-section labeled "SECTION A-A" and a side elevation labeled "ELEVATION".

SECTION A-A: This view shows the cross-section of the bridge deck. It is 2'-0" wide. Reinforcement includes top bars P1101 and P1102, and bottom bars P512, P511, P510, and P509. Vertical spacing between reinforcement is indicated as 2'-0" and 1'-0".

ELEVATION: This view shows the side profile of the bridge deck. It includes the following details:

- Reinforcement:** Top bars 4-P1101 and 4-P1102; bottom bars 2-P508 to lap P1003, 2-P512, 2-P511, and 2-P510.
- Dimensions:** Total length 17'-1"; deck width 11'-11 1/2"; bottom reinforcement spacing 6 sps @ 3'-0" = 18'-0"; bottom reinforcement lap 8'-0" Tying piles.
- Construction Joints:** Indicated by dashed lines and labeled "Constr. Jt.".
- Labels:** EI. "H", EI. "G", EI. "F", EI. "E", EI. "D", EI. "C" (Top), EI. "B", EI. "A".
- Other Labels:** P513, P514, P501 thru P506, P507, P1003, F1001, F503, F402, 4 sps, 6-F502.

ELEVATION

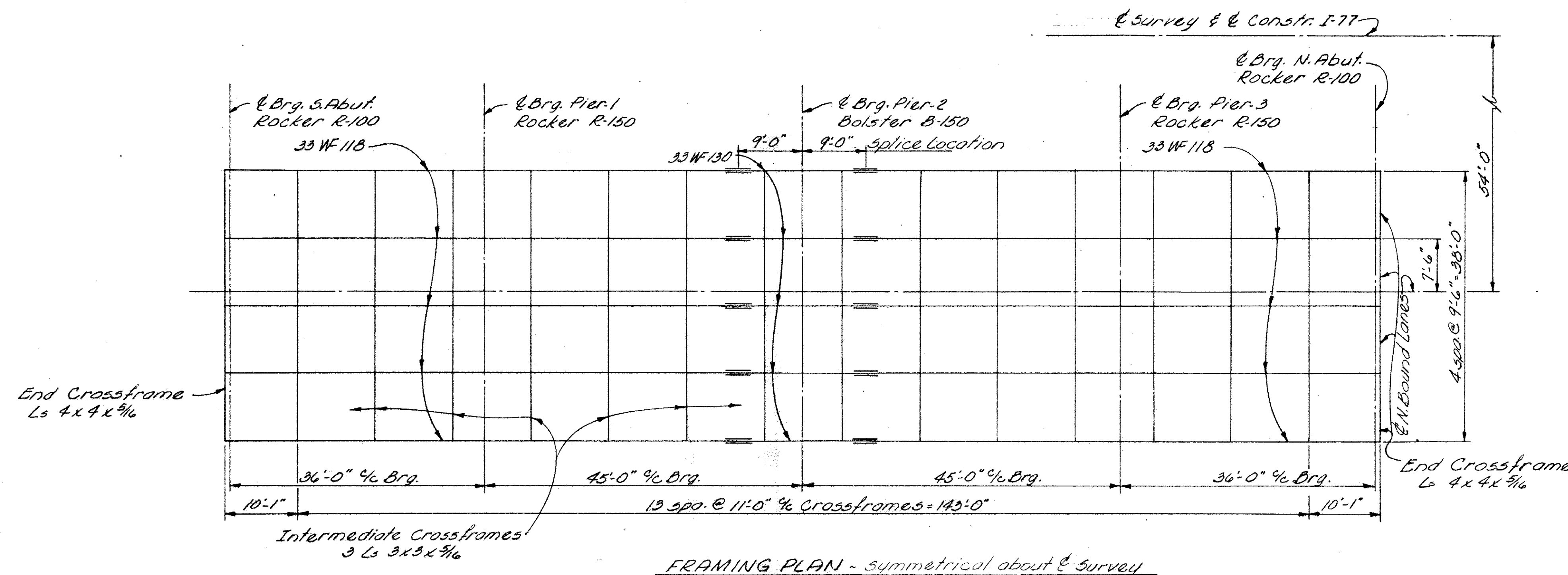
ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

PIER-3 DETAILS
BRIDGE No. NOB-77-1679 L&R
I-77 OVER BUFFALO CREEK

NOBLE COUNTY

STA 889+17.31
STA 890+83.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WITHEIM	BWB		fwd	TLW	6/65	



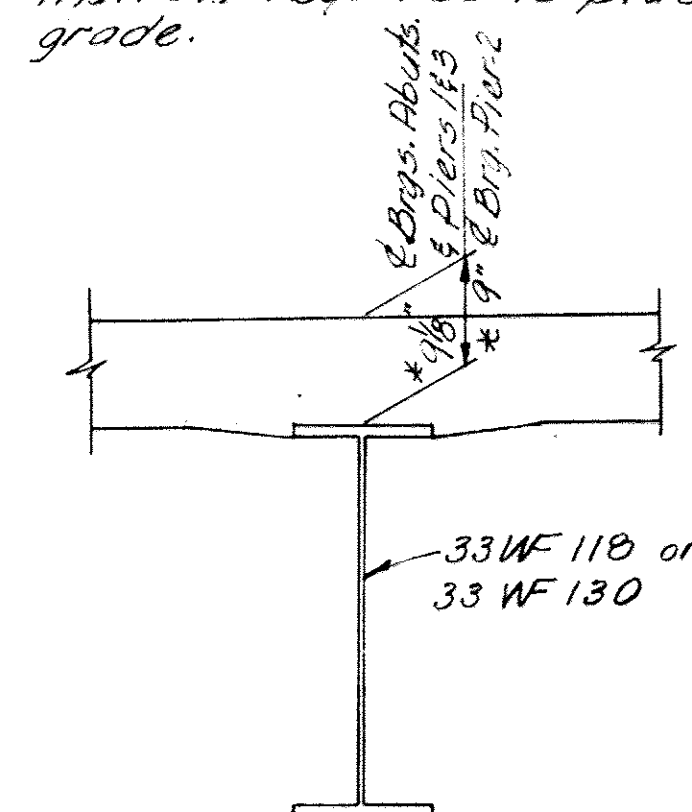
NOTES

For typical Transverse Section and Diagram showing Stagger of 5603 Bars over Piers see Standard Drawing C5B-3-63 sheet 3 of 3

Lap 5602 bars 1'-11" minimum

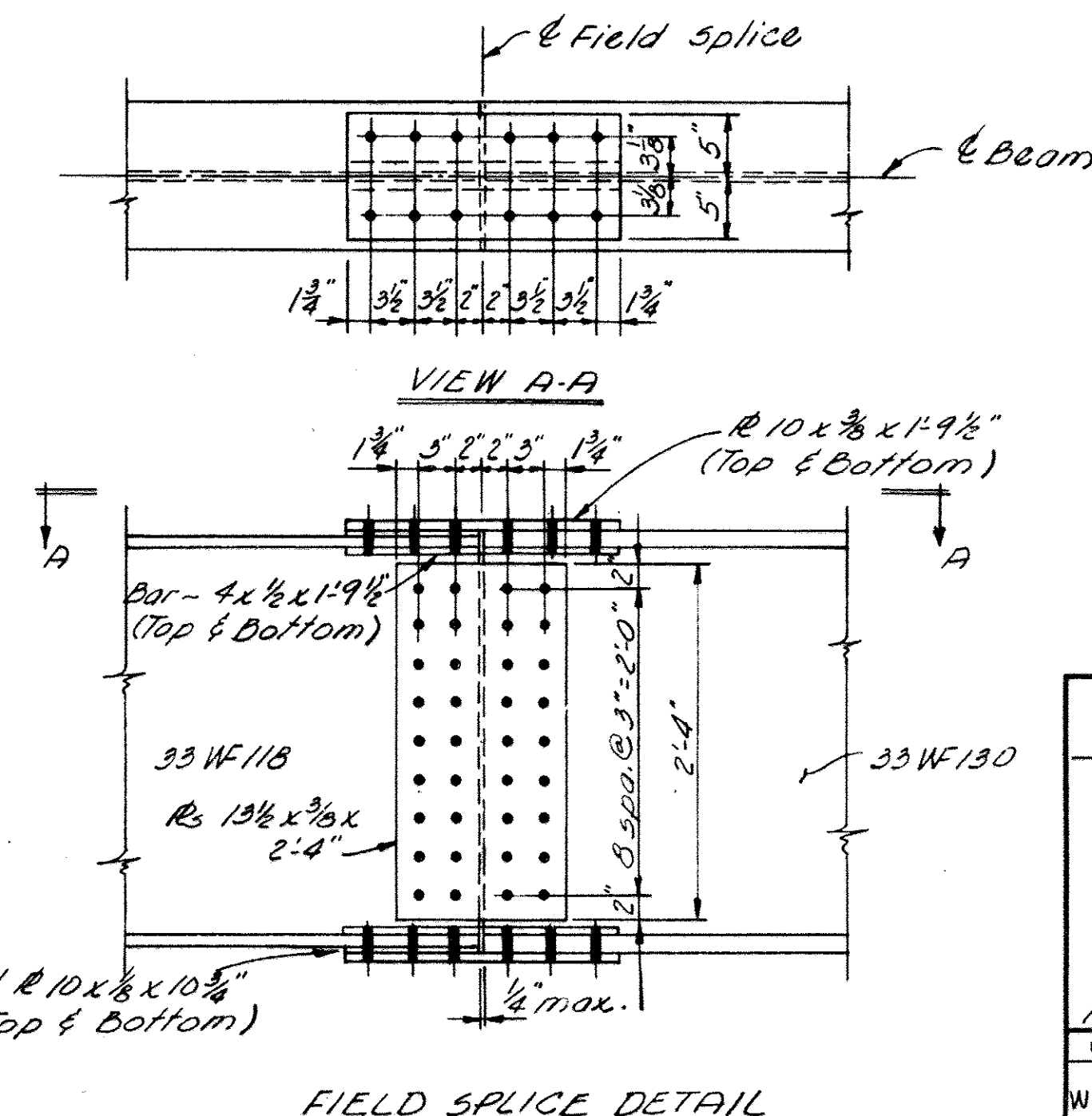
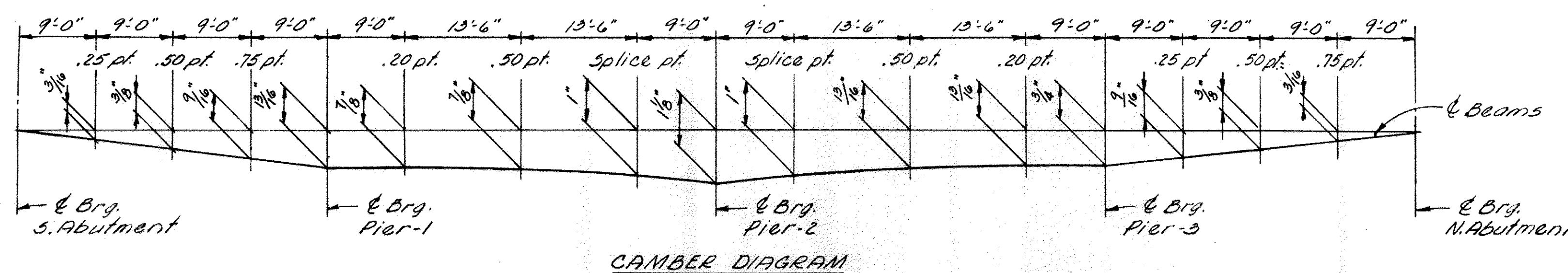
For additional Splice Details see Std. Dwg. 5D-2-64

* DECK SLAB DEPTH: The distance shown from top of deck slab to top of steel beam is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.



SLAB DEPTH DETAIL

LOCATION	DEFLECTION and CAMBER TABLE (inches)															
	SPAN-1				SPAN-2				SPAN-3				SPAN-4			
	25 pt.	50 pt.	75 pt.	20 pt.	50 pt.	Splice	Splice	50 pt.	80 pt.	25 pt.	50 pt.	75 pt.	25 pt.	50 pt.	75 pt.	
Defl. due to wt. of steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Defl. due to remain DL	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16
Camber due to vert curve	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camber req'd.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



NOTE

Place bolt heads on exposed side of fascia beams and on bottom surface of lower flange splice.

ALDEN E. STILSON & ASSOCIATES, LIMITED CONSULTING ENGINEERS COLUMBUS, OHIO						
FRAMING PLAN						
BRIDGE No. NOB-77-1679 L&R						
I-77 OVER BUFFALO CREEK						
NOBLE COUNTY				STA 889+17.31		
DESIGNED				STA 890+83.81		
WITHEM	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	PND		PND	TLU 6-1-65		

JUN 17 1987

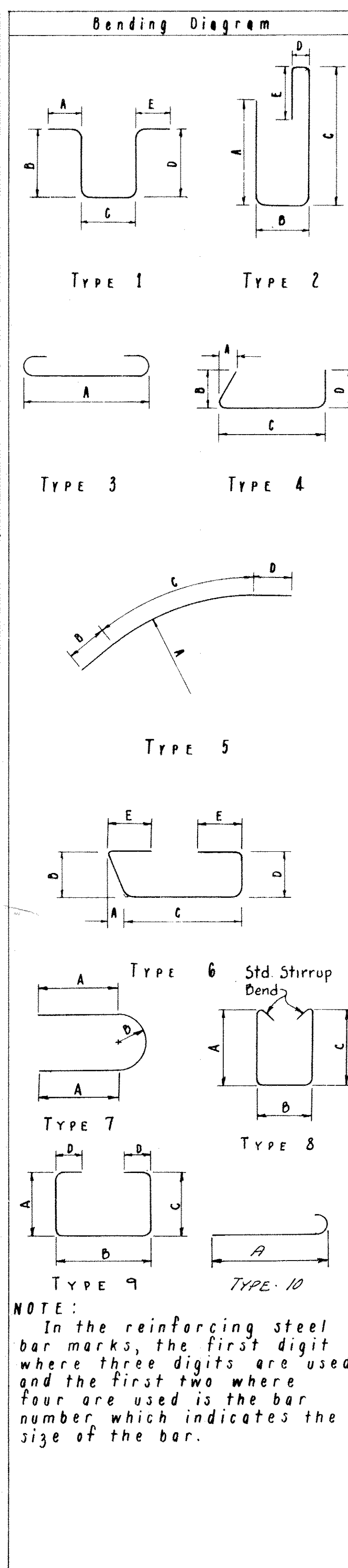
REINFORCING

STEEL

LIST

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape
SUPERSTRUCTURE										
5501	436	4-11	2236	9	1-4	1-6	1-4	0-8		bt.
5502	436	2-6	1137	1		0-8	1-6	0-8		bt.
5503	436	5-7	2539	8	2-2	0-8	2-2			bt.
5601	490	41-8	30,666							st.
5602	790	34-2	40,542							st.
5603	180	18-0	4866							st.
5701	490	41-8	41,732							st.
RAILING										
R501	160	14-3	*							st.
R502	32	8-5	*							st.
R503	24	4-2	*							bt.
R504	16	5-4	*							bt.
ABUTMENTS										
F501	128	6-10	912	1	0-6	6-6				bt.
F502	128	8-4	1112	1		1-7	5-5	1-7		bt.
F601	128	14-2	2724	1		2-7	5-5	6-6		bt.
F801	28	42-8	3190							st.
A501	128	7-0	935	1		1-11	3-5	1-11		bt.
A502	100	4-11	513	1		1-6	2-2	1-6		bt.
A503	60	41-8	2607							st.
A504	64	9-7	640							st.
A505	16	8-3	138							bt.
A506	16	4-0	67							st.
A507	16	8-0	134							st.
A508	16	8-10	147							st.
A509	2	8-3								st.
Varies By		1-0	56							
A512	2	5-3								st.
A601	168	15-2	3827	2	4-7	1-5	5-11	0-11	3-0	bt.
PIERS										
F501	12	18-10	236	3		17-8				bt.
F502	24	3-11	98	10		3-4				bt.
F503	8	21-10	182	3		20-8				bt.
F601	52	10-0	781	3		8-8				bt.
F602	64	9-0	865	3		7-8				bt.
F1001	112	6-7	3173	1	1-5	5-6				bt.
P401	64	5-4	228	1		1-11	1-9	1-11		bt.
P501	8	6-9		1		2-8	1-8	2-8		bt.
Varies By		1-4	505			Varies By		Varies By		
P504	8	13-5		1		6-0	1-8	6-0		bt.
P507	8	14-1	118	1		6-4	1-8	6-4		bt.
P508	72	6-10	513							st.
P509	16	12-6	209							st.
P510	8	17-0	142							st.
P511	8	30-0	250							st.
P512	8	40-8	339							st.
P513	100	4-5	461	1		1-6	1-8	1-6		bt.
P514	56	2-5	141	1		0-6	1-8	0-6		bt.
P515	92	5-3	504	1		1-8	2-2	1-8		bt.
P516	64	15-1	1007							st.
P517	64	5-8	378	7		1-7	0-9 3/8			bt.
P518	50	4-11	256	1		1-6	2-2	1-6		bt.

Mark	Nº	Length	Weight	Type	"A"	"B"	"C"	"D"	"E"	Shape
PIERS (Continued)										
P801	12	40-8	1303							st.
P901	8	40-8	1106							st.
P1001	32	17-2	2364							st.
P1002	24	9-11	1024							st.
P1003	32	16-4	2249							st.
P1004	24	9-7	990							st.
P1101	16	45-4	3854	1		2-8	40-8	2-8		bt.
P1102	16	40-8	3457							st.
REPLACEMENT STEEL										
RE401	1	5-3								st.
RE501	1	5-7								st.
RE601	5	5-11								st.
RE701	3	6-2								st.
RE801	1	6-6								st.
RE901	1	6-10								st.
RE1001	1	7-2								st.
RE1101	1	7-6								st.



ESTIMATED QUANTITIES (2 Bridges)							
ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPERS.	GENERAL
503	Lump	Sum	Coferdams, cribs and sheeting		Lump		
503	558	Cu.Yd.	Unclassified Excavation	391	167		
511	16	Cu.Yd.	Class "C" Concrete, Pier-1 Cap		16		
511	438	Cu.Yd.	Class "C" Concrete, superstructure			438	
511	146	Cu.Yd.	Class "C" Concrete, Piers above footings (Piers 2 & 3)		146		
511	188	Cu.Yd.	Class "E" Concrete, Footings	127	61		
511	172	Cu.Yd.	Class "E" Concrete, Abutments above footings	172			
509	163,453	Lbs.	Reinforcing steel	17,002	26,733	123,718	
513	265,500	Lbs.	Structural steel			265,500	
514	265,500	Lbs.	Field Painting of structural steel			265,500	
517	653.67	Lin.Ft.	Railing, Type "1"			653.67	
505	Lump	Sum	First Test Pile				Lump
507	910	Lin.Ft.	Steel Piles (12BP53)		910		
507	3210	Lin.Ft.	Steel Piles (10BP42)	1780	1430		
518	72	Cu.Yd.	Porous Backfill	72			
518	14	Each	Scuppers, including supports			14	
518	168	Lin.Ft.	6" Helical perf. CMP, 707.06 including specials	168			
518	112	Lin.Ft.	6" Helical non-perf. CMP, 707.06	112			
808	438	Each	Water-reducing, set retarding admixture			438	
601	1293	Sq.Yd.	Crushed Aggregate Slope Protection	1293			

* HORIZONTAL PARAPET REINFORCING
THESE BARS ARE INCLUDED WITH THE
RAILING FOR PAYMENT. SEE STD.
DWG. BR-1-65 FOR R 503 &
R 504 BENDING DIAGRAMS

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

NOBLE - GUERNSEY COUNTIES
NOB-77-16.28 / GUE-77-0.00

ALDEN E. STILSON & ASSOCIATES, LIMITED CONSULTING ENGINEERS COLUMBUS, OHIO							
REINFORCING STEEL LIST and ESTIMATED QUANTITIES BRIDGE No. NOB-77-1679 L&R I-77 OVER BUFFALO CREEK							
NOBLE COUNTY				STA. 889 + 17.31 STA. 890 + 83.61			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
WITHHEM	BOB		FWD	TLU	6-1-65		

REFERENCES:

Standard Drawings:

Splice Details

Superstructure Details

SD-2-64, Dated 11-25-64
- CSB-3-63, Sheet 3
Dated 12-9-63

End Dam and End Crossframe
Details

- SD-1-63, Sheets 2 & 4
Dated 11-12-63

Curb Plate Details

- SD-1-63, Sheet 4
Dated 11-12-63

Gutter & Scupper Details

- SD-1-63, Sheets 3 & 4
Dated 11-12-63

Railing Details, Type 1
Rocker and Bolster Details
Approach Slab Details

BR-1-65 Sheet 1 Dated 2-1-65
- RB-1-55, Revised 2-2-59
- AS-1-54, Revised 7-5-62

Supplemental Specifications

808 Dated 7-14-65

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

DESIGN DATA:

Design Loading: CF-2000 (57)

Concrete, Class "C": Basic unit stress = 1,333 p.s.i.

Concrete, Class "E": Basic unit stress = 1,133 p.s.i.

Structural Steel, ASTM A-36: Basic unit
stress = 20,000 p.s.i.

Reinforcing Steel, ASTM A 15, A 16, A 160, deformed,
intermediate or hard grade:
Basic unit stress = 20,000 p.s.i.

EMBANKMENT: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the sub-grade for a distance of 200 feet back of the abutments prior to any work on the piers or abutments. Work shall not be initiated on the piers or abutments until the completed embankment has been in place for a minimum period of 60 days.

EXCAVATION QUANTITY includes the removal of fill material required for the construction of the abutments.

MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

CRUSHED AGGREGATE SLOPE PROTECTION shall be provided under the structure as indicated on the General Plan.

PILES shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Section 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

For the south abutment piles:

45 tons per pile using an 11,000 ft. lb. hammer
40 tons per pile using a 15,000 ft. lb. hammer

For the north abutment piles:

55 tons per pile using an 11,000 ft. lb. hammer
50 tons per pile using a 15,000 ft. lb. hammer

For Pier No. 1 piles:

45 tons per pile using an 11,000 ft. lb. hammer
40 tons per pile using a 15,000 ft. lb. hammer

For Pier No. 2 piles:

50 tons per pile using an 11,000 ft. lb. hammer
45 tons per pile using a 15,000 ft. lb. hammer

For Pier No. 3 piles:

55 tons per pile using an 11,000 ft. lb. hammer
50 tons per pile using a 15,000 ft. lb. hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 30 tons per pile.

PILE PAINTING: Painting of piles for Pier No. 1 shall extend to a minimum of one foot below the proposed ground surface.

ALDEN E. STILSON & ASSOCIATES, LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

GENERAL NOTES
BRIDGE No NOB-77-1679 L&R
I-77 OVER BUFFALO CREEK
STA. 889+17.31
NOBLE COUNTY STA. 890+83.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
					TLV 6-1-65	