

# SPECIFICATIONS

**DESIGN:**  
A.A.S.H.O. Standard Specifications for Highway Bridges 1961, with Interim Specifications, 1961, 1962, 1963 & 1964.

**CONTRACT:**  
State of Maine, State Highway Commission, Standard Specifications for Highways and Bridges, Revision of January 1956 and Supplemental Specifications of February 1960.

**LIVE LOADING**  
H520-44

**FOUNDATIONS**  
Abutments: Spread Footing on Soil 27 Tons/S.F.  
Piers: Spread Footing on Ledge

**ALLOWABLE STRESSES**  
Concrete ( $f_c = 10$ ),  $f_t = 1200$  p.s.i.  
Reinforcing Steel, Intermediate Grade  $f_s = 20,000$  p.s.i.  
Structural Steel,  $f_s = 20,000$  p.s.i. (A3.T.M. #36).

**CONCRETE CLASSIFICATION**  
All Concrete shall be Class A except slope paving which shall be Class Y.

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
204-12	Structural Earth Exc.-Abut. & Ret. Wall	65	C.Y.
204-14.1	Structural Earth Exc.-Piers (Reloc. Rte. 159 over I-95)	600	C.Y.
205-12	Gravel Borrow (I.P.M.)	3,644	C.Y.
404-29	Bit Conc. Surface Course - Type "B"	140	Ton
701-33	P.C.C. Abut. & Retaining Wall	188	C.Y.
701-35.1	P.C.C. Piers (Reloc. Route 159 over Interstate Route 95)	303	C.Y.
701-40	P.C.C. Rdwy. & Sidw. Slobs, on Steel Bridges	409	C.Y.
701-50	P.C.C. Approach Slobs	20	C.Y.
701-55	Curing Box for Concrete Cylinders	1	Each
702-103.1	Structural Steel Fabricated & Delivered (Reloc. Rte. 159 over I-95)	L.S.	L.S.
702-104.1	Structural Steel Erection (Reloc. Rte. 159 over I-95)	L.S.	L.S.
702-105.1	Structural Steel Field Painting (Reloc. Rte. 159 over I-95)	L.S.	L.S.
705-13	Reinforcing Steel - Delivered	155,800	Lbs.
705-14	Reinforcing Steel - Placing	155,800	Lbs.
705-17.1	Shear Connectors - Reloc. Rte. 159 over I-95	L.S.	L.S.
805-8	Bridge Rail	851	L.F.
807-9	Membrane Waterproofing	1,285	S.Y.
807-11	Epoxy Resin Surface Sealant	87	S.Y.
808-6	Slope Paving	520	S.Y.
901-24	Vertical Bridge Curb Type I	842	L.F.
901-25	Vertical Bridge Curb Type I Circular	21	L.F.
939-9	Field Office, Type C	L.S.	L.S.

Estimated weight of structural steel including drains is 359,100 lbs.  
\* This curing box for concrete cylinders shall also be used for Reloc. Rte. 159 over the Mattawamkeag River.  
Estimated weight of shear connectors - Spirals - 7586 lbs.  
Estimated number of shear connectors - Studs - 6540 pcs.

INDEX OF SHEETS	
1.	GENERAL PLAN & QUANTITIES
2.	FOUNDATION SURVEY
3.	FOUNDATION SURVEY
4.	ABUTMENT NO. 1
5.	ABUTMENT NO. 2 & APPROACH SLAB
6.	PIERS
7.	STRUCTURAL STEEL
8.	BLOCKING & STEEL DETAILS
9.	SUPERSTRUCTURE
10.	SLOPE PAVING
11.	REINFORCING STEEL
STANDARD DETAIL SHEETS	
BD 101-64	BEARING PEDESTALS
BD 103-64	BEAM SPLICES
BD 104-64	DIAPHRAGMS, ARMORED JOINT, SHEAR CONNECTORS, DRAIN.
BD 105-64	EXPANSION DAMS
BD 109-66	STEEL RAIL
BD 108-64	ALUMINUM RAIL

DESIGN -  
TRACE -  
CHECK - L.R.

DETAIL - R.D.L.  
SURVEY -  
PLOT -

BRIDGE NO.  
PLOT -

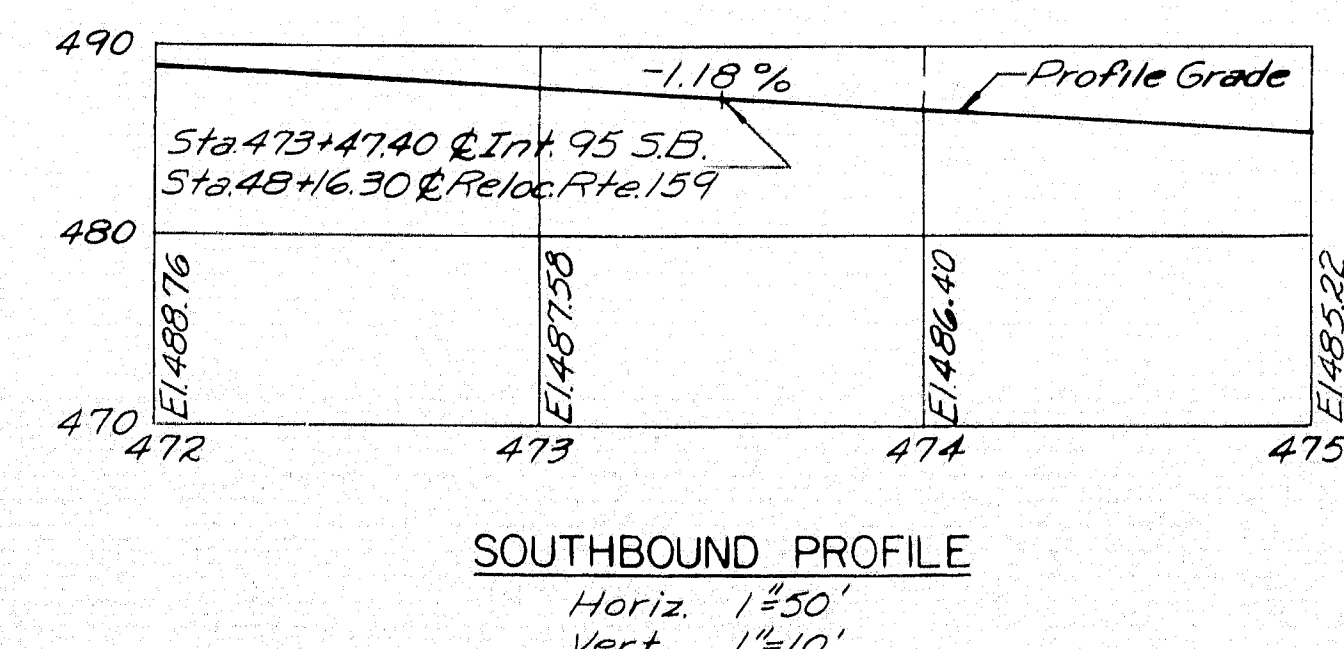
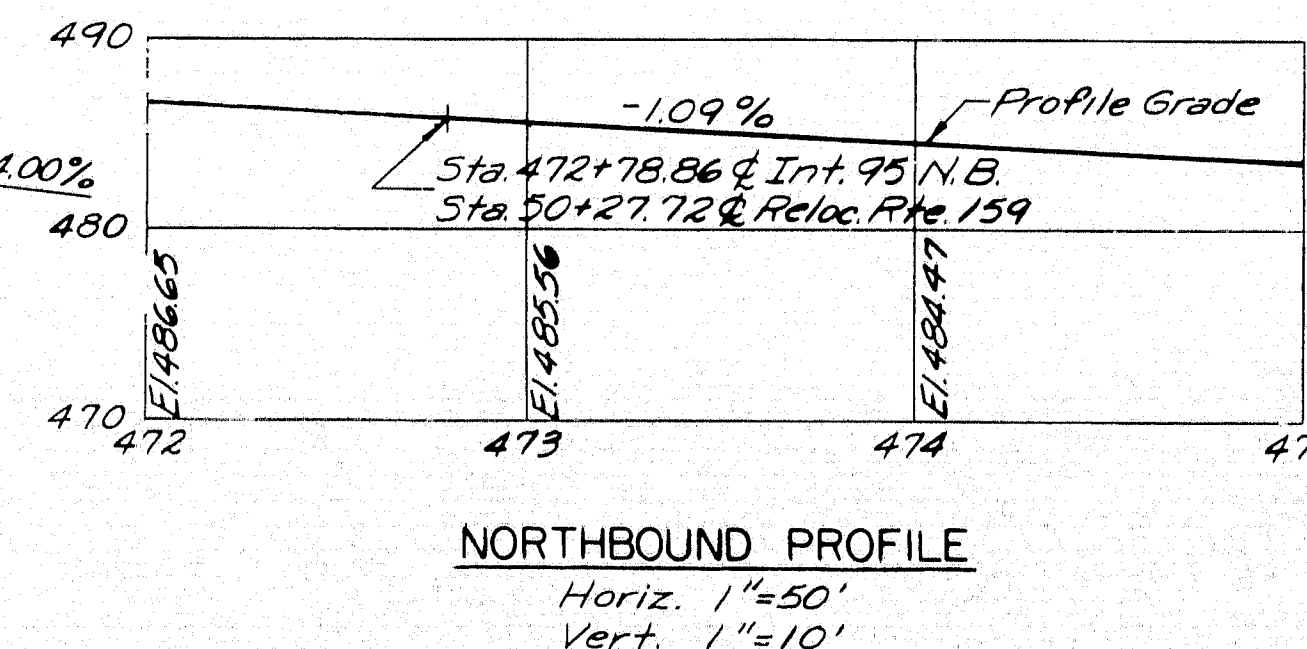
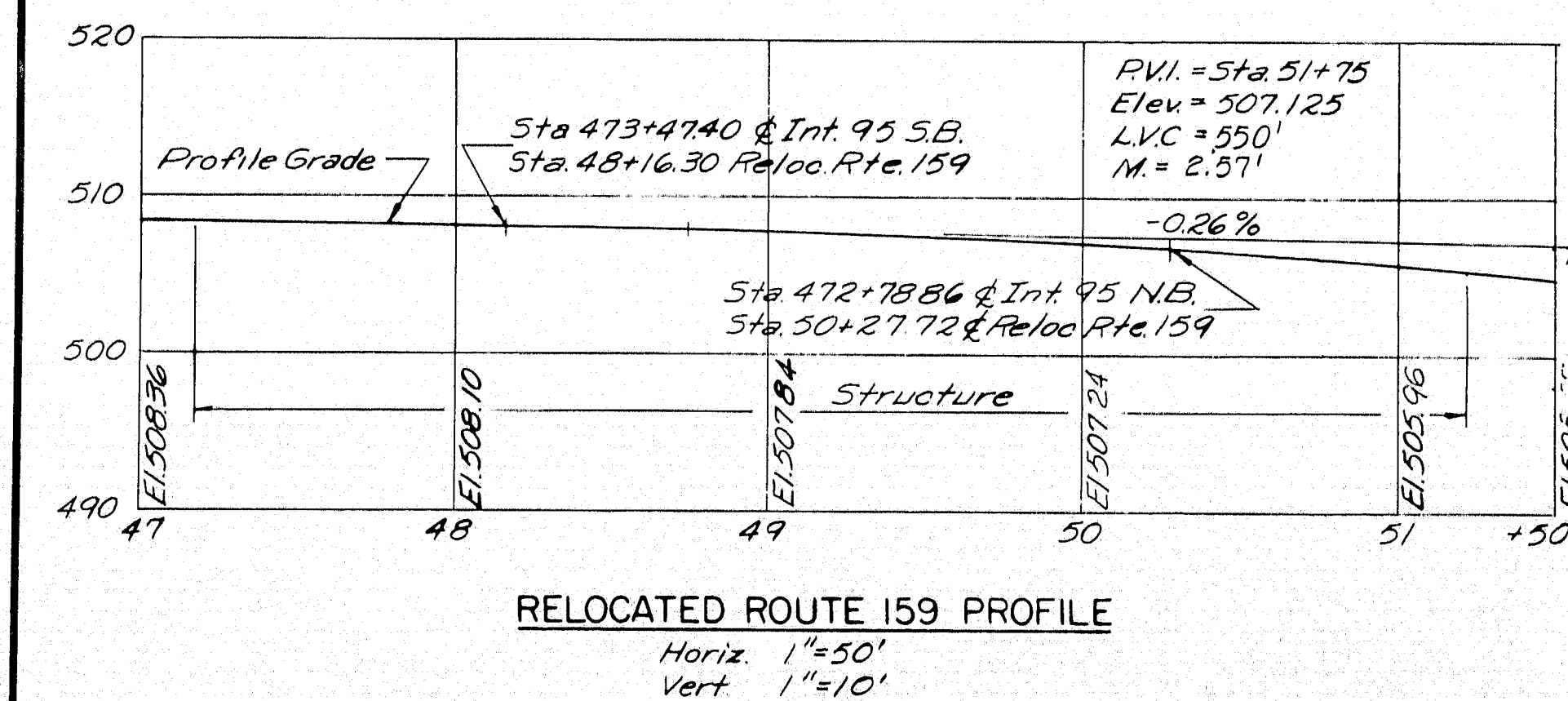
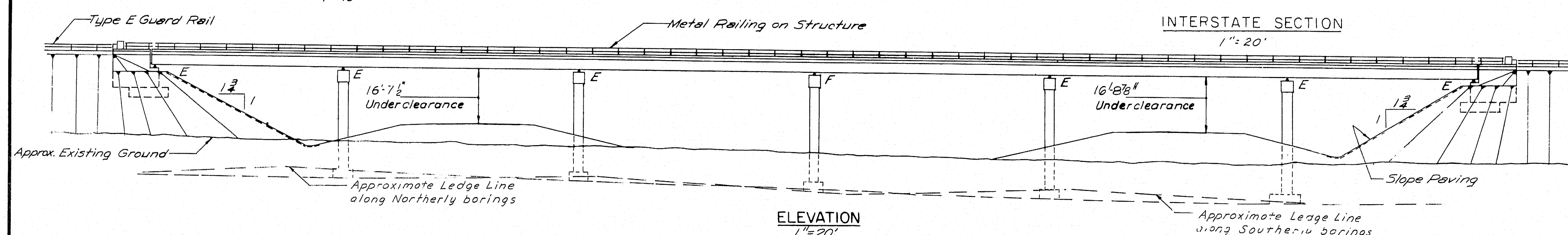
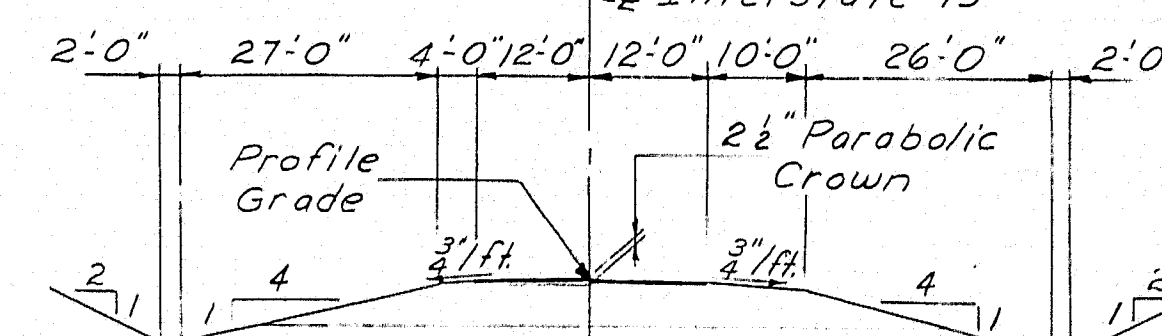
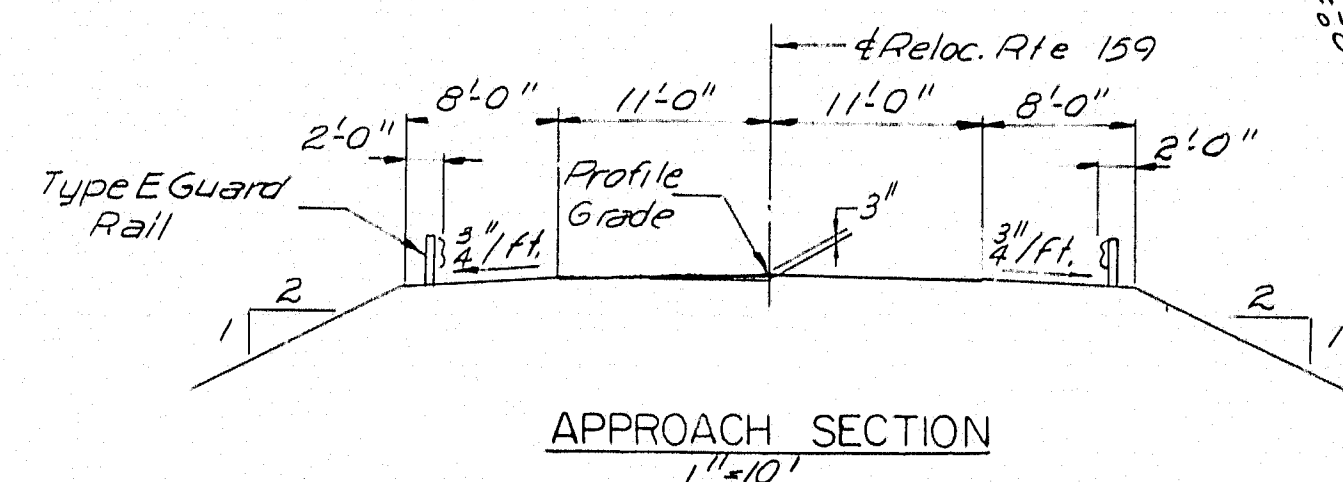
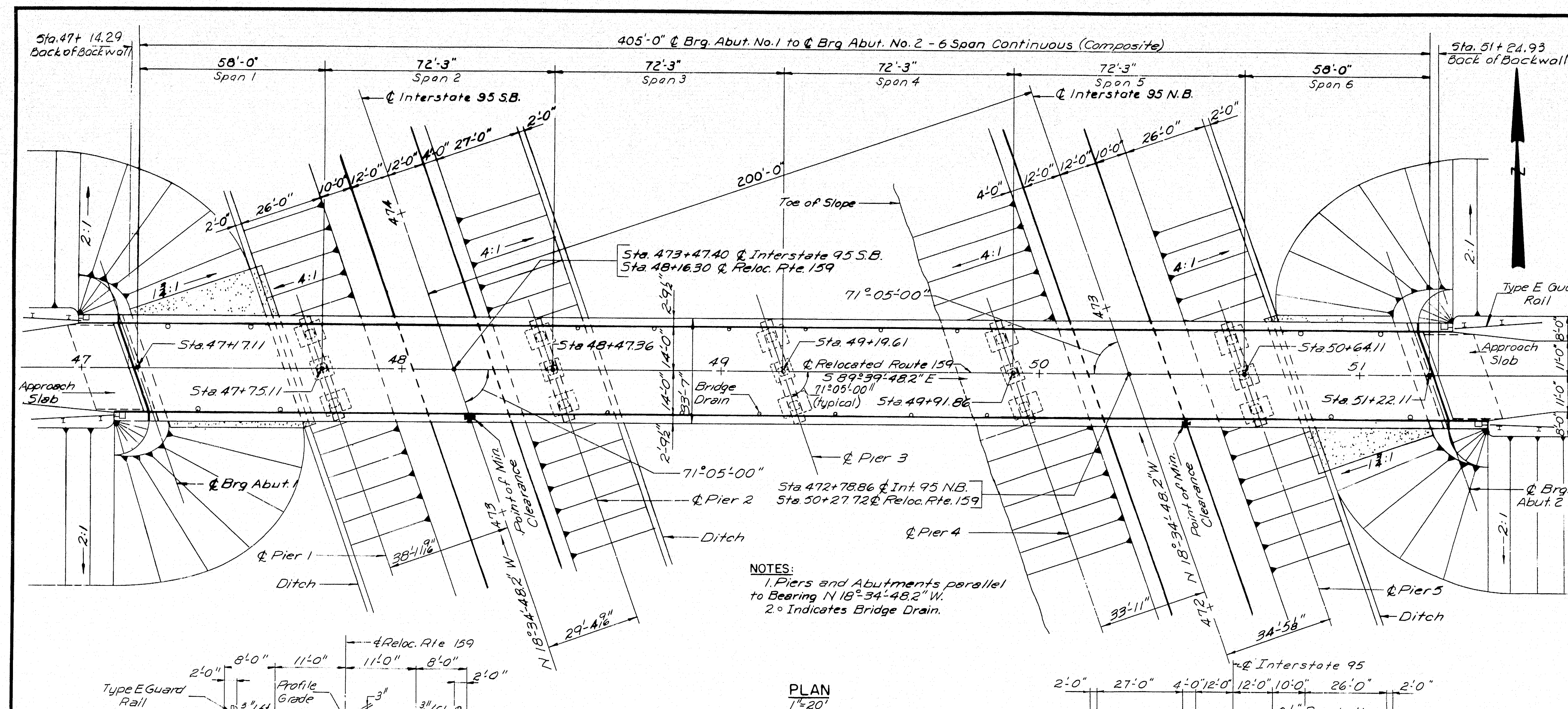
STATE HIGHWAY COMMISSION  
BRIDGE DIVISION

RELOCATED ROUTE 159  
OVER  
INTERSTATE ROUTE 95  
IN THE TOWN OF  
ISLAND FALLS  
AROOSTOOK COUNTY

GENERAL PLAN & QUANTITIES

SHEET 1 OF 11 AUGUSTA, MAINE AUGUST 1965

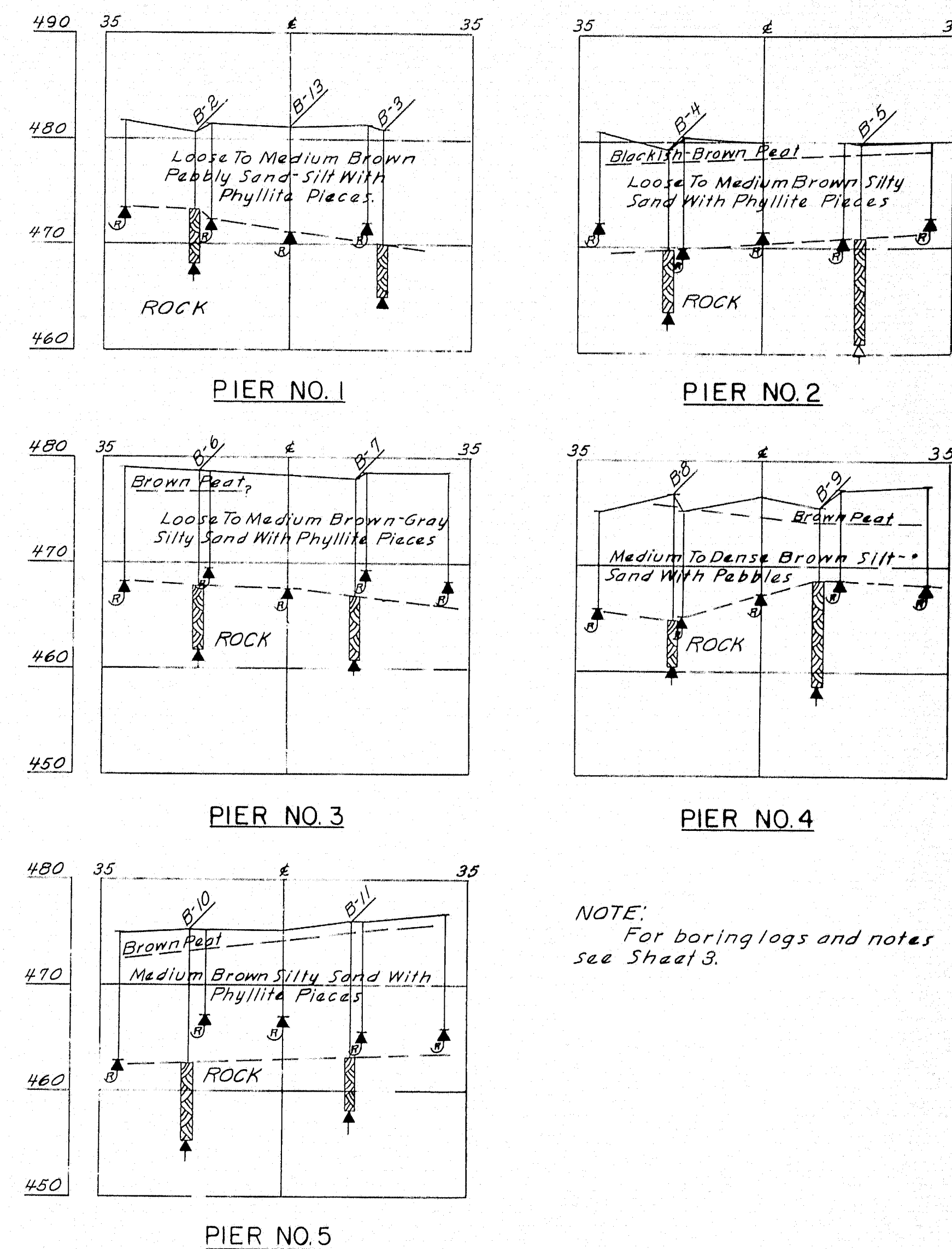
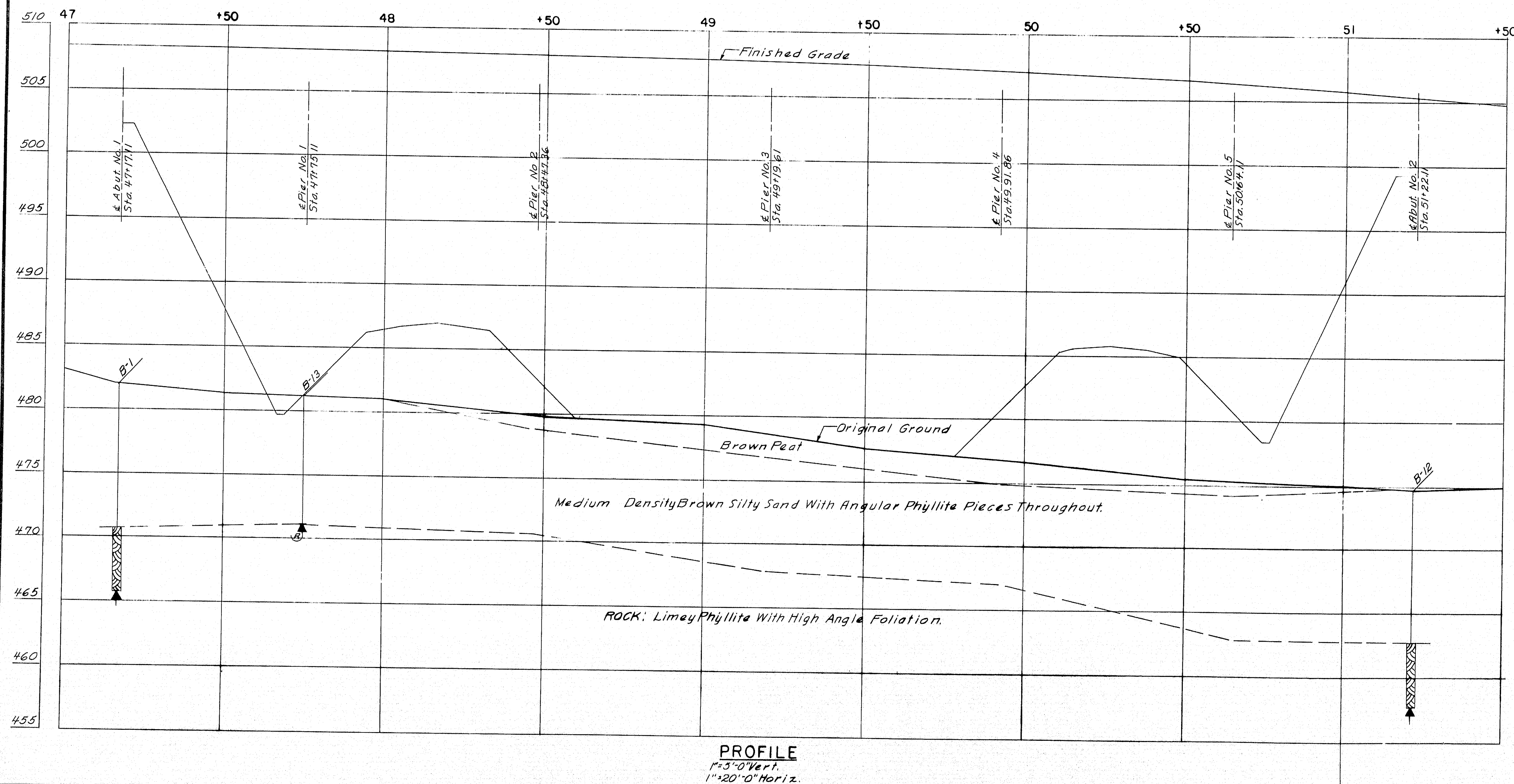
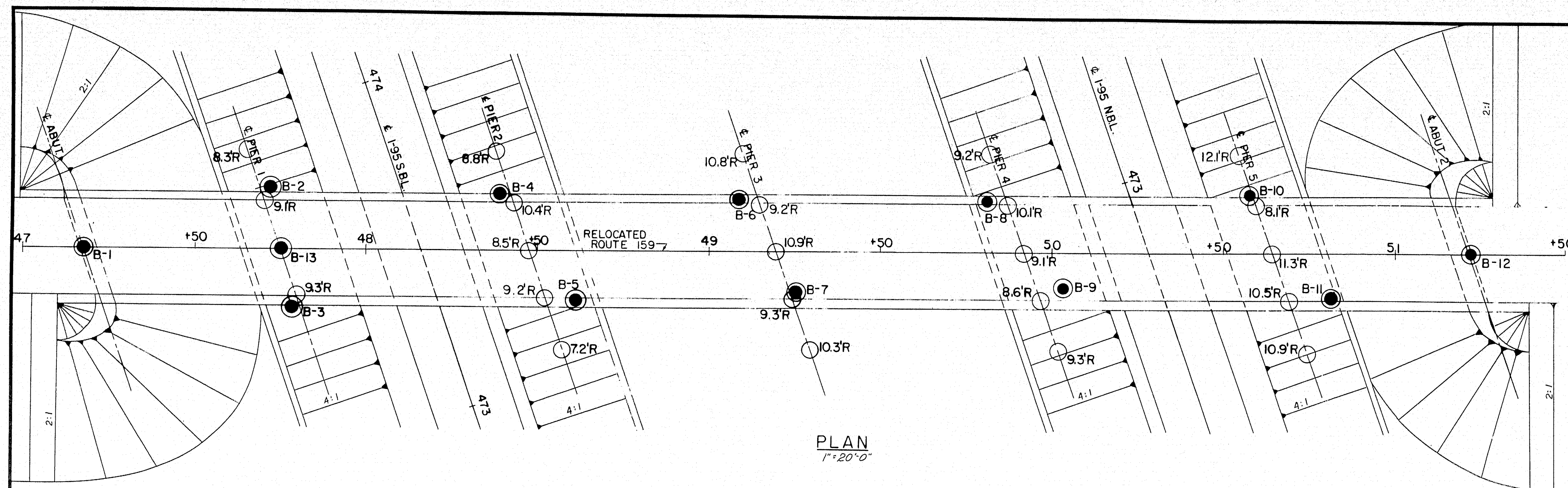
M-2484 ISLAND FALLS (36)



HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS

NEW YORK BOSTON KANSAS CITY





NOTE:  
For boring logs and notes  
see Sheet 3.

TRANSVERSE SECTIONS

DESIGN—  
TRACE—  
CHECK—

DETAIL G.F.K.  
P.R.N.

BRIDGE NO.  
SURVEY—  
PLOT—

STATE HIGHWAY COMMISSION  
BRIDGE DIVISION

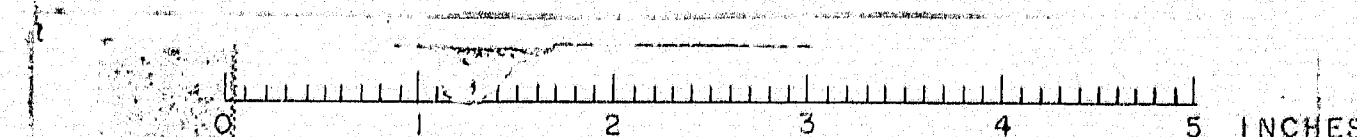
RELOCATED ROUTE 159  
OVER  
INTERSTATE 95  
IN THE TOWN OF  
ISLAND FALLS  
ARROSTOOK COUNTY  
FOUNDATION SURVEY

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS

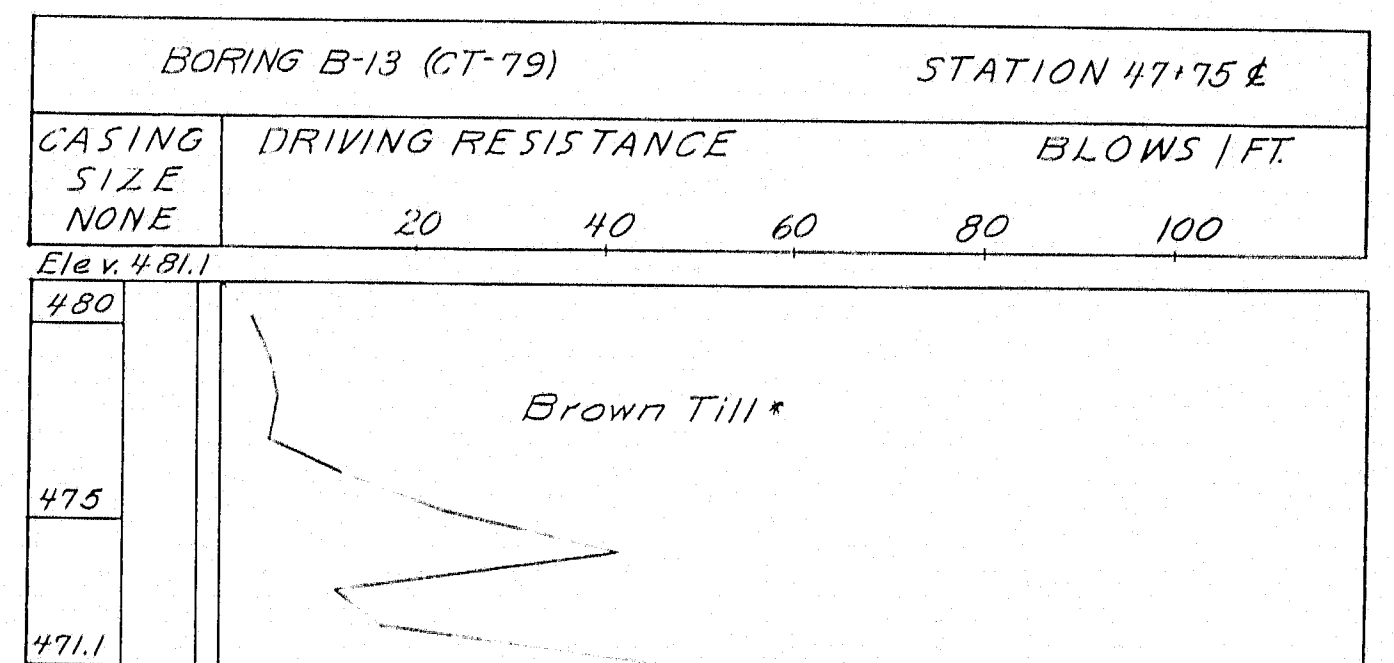
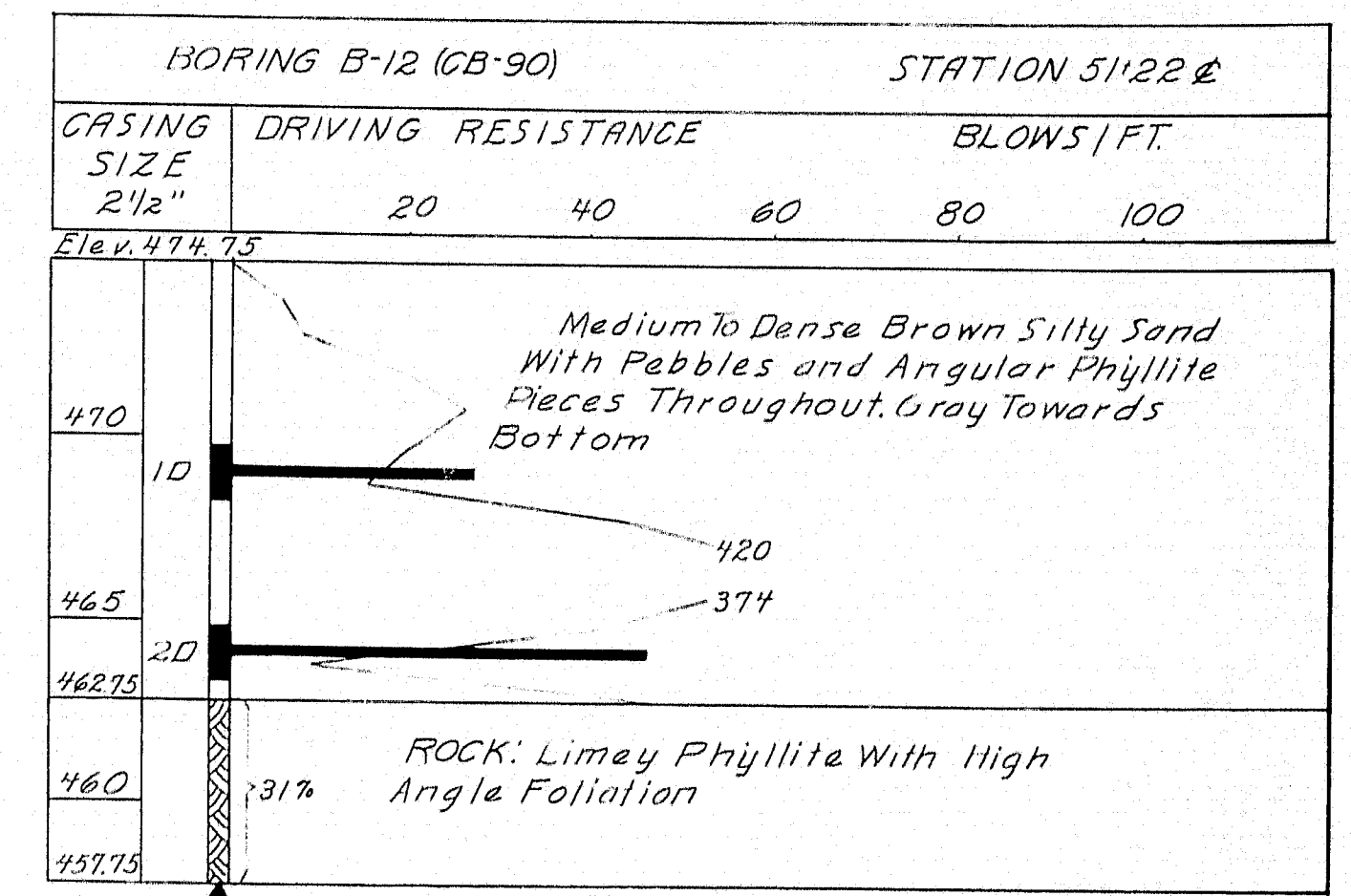
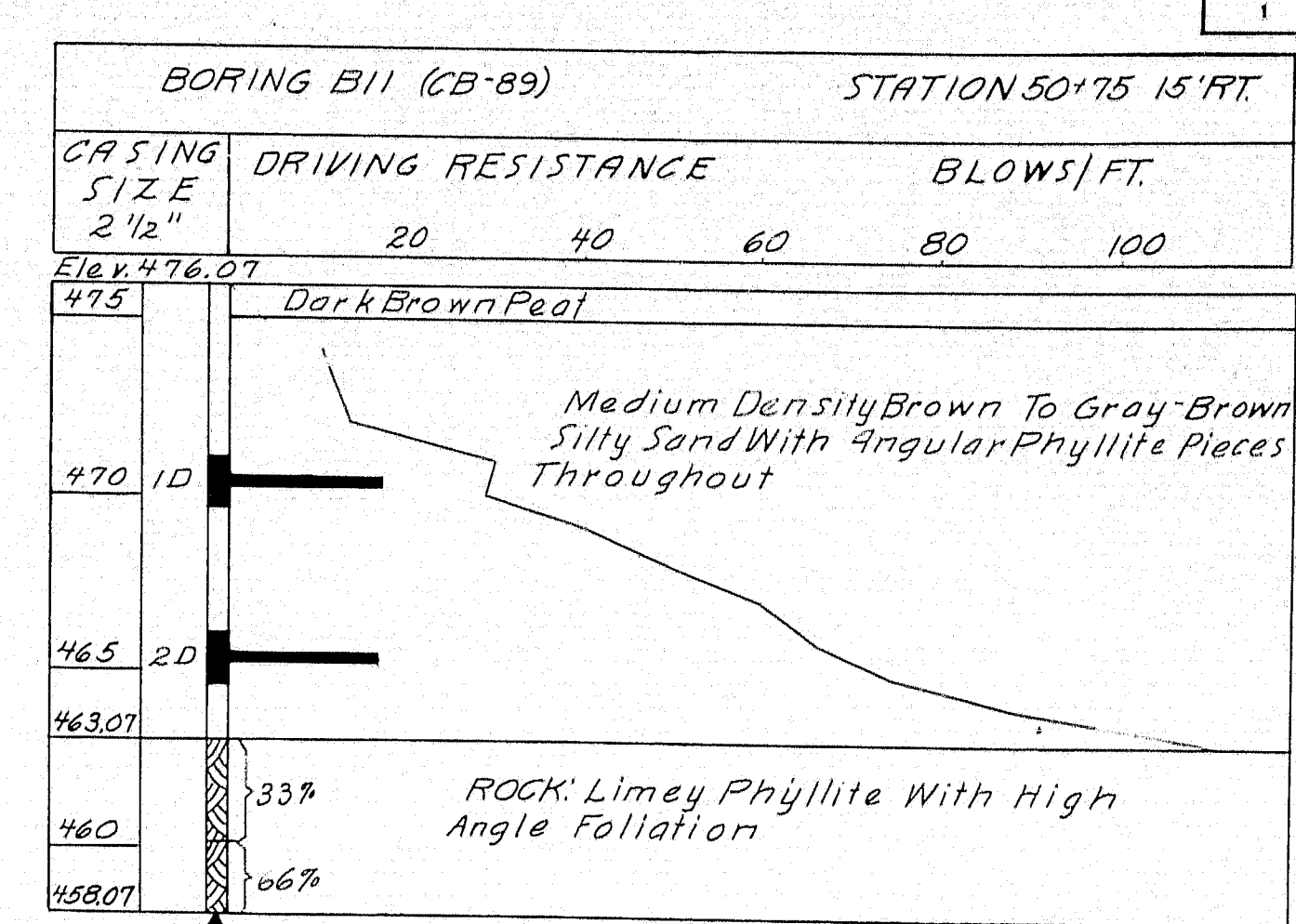
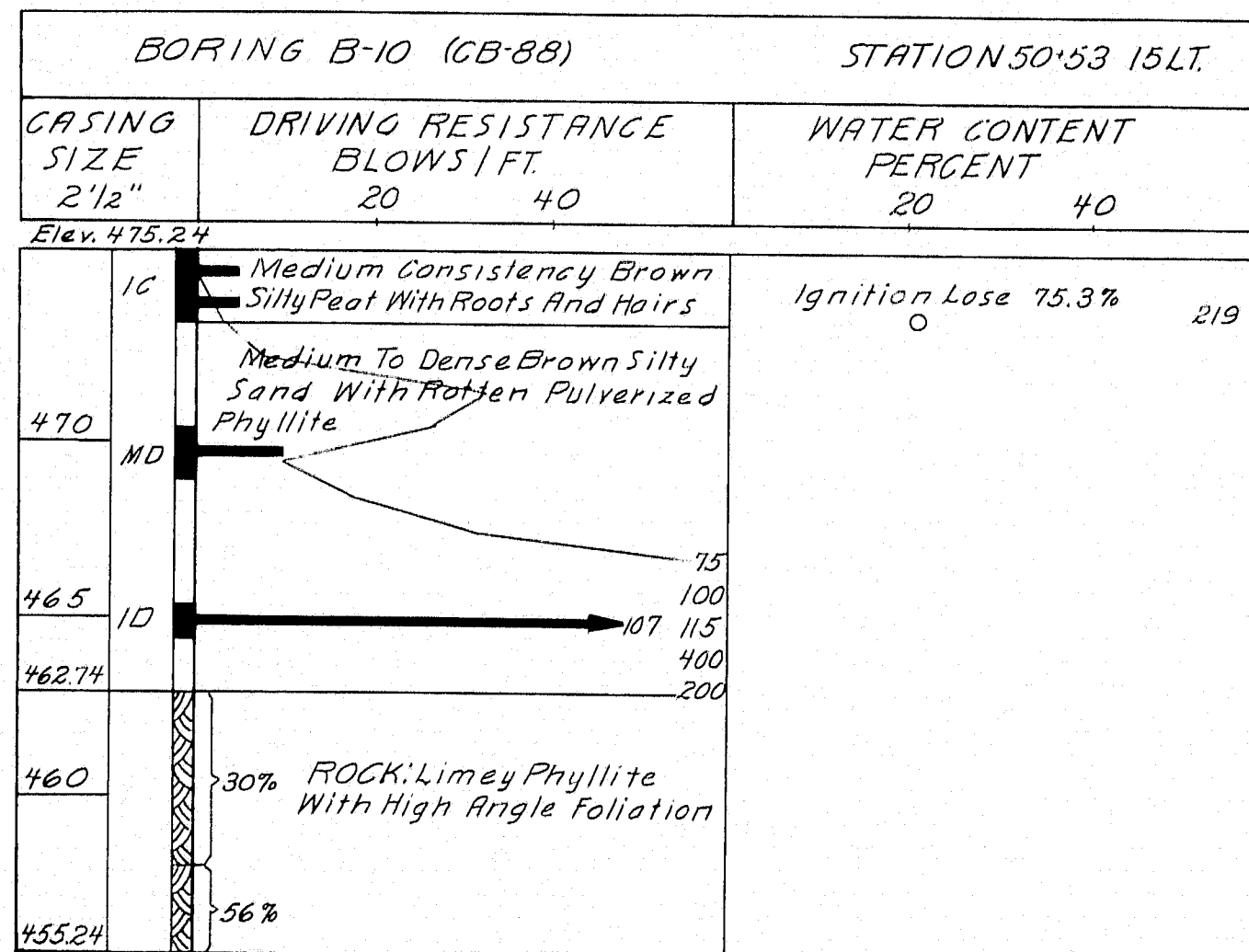
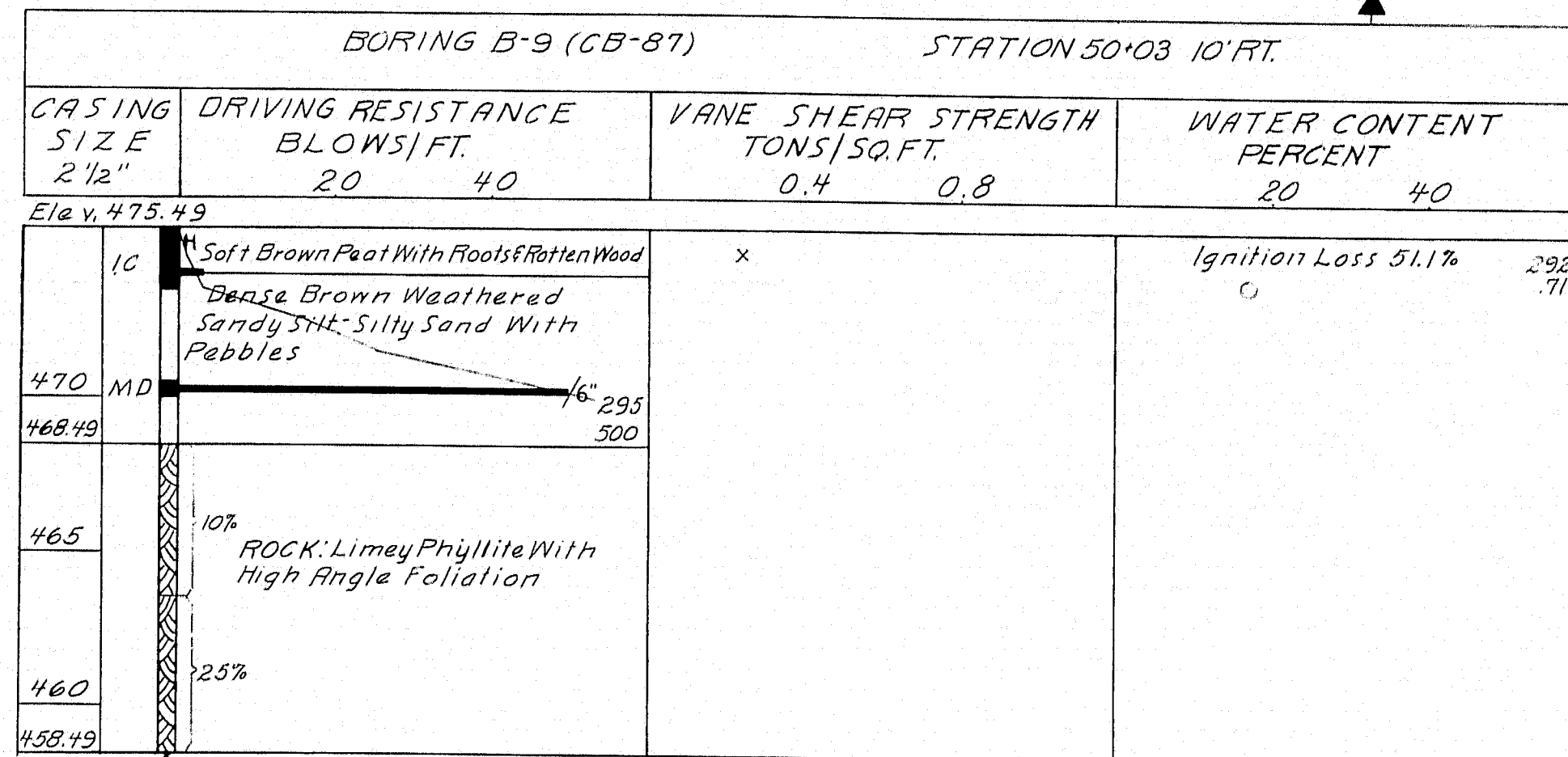
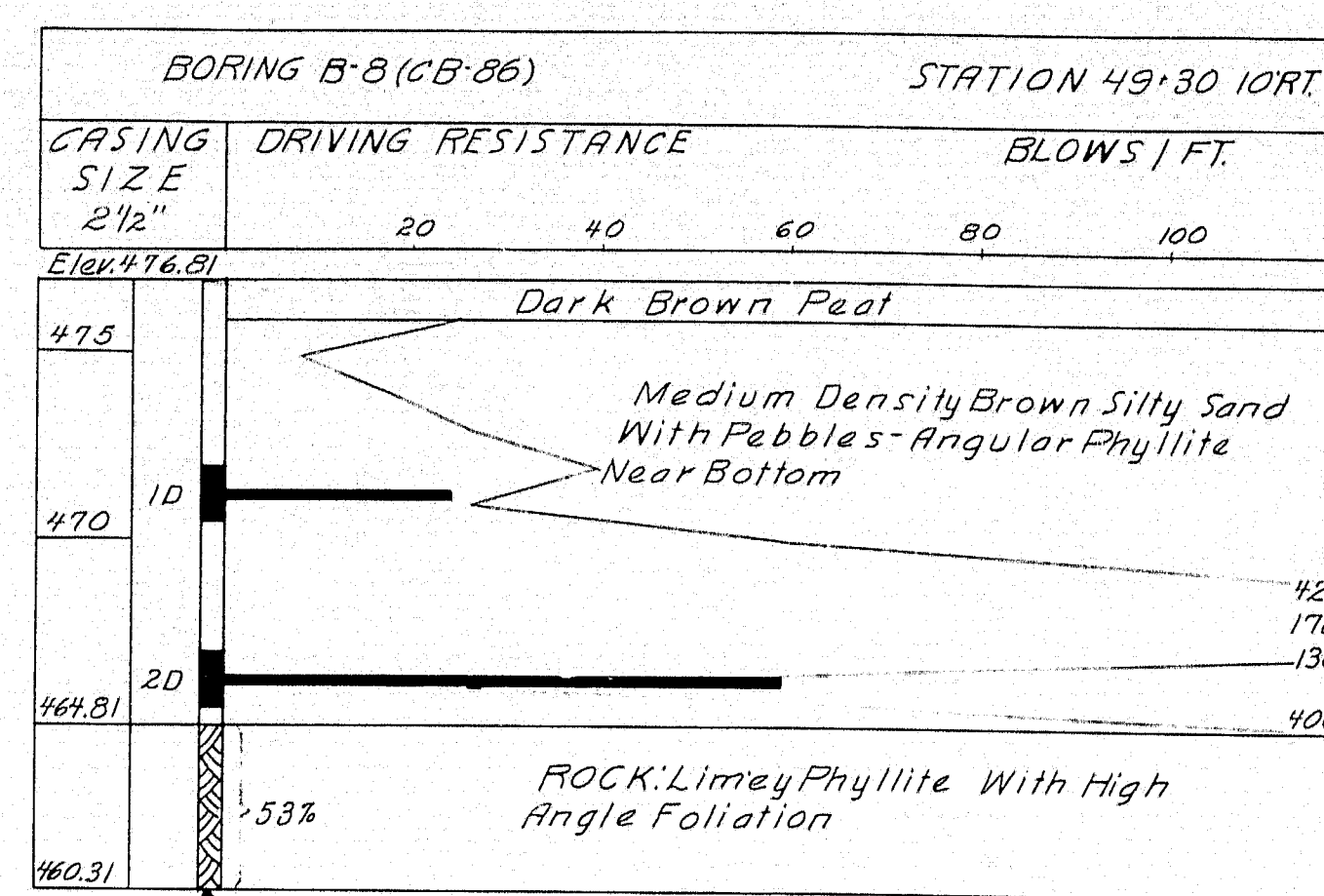
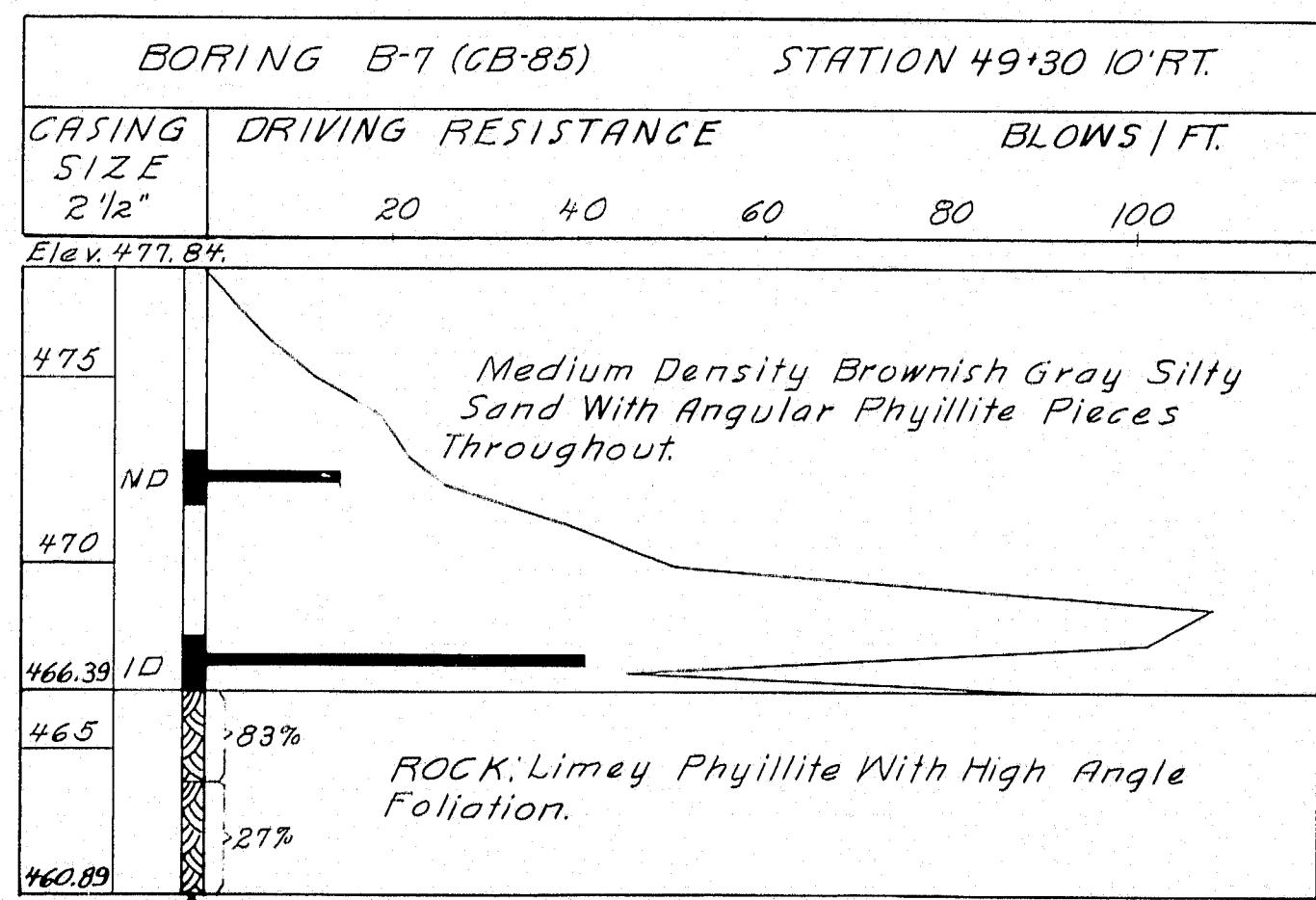
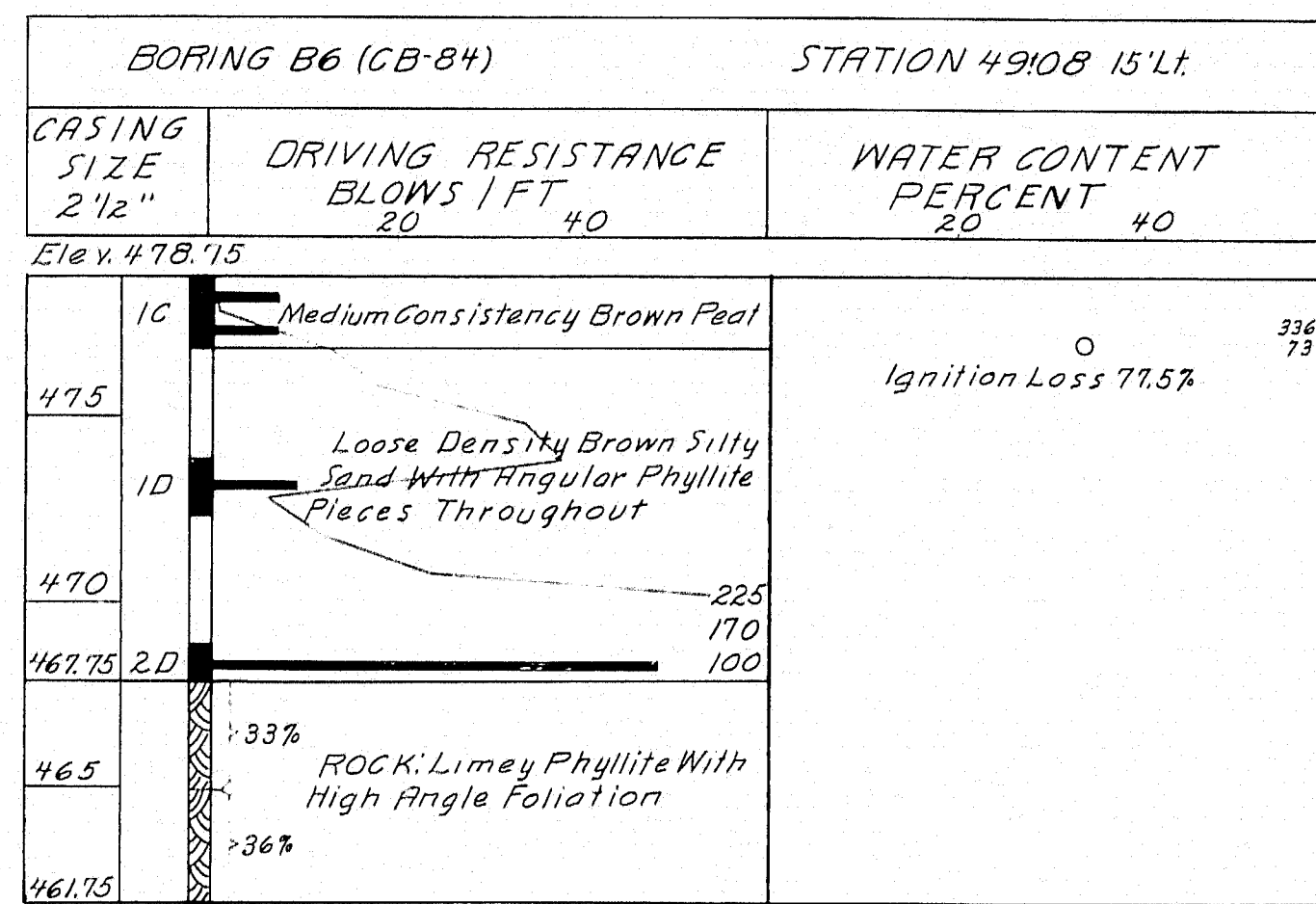
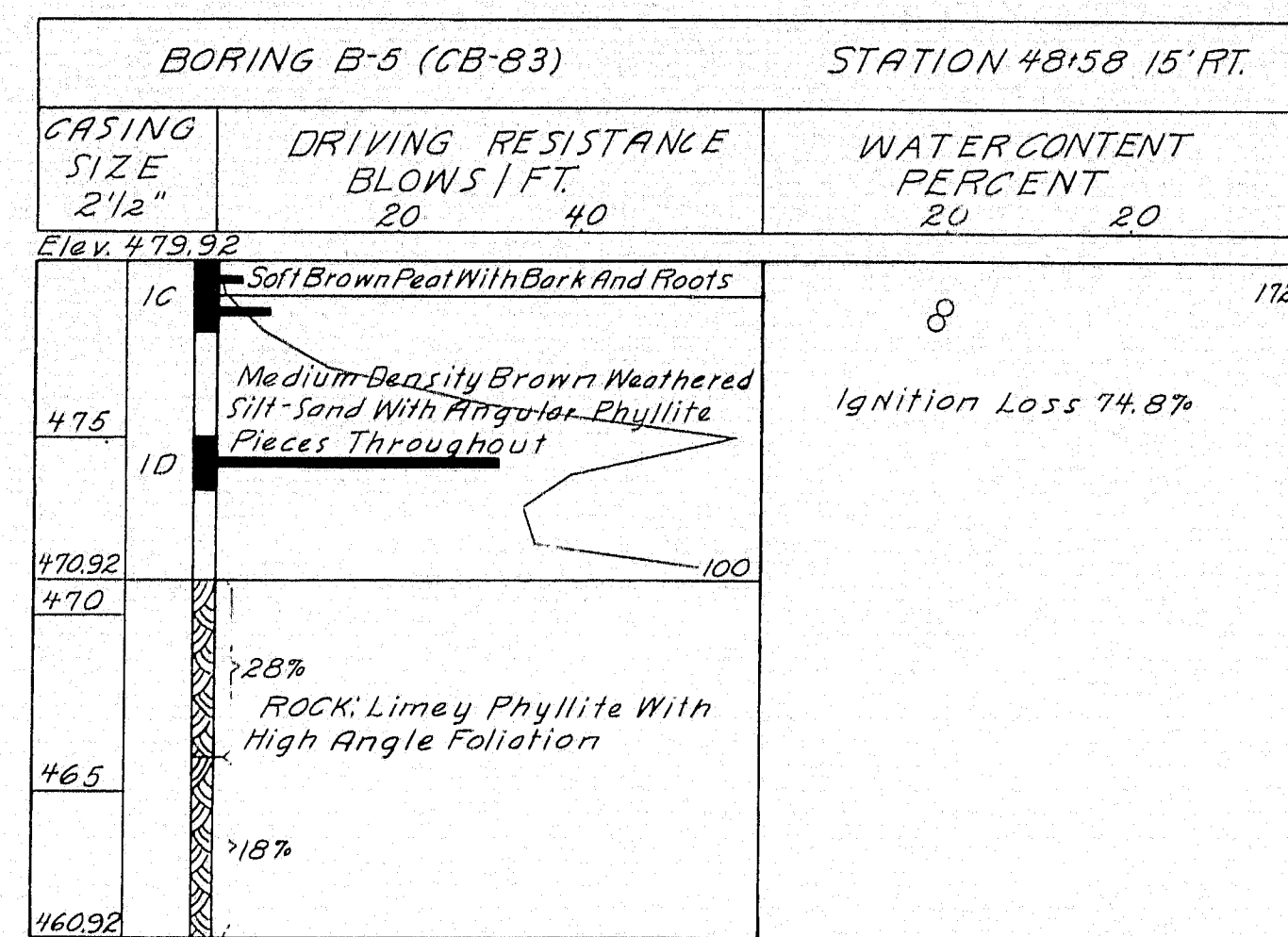
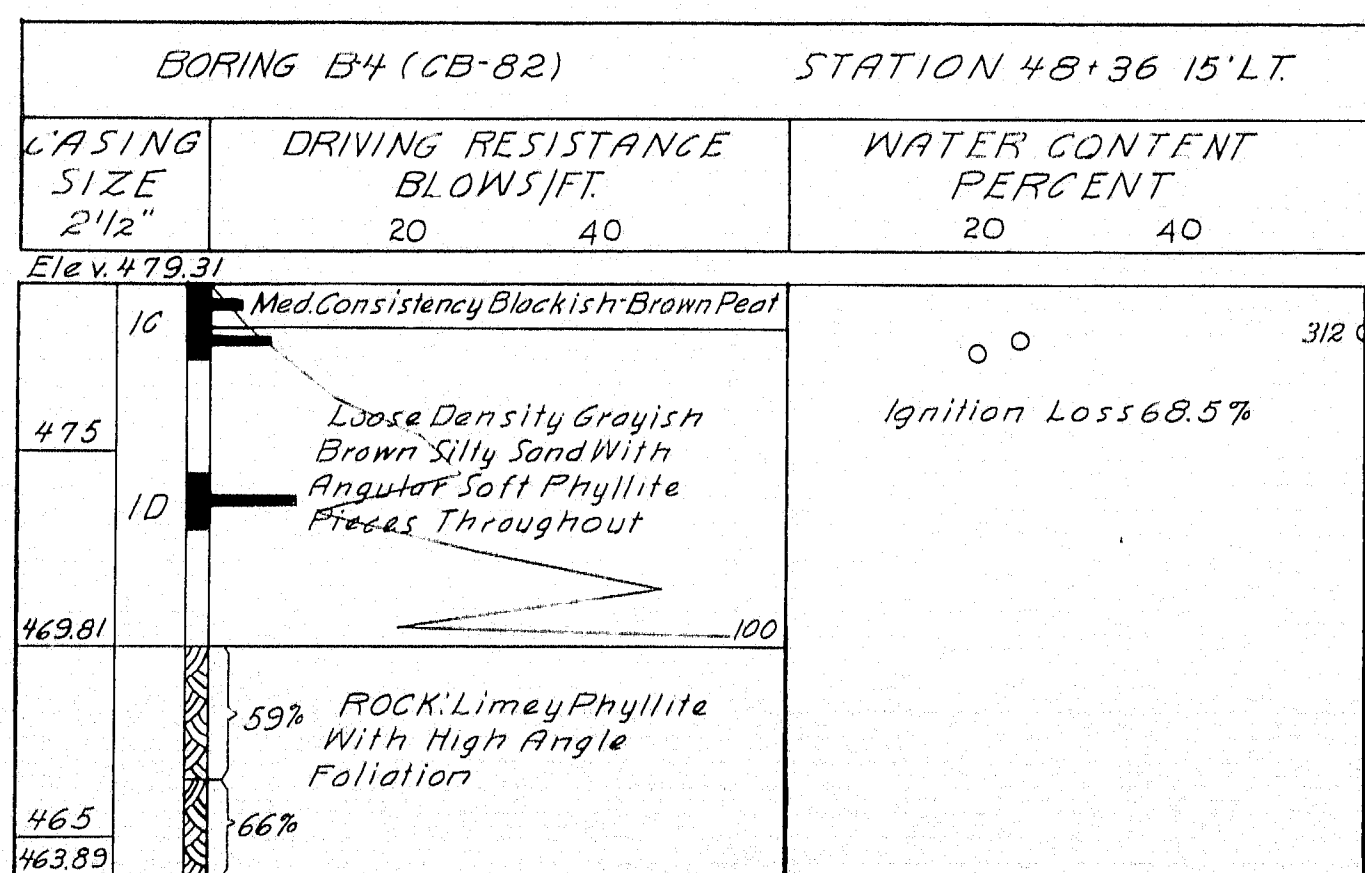
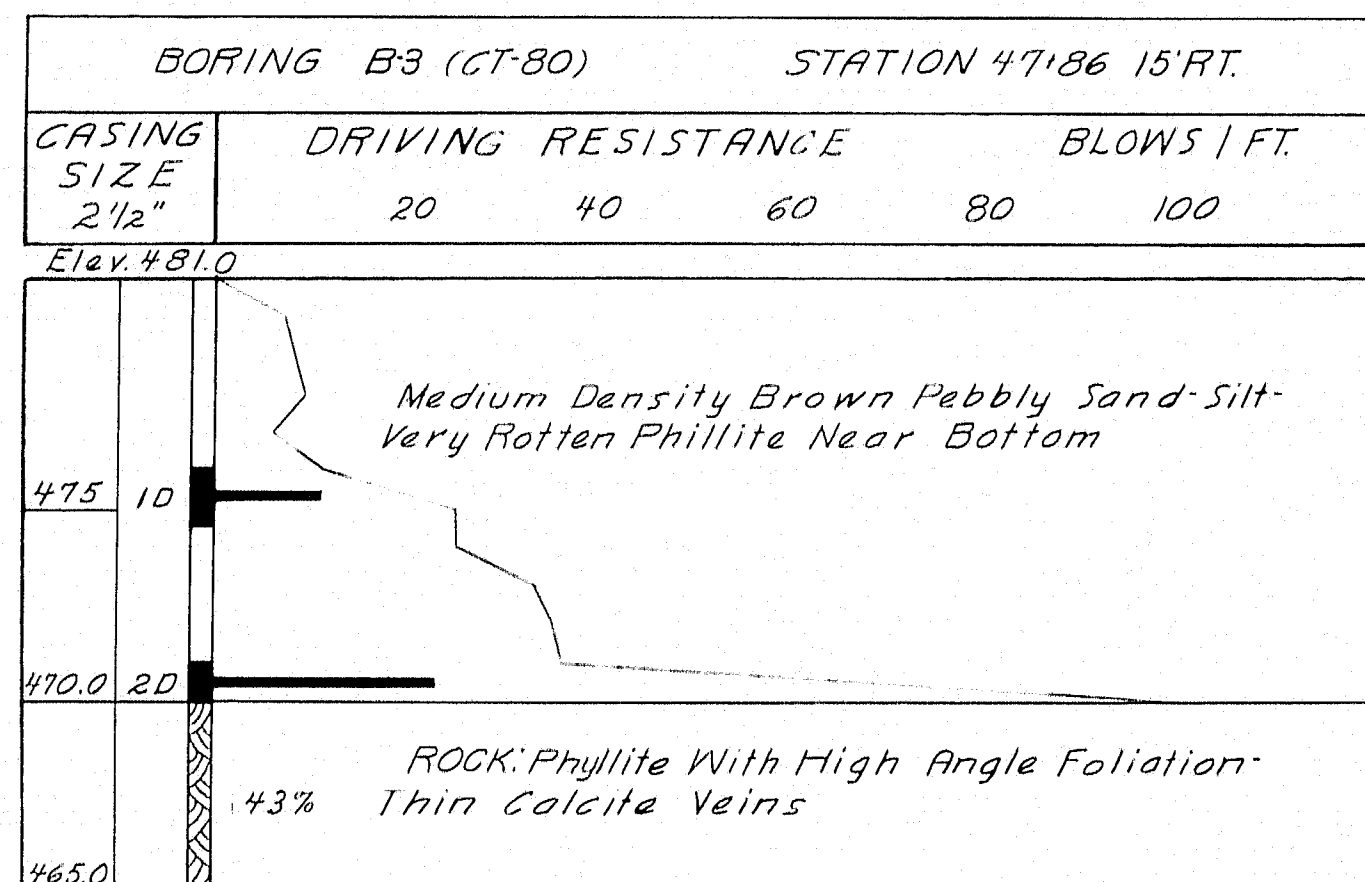
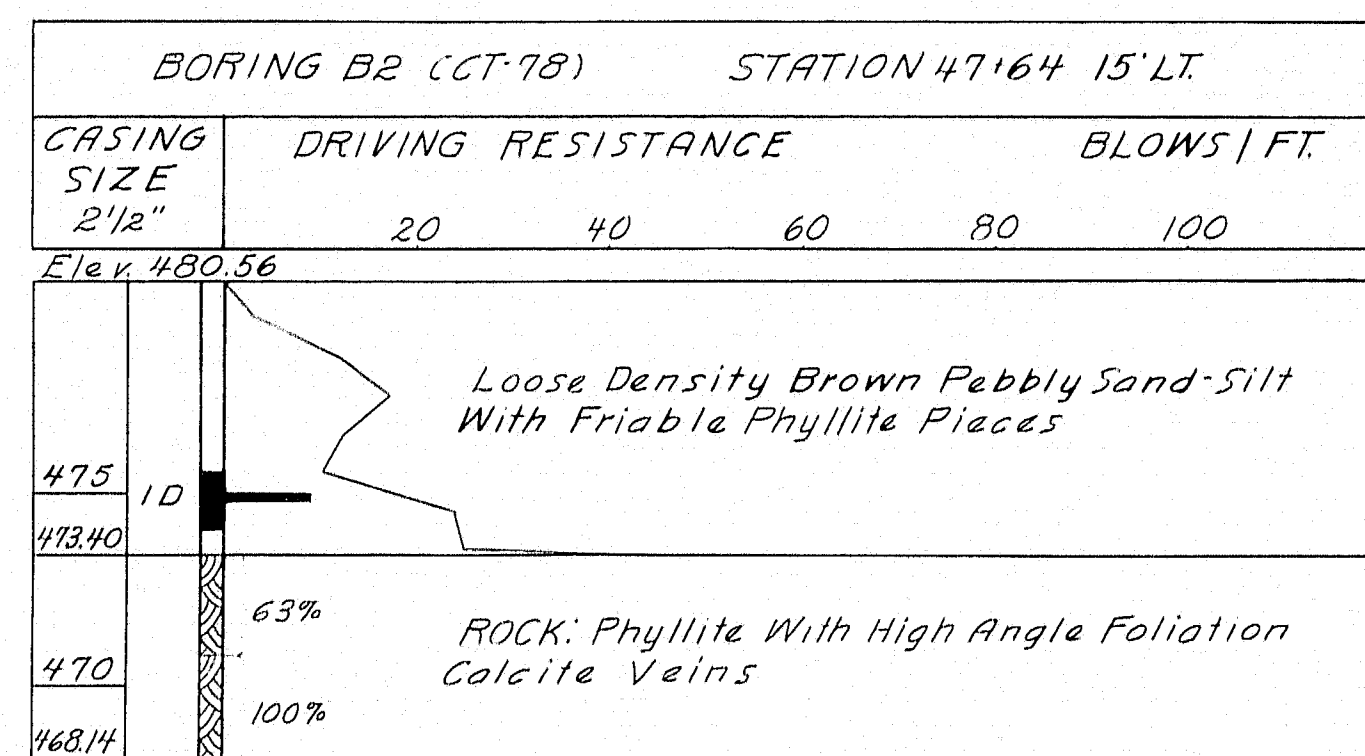
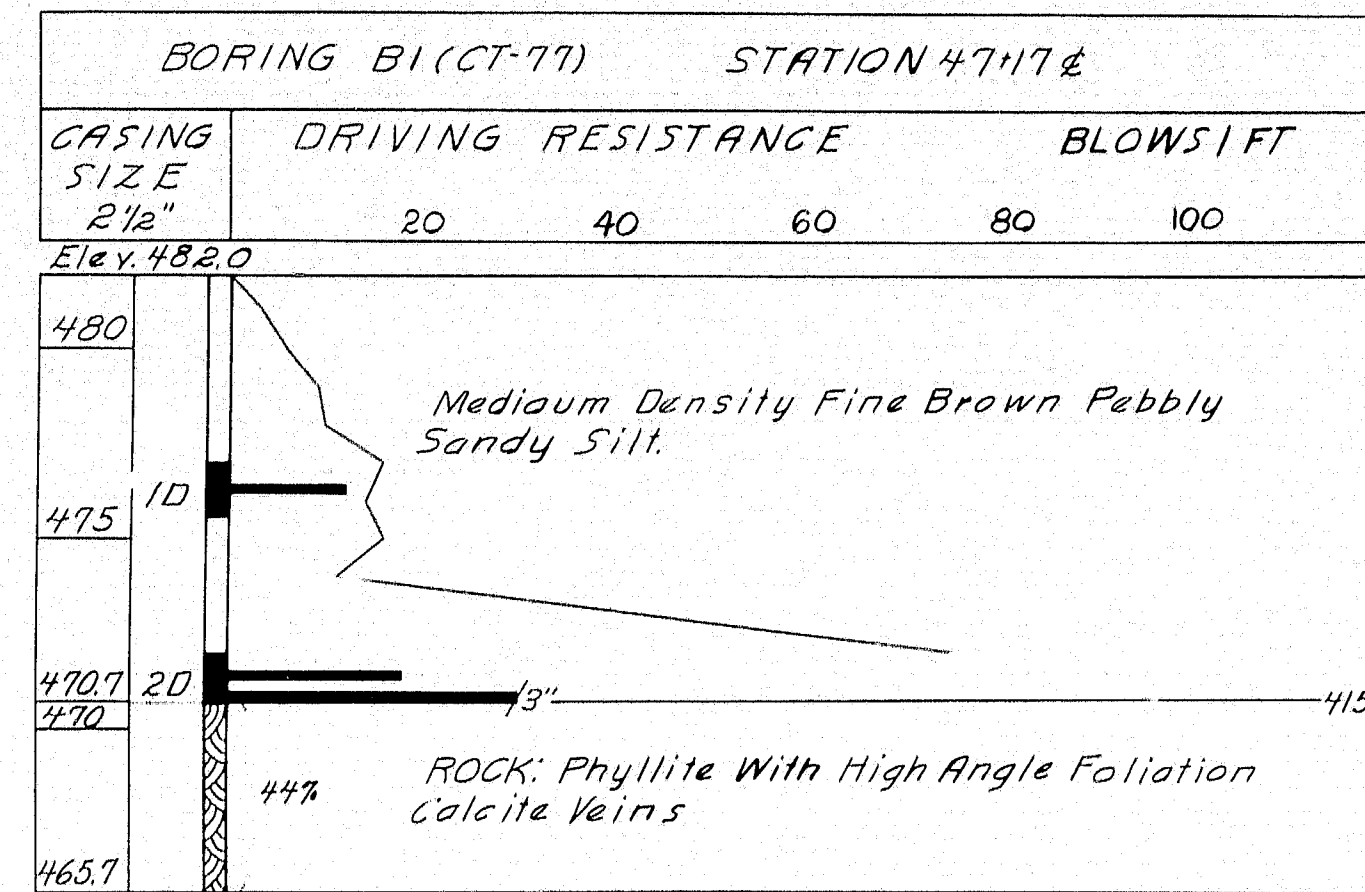
NEW YORK BOSTON KANSAS CITY

SHEET 2 OF 11 AUGUSTA, MAINE AUGUST 1965

M-24PS ISLAND FALLS (36)







NOTE: For boring location and sections see Sheet 2.

#### BORING NOTES

- Number of blows required to drive extra heavy casing one foot with 400 ft. lbs. of energy per blow.
- Location of sample or sample attempt.
- ID SFT Sampler #1290's.
- ND Unsuccessful sample attempt and type of sampler.
- Bottom of Boring (may not be bottom of soil strata).
- Refusal of drill rods or casing (may not be ledge).
- Location cored by diamond bit and per cent recovery of rock.
- Number of blows required to drive spoon or tubing one foot with 350 ft. lbs. of energy per blow.
- IC 2" O.D. 16 ga. seamless tubing.

#### SHEAR NOTES

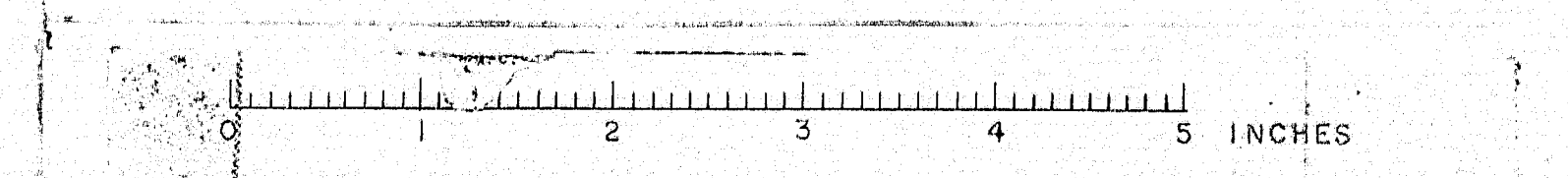
- X Laboratory vane shear strengths

#### WATER CONTENT NOTES

- O Natural water contents, given as per cent of dry weight.

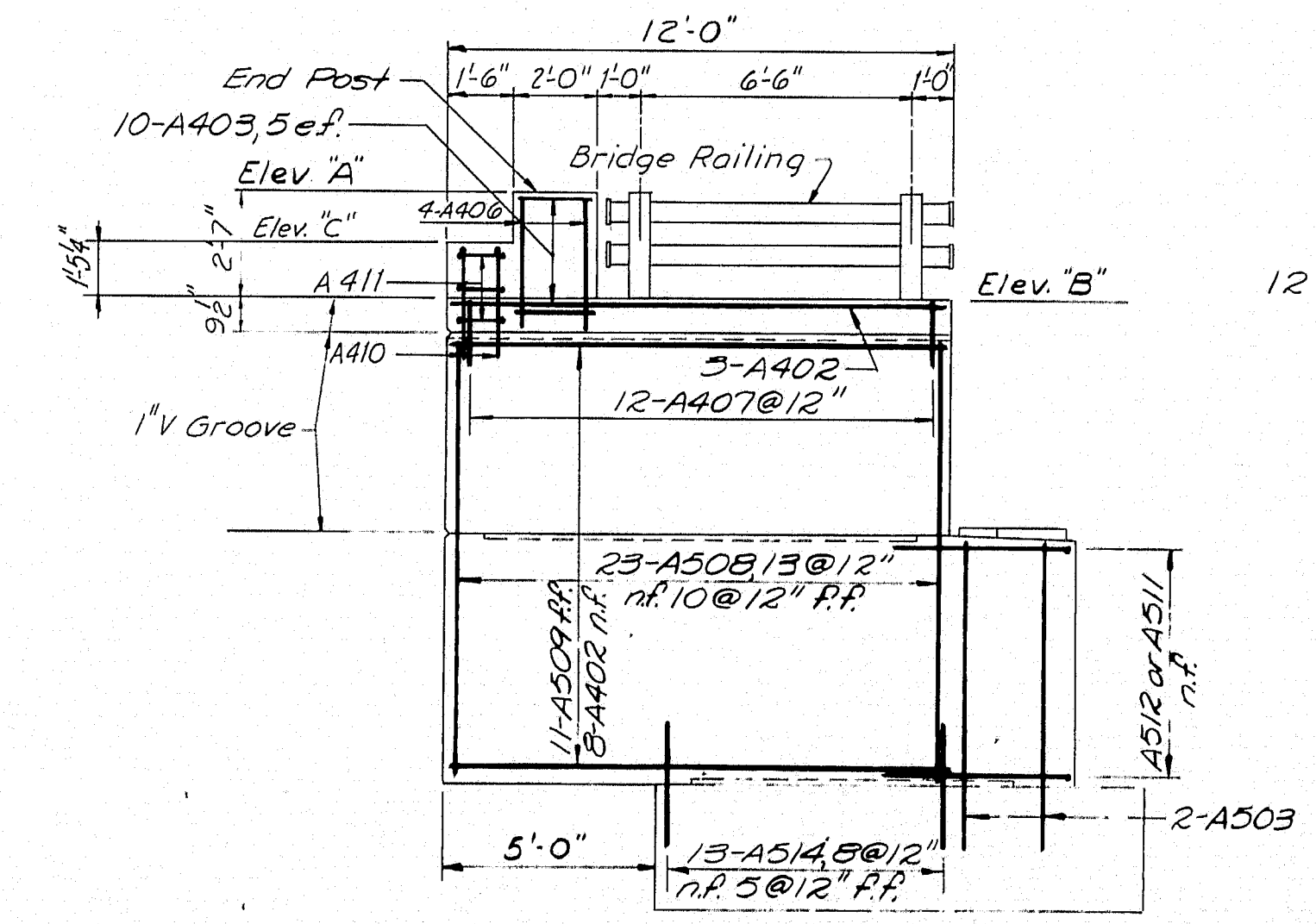
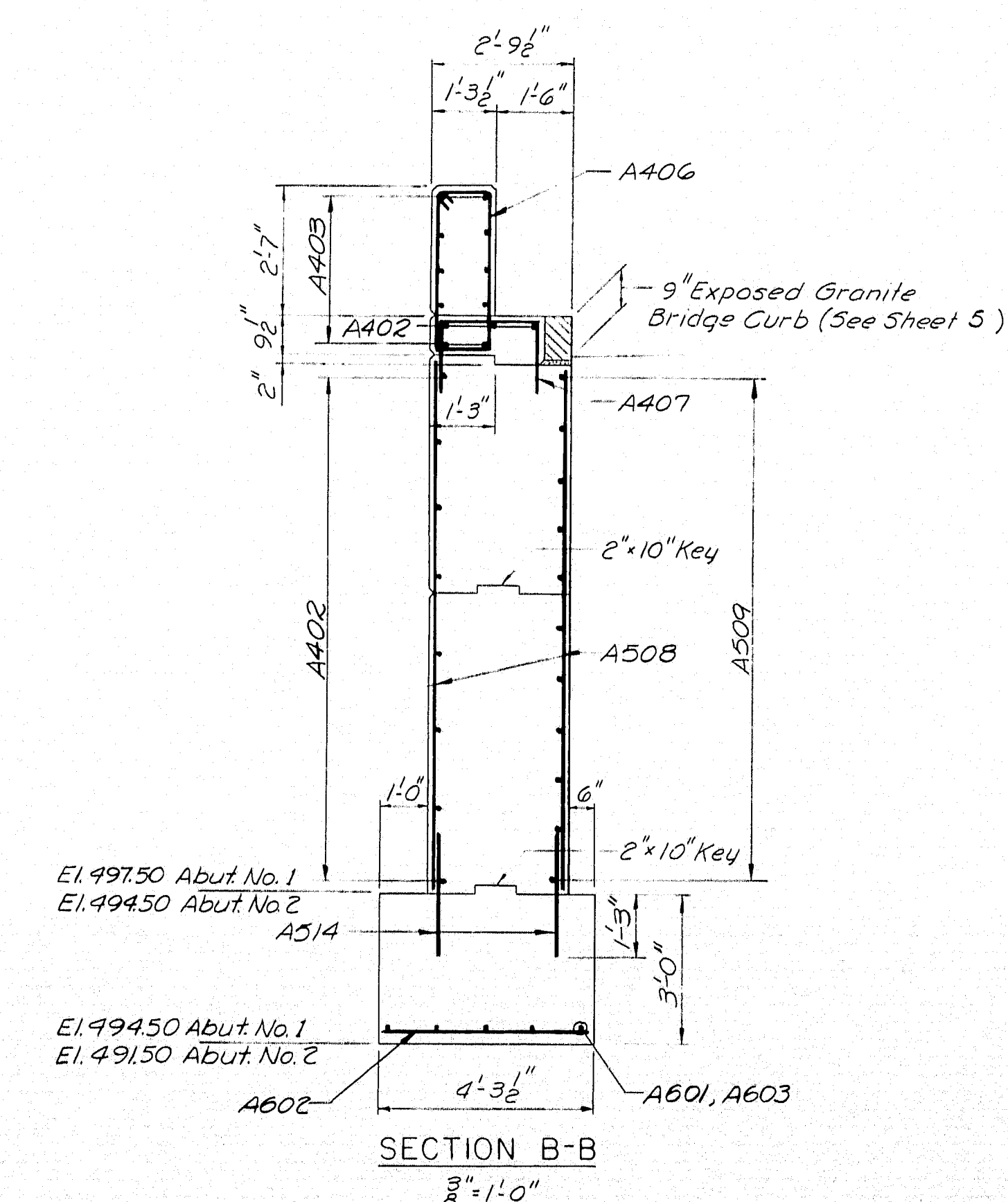
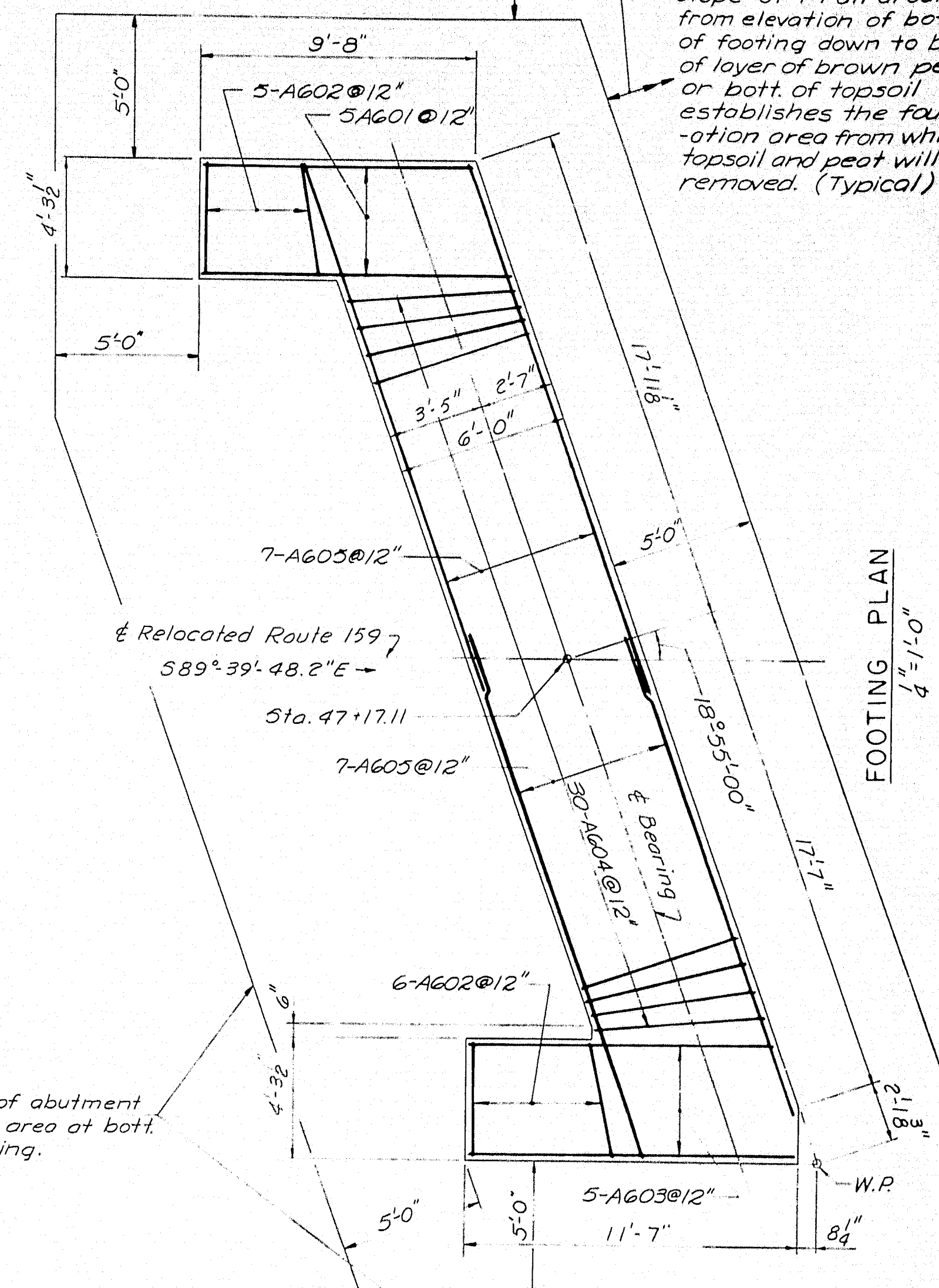
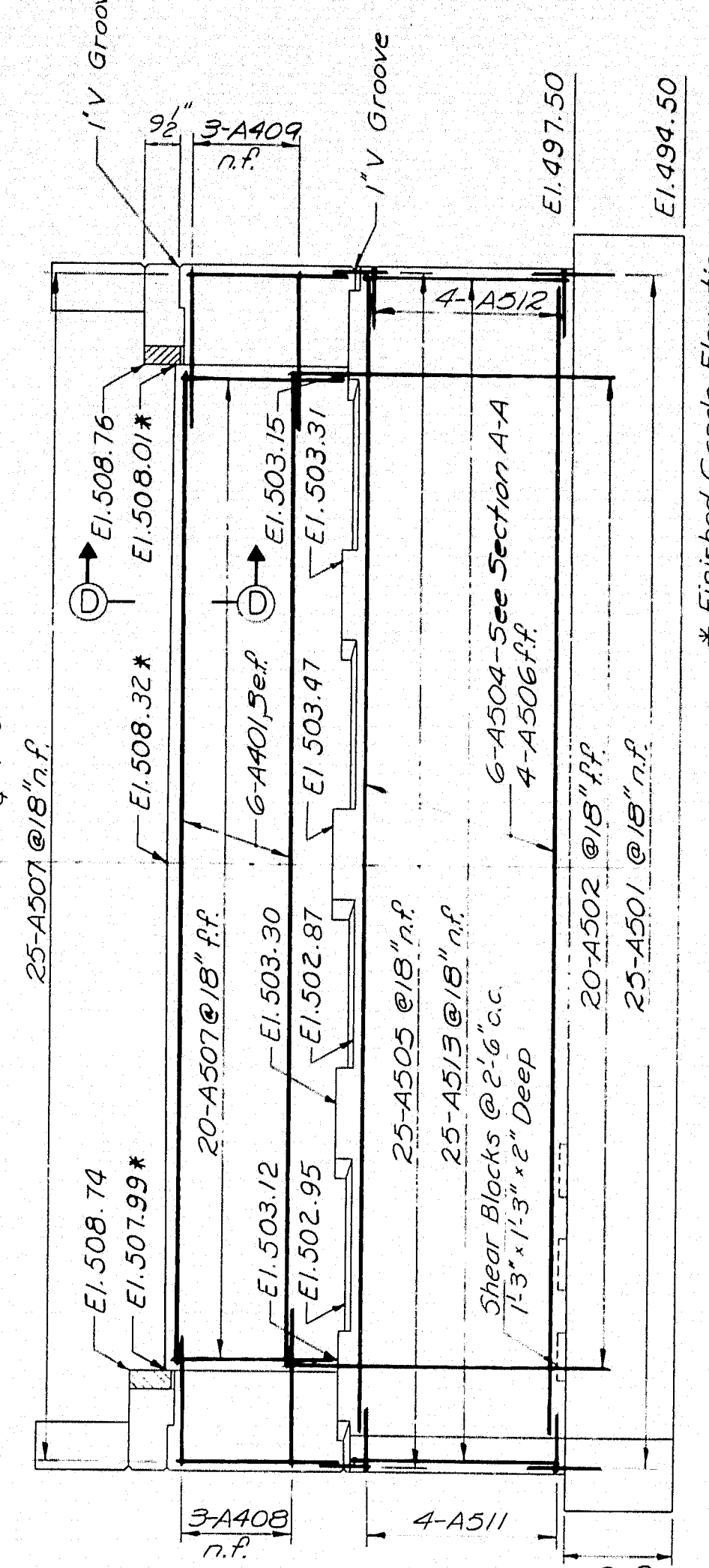
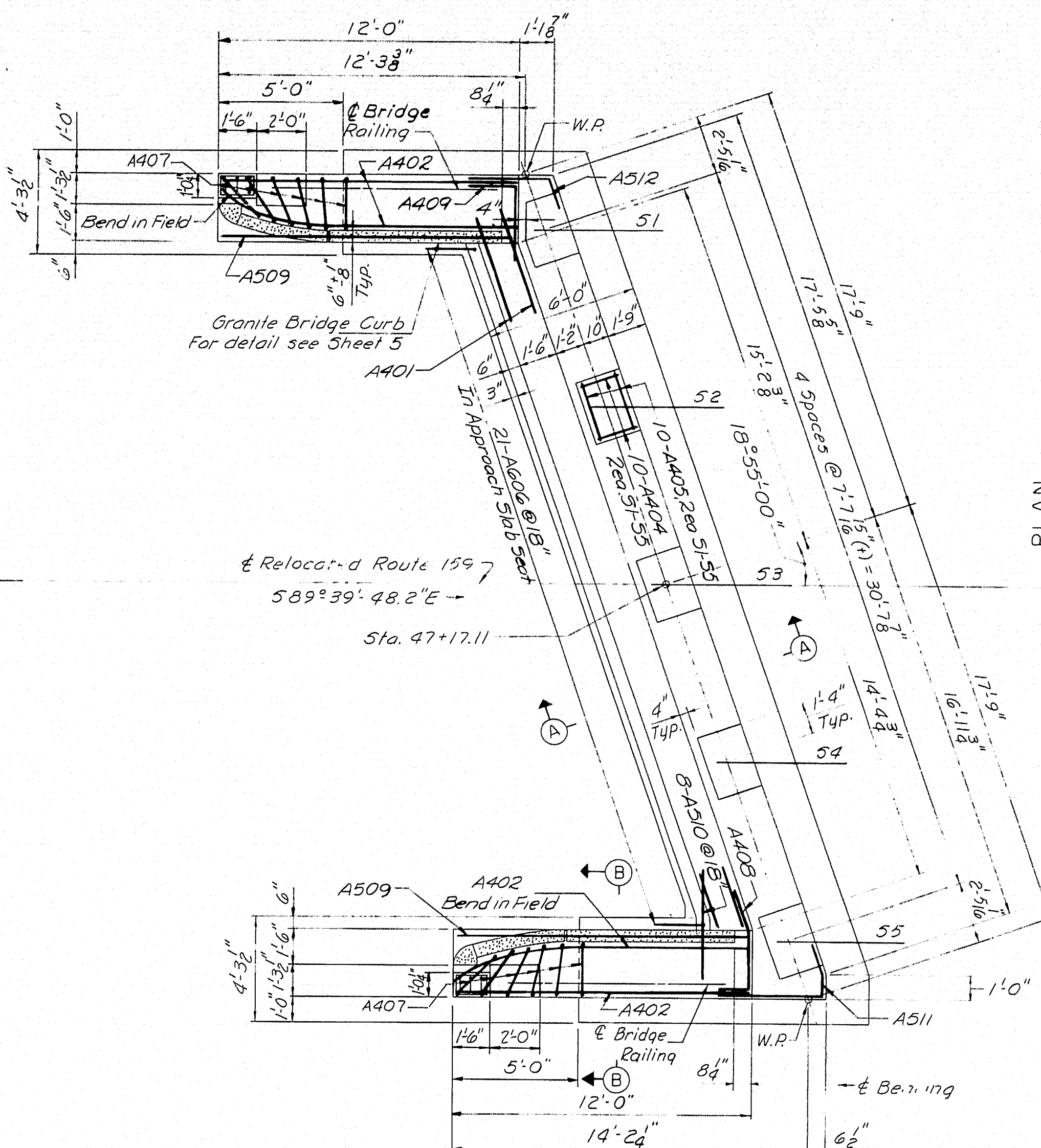
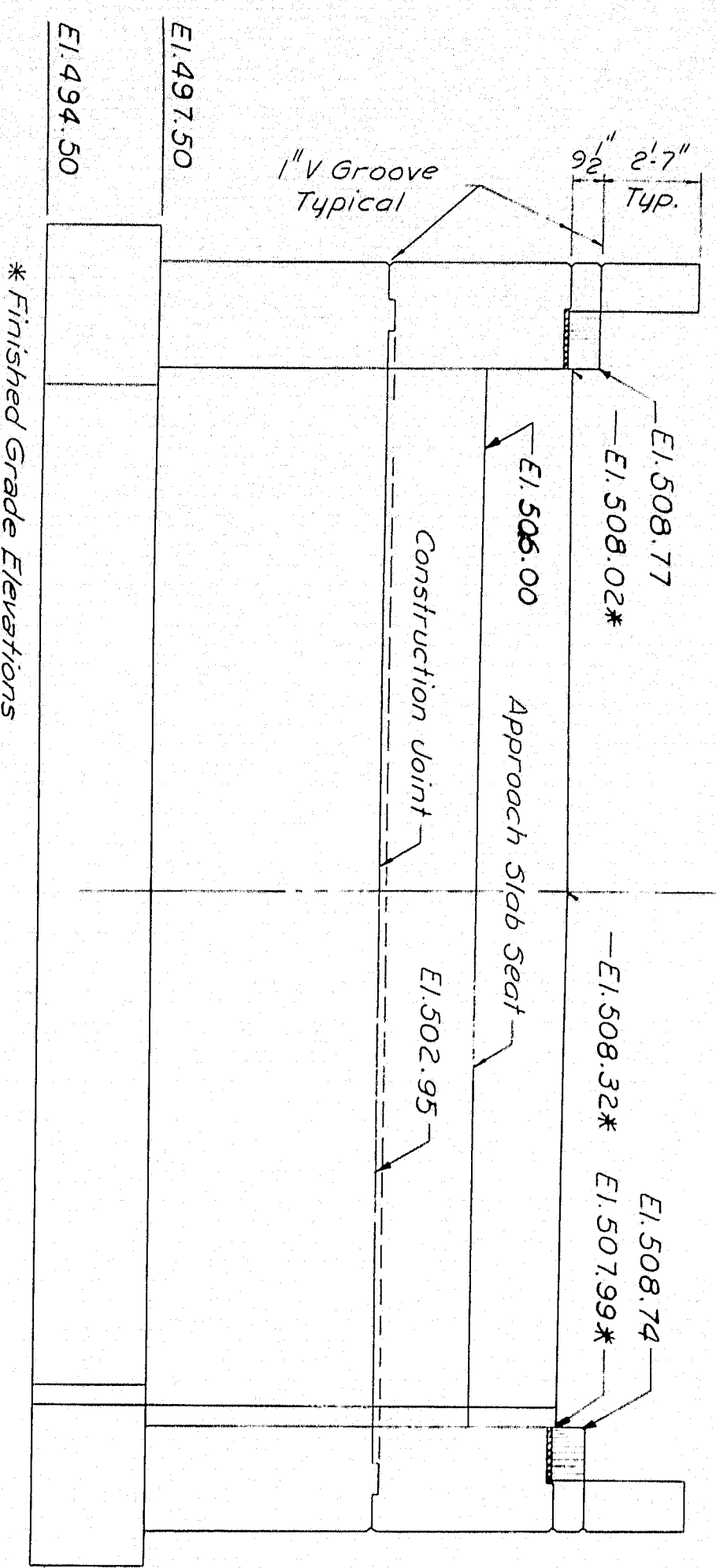
DESIGN- TRACE- CHECK- P.R.N.	DETAIL G.F.K.	BRIDGE NO. SURVEY- PLOT-
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159		
OVER INTERSTATE 95		
IN THE TOWN OF ISLAND FALLS AROOSTOOK COUNTY		
FOUNDATION SURVEY		
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS	SHEET 3 OF 11 AUGUSTA, MAINE AUGUST 1965 ISLAND FALLS (36)	

M-2486

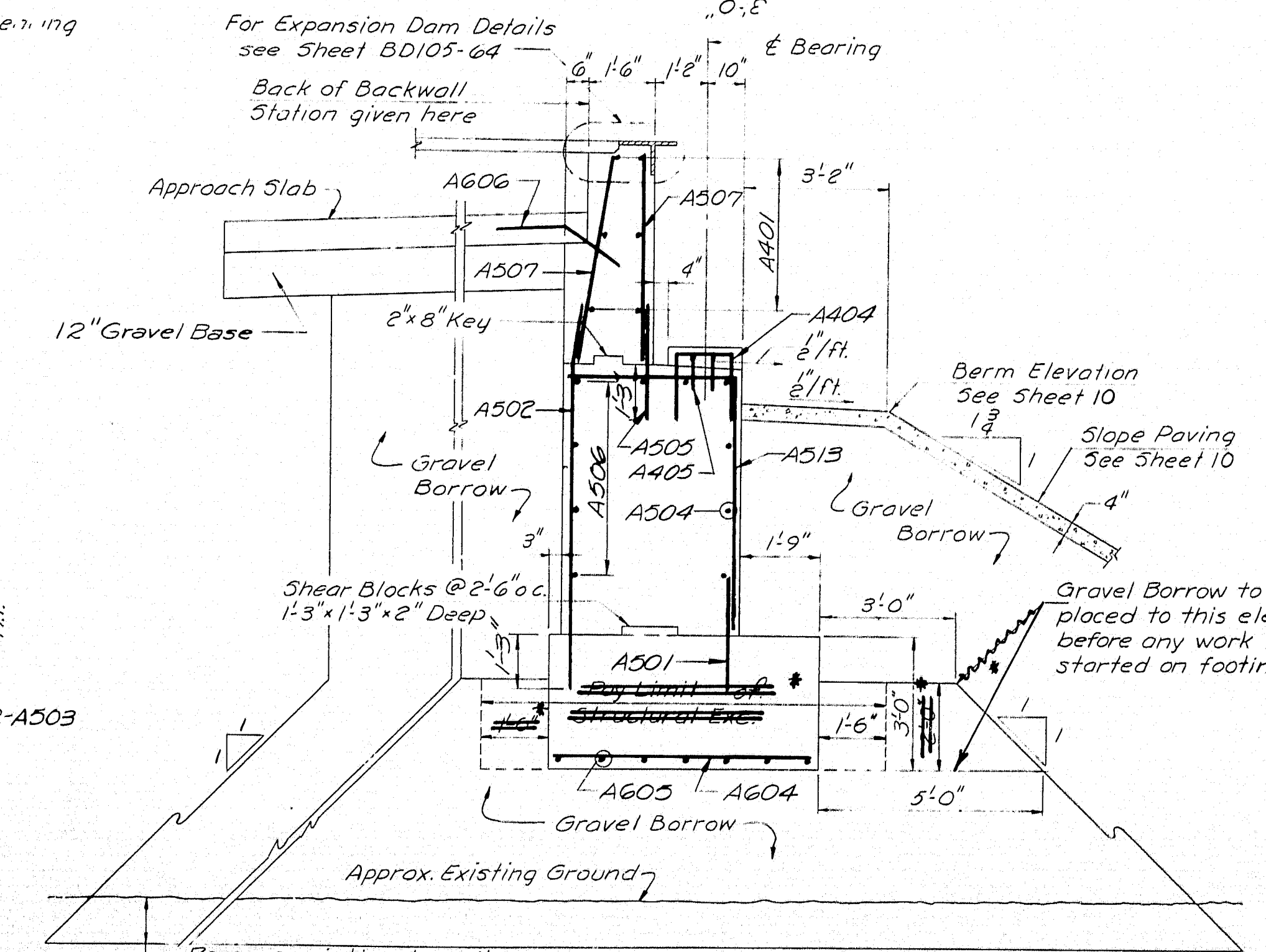




Slope of 1:1 all around from elevation of both of footing down to both of layer of brown peat or both of topsoil establishes the foundation area from which topsoil and peat will be removed. (Typical)



	ABUT. NO. 1		ABUT. NO. 2	
	N. Wing	S. Wing	N. Wing	S. Wing
ELEV. 'A'	511.38	511.36	508.45	508.27
ELEV. 'B'	508.76	508.74	506.08	505.91
ELEV. 'C'	510.23	510.21	507.30	507.12

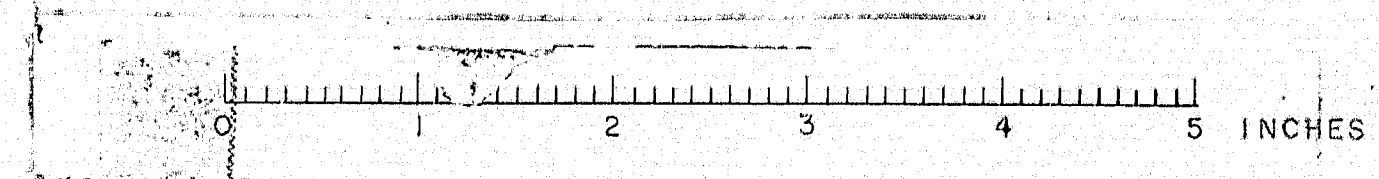


- GENERAL NOTES:
1. For Approach Slab Details see Sheet 5.
  2. Paint Bridge Seal, face of backwall, and down to 1'0" below top of slope paving on face and ends of breast wall with Gray Epoxy Resin Surface Sealant.
  3. Dress bearing areas 1" larger all around than masonry plates to exact elevations shown.
  4. Reinforcing steel to have 3" minimum cover unless otherwise shown.
  5. Granite Bridge Curb means "Vertical Bridge Curb Type 1" Item 901-24 or 901-25.
  6. Place Reinforcing Steel to clear Anchor Bolts.
  7. For Section D-D see Sheet No. 5.
  8. Concrete in End Posts to be paid for under 701-33, R.C.C. in Abutments & Ret. Walls.
  9. n.f. denotes near face, f.f. denotes far face, e.f. denotes each face.
  10. For Guard Rail End Post Details see sheet 8.

DESIGN - E.F.K. DETAIL - J.M.M.	BRIDGE NO. SURVEY - PLOT
STATE HIGHWAY COMMISSION BRIDGE DIVISION	
RELOCATED ROUTE 159 OVER INTERSTATE 95 IN THE TOWN OF ISLAND FALLS ARROOSTOOK COUNTY ABUTMENT NO. 1	

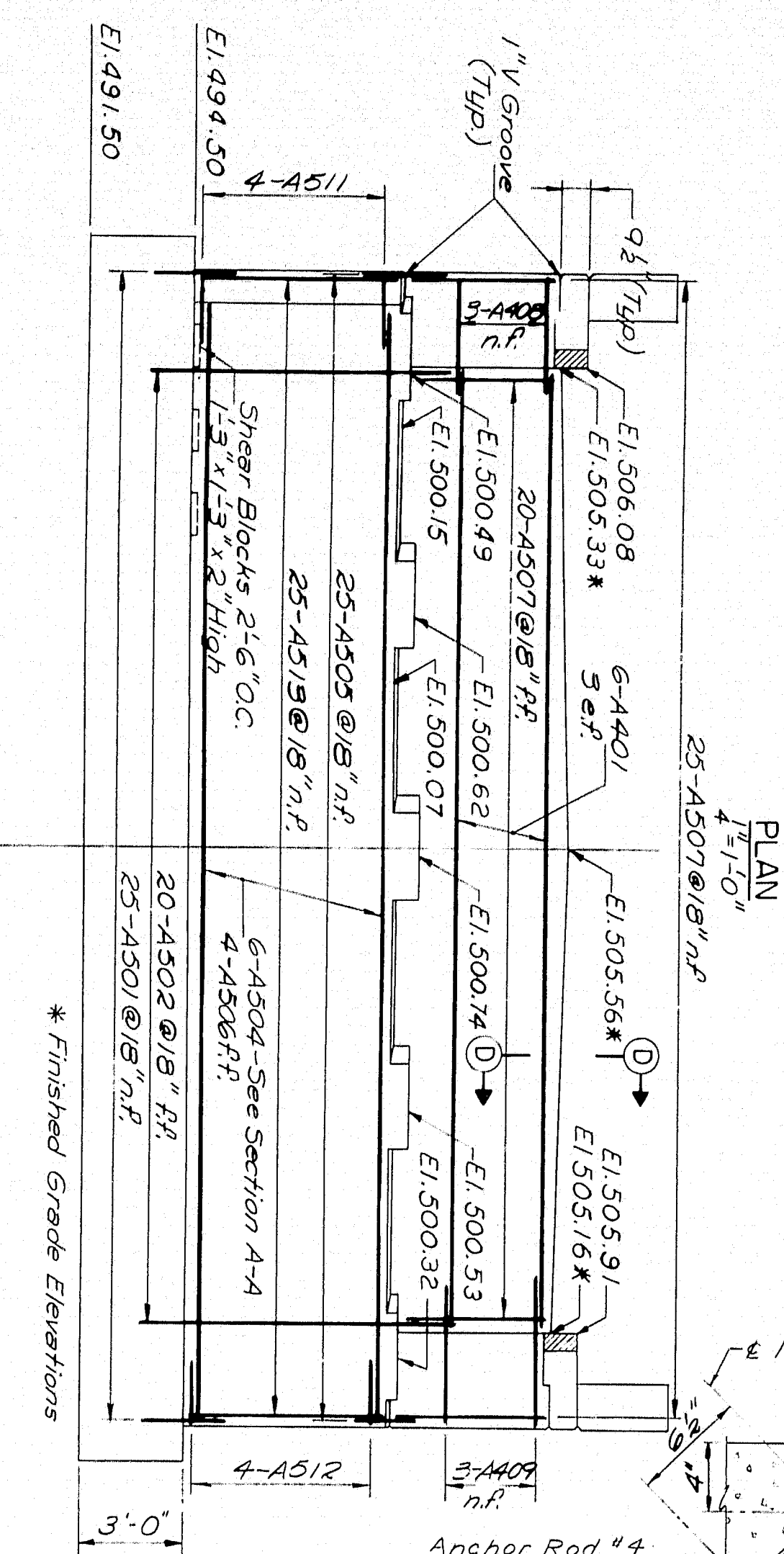
Revised - 1/18/68 F.S. Foster  
HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
NEW YORK BOSTON KANSAS CITY

M-2487

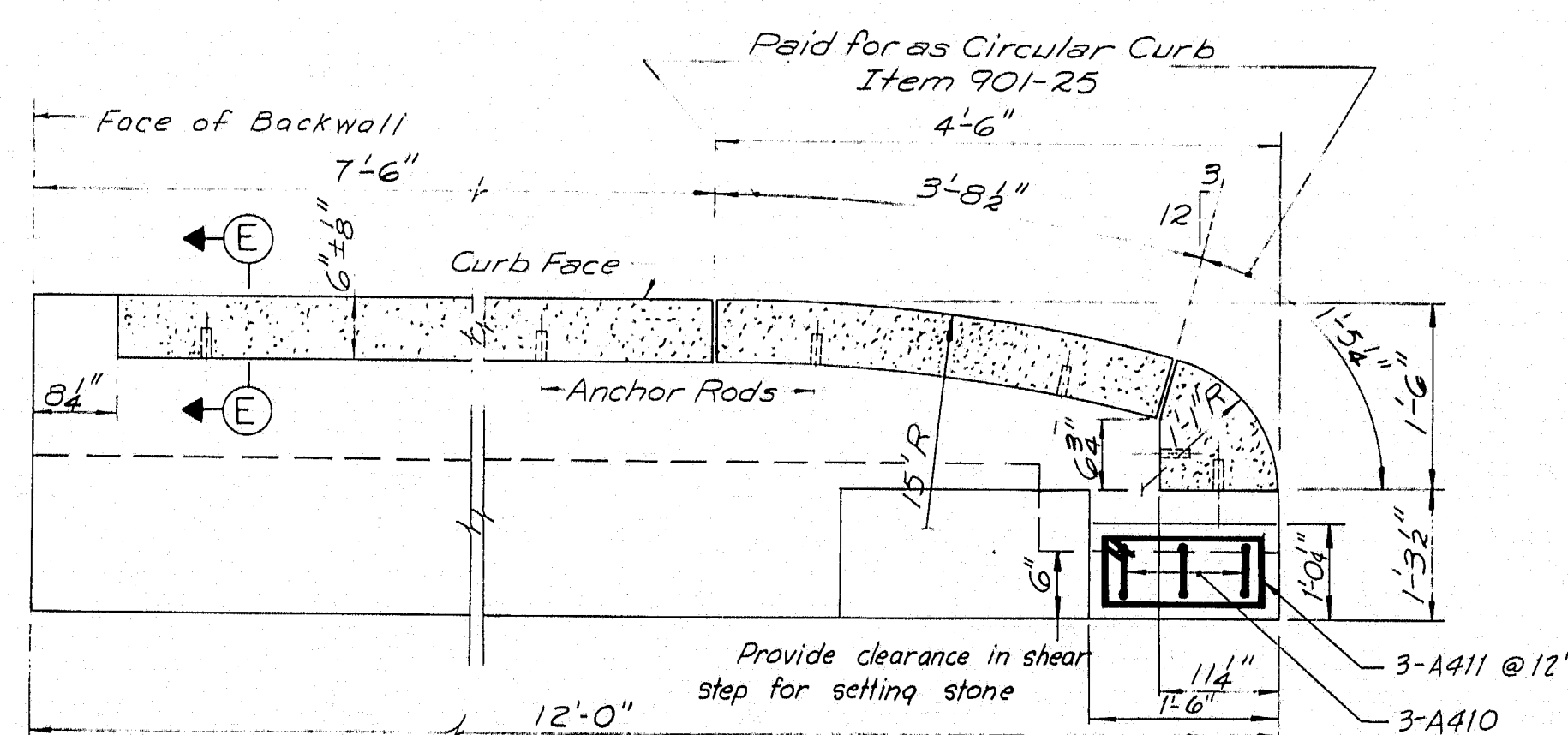




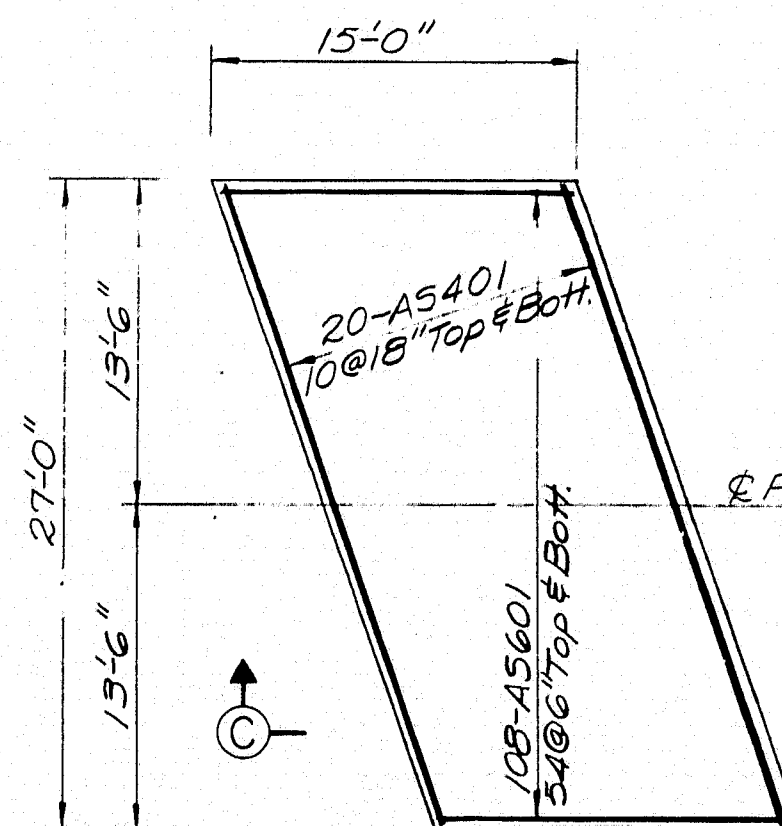
FRONT ELEVATION  
1/2"=1'-0"



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



GRANITE BRIDGE CURB DETAIL  
3/4"=1'-0"

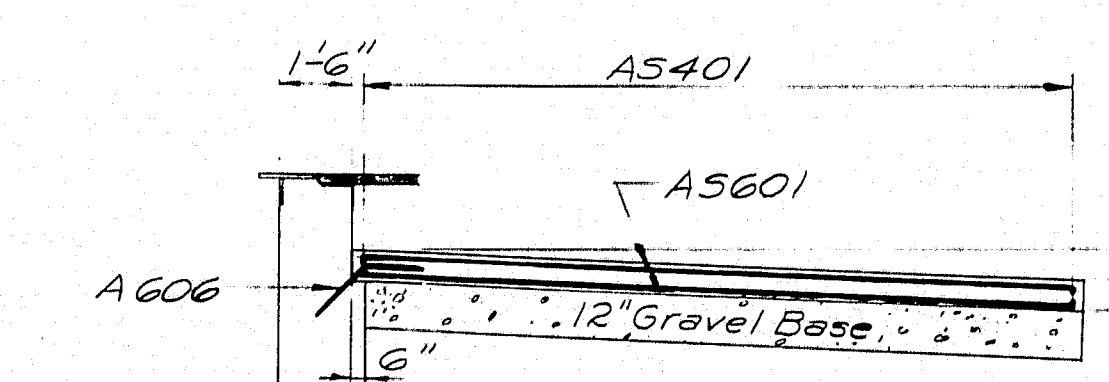


PLAN  
8 1/2"=1'-0"

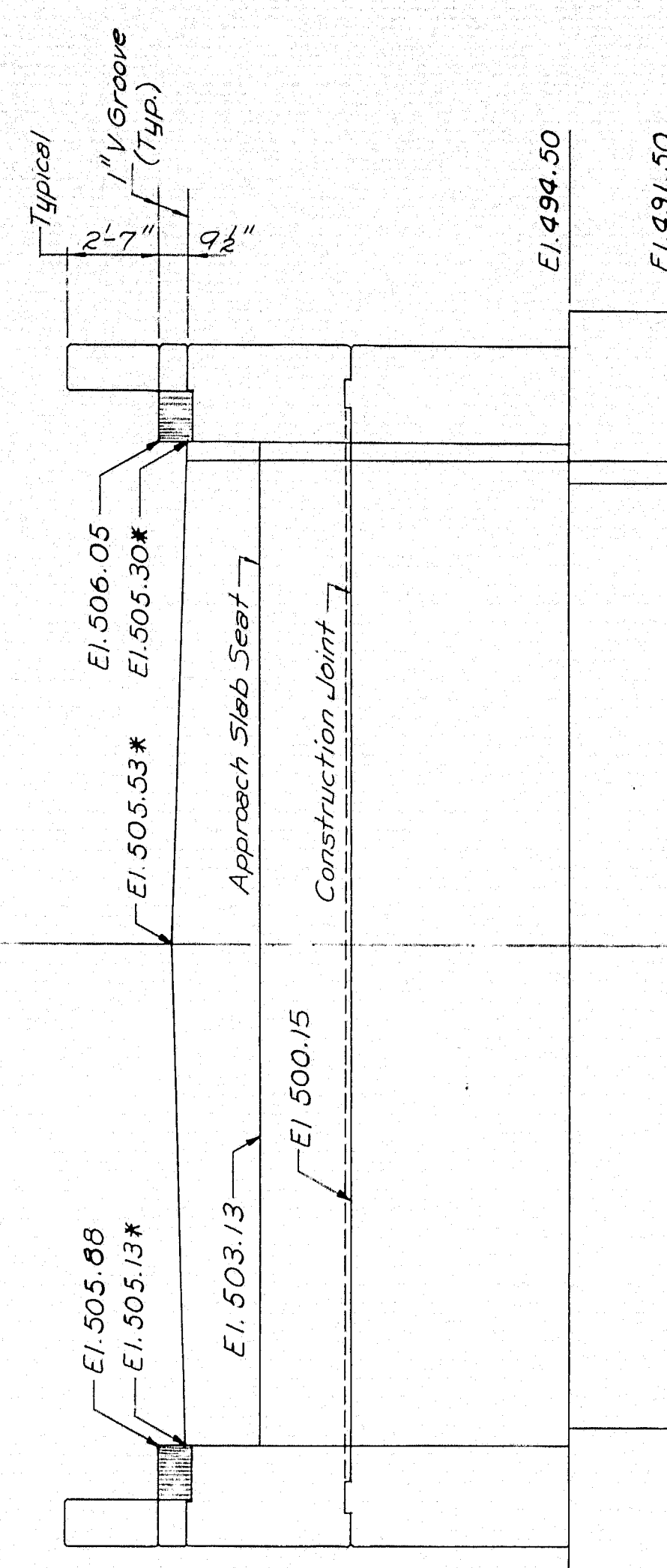
APPROACH SLAB DETAILS  
ABUTMENT NO. 2 SHOWN - ABUTMENT NO. 1 SIMILAR

All material below the 2 1/2" Bit Concrete Surface Course over the top of the approach slab shall be Asphalt Stabilized Base Course placed in layers not exceeding 3" when compacted.

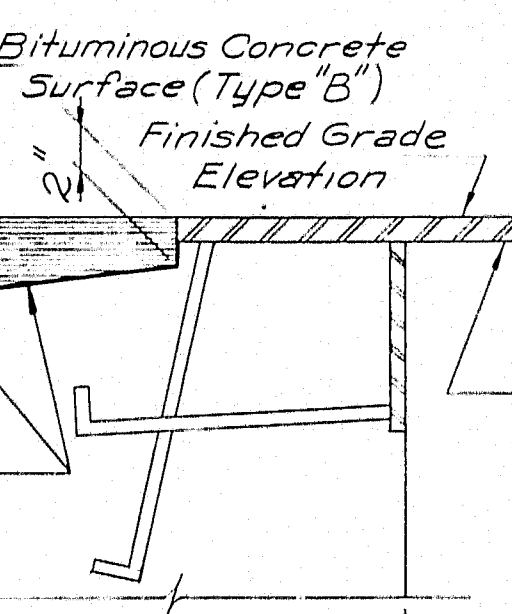
SECTION C-C  
4"=1'-0"



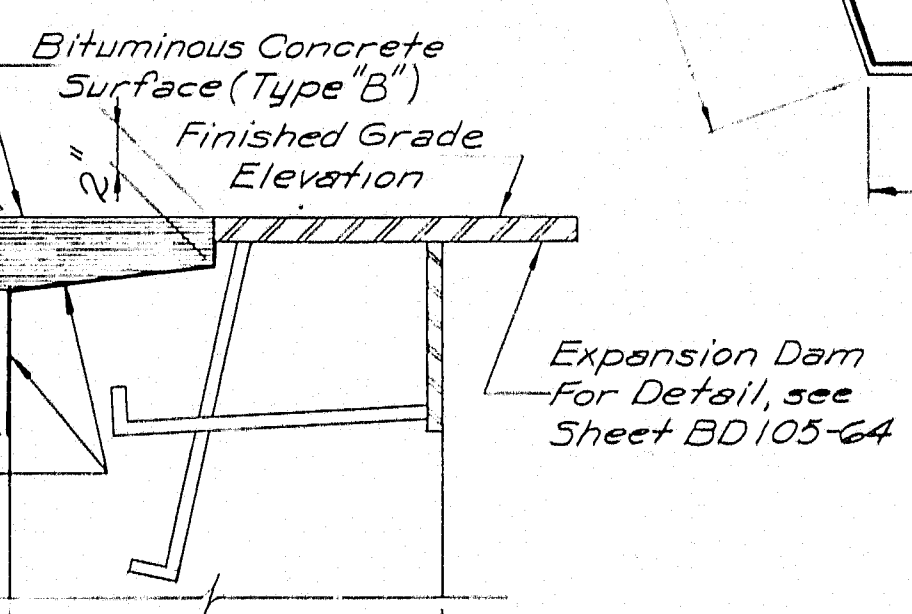
REAR ELEVATION  
1/2"=1'-0"



FOOTING PLAN  
4"=1'-0"



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



Establishment of foundation area and bearing area at this abutment similar to abutment No. 1. See sheet 4.

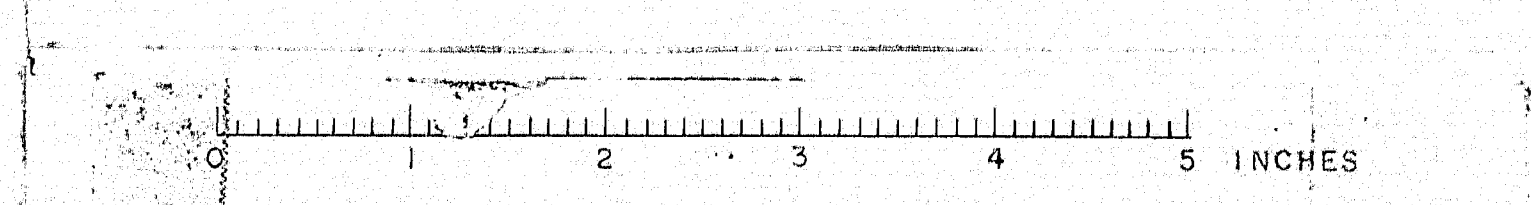
Relocated Route 159  
S 89° 39' 48.2" E

NOTES:  
1. For Sections A-A & B-B see Sheet No. 4.  
2. For General Notes see Sheet No. 4.

DESIGN - E.F.K. DETAIL - RWOL. BRIDGE NO. 1795-9(36)  
TRACE - S.M. SURVEY - PLOT -  
STATE HIGHWAY COMMISSION  
BRIDGE DIVISION  
RELOCATED ROUTE 159  
OVER  
INTERSTATE 95  
IN THE TOWN OF  
ISLAND FALLS  
ARROOSTOOK COUNTY  
ABUTMENT NO. 2 AND APPROACH SLAB  
SHEET 5 OF 11 AUGUSTA, MAINE AUGUST 1965  
ISLAND FALLS (36)

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CONSULTING ENGINEERS  
NEW YORK BOSTON KANSAS CITY

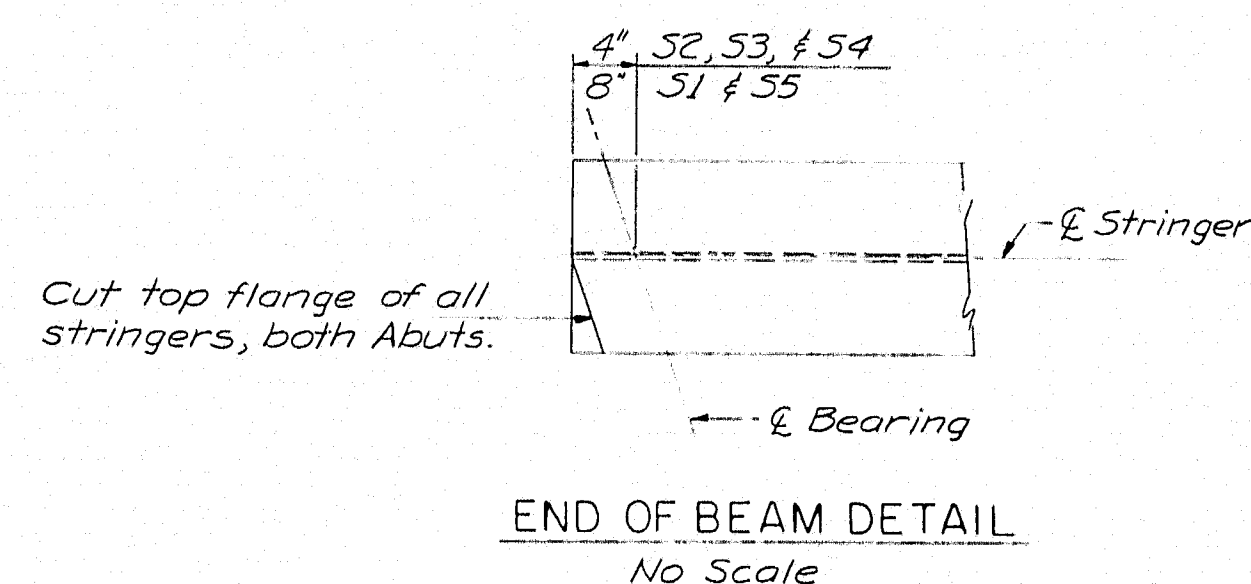
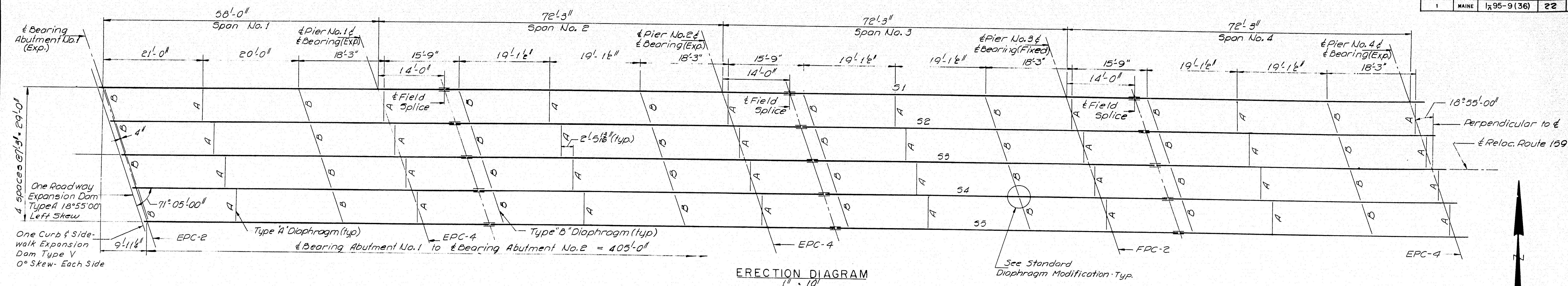
M-2488





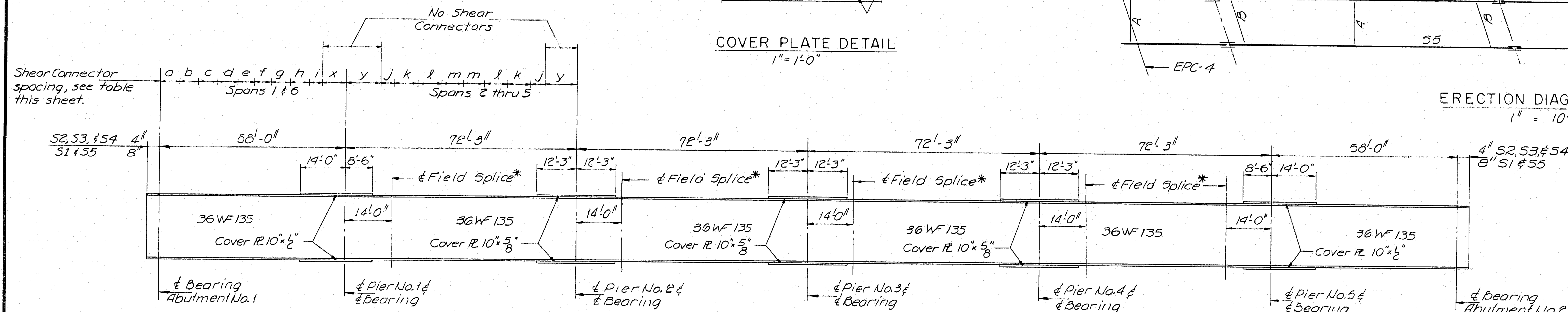
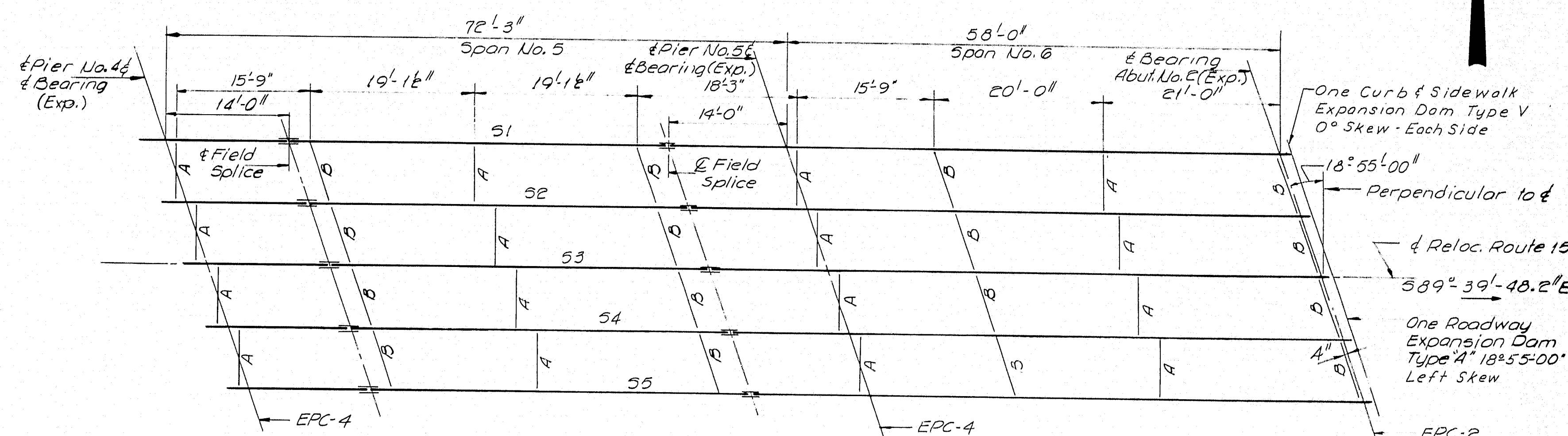
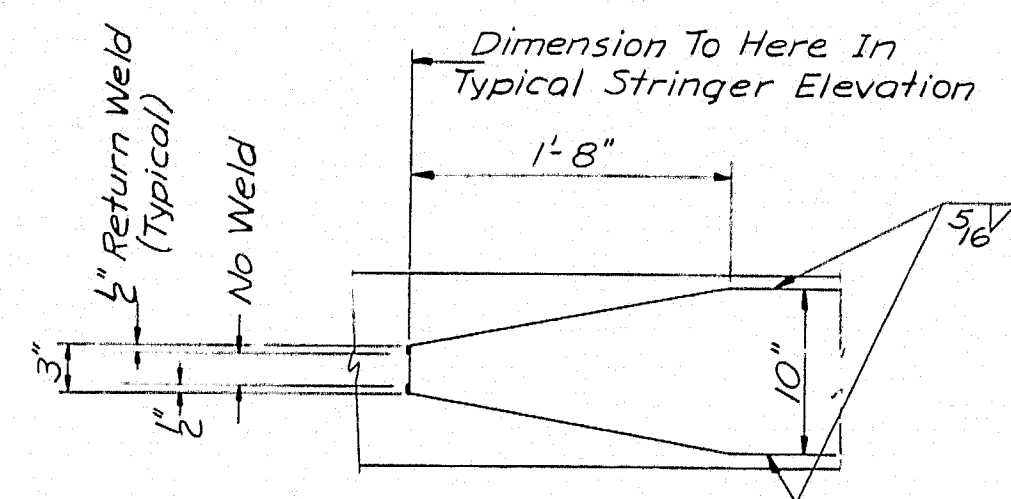






#### PEDESTALS

EPC-2, 10 Required  
EPC-3, 5 Required  
EPC-4, 20 Required



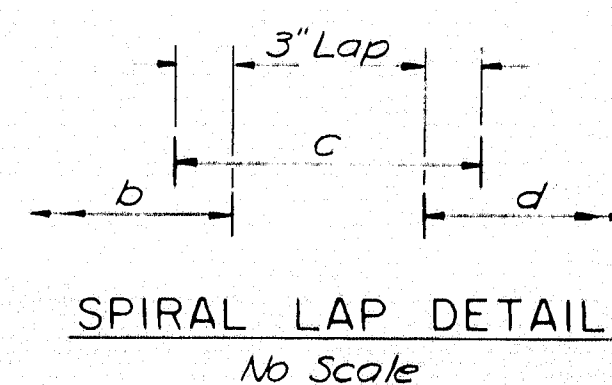
2 Studs 5" x 5/8" x 3"	Spirals 5" x 5/8" x 3"
a 18 @ 4'-6"	Double 14 @ 5'-6"
b 14 @ 5'-5"	Double 10 @ 7'-5"
c 11 @ 6'-5"	Single 18 @ 4'-6"
d 9 @ 8'-6"	Single 14 @ 5'-6"
e 7 @ 9'-5"	Single 12 @ 6'-0"
f 9 @ 7'-5"	Single 16 @ 4'-6"
g 13 @ 5'-5"	Double 10 @ 7'-5"
h 16 @ 4'-6"	Double 12 @ 6'-0"
i 9 @ 4'-3"	Double 8 @ 5'-3"
j 11 @ 4'-3"	Double 9 @ 5'-4"
k 18 @ 5'-7"	Double 15 @ 6'-8"
l 15 @ 6'-7"	Double 11 @ 7'-6"
m 10 @ 8'-6"	Single 17 @ 5'-7"
x 8 @ 4'-6"	7 @ 10"
y 10 @ 9'-5"	10 @ 9'-5"

#### SHEAR CONNECTOR SPACING

\* Use Standard Splice for 36WF150

#### TYPICAL STRINGER ELEVATION

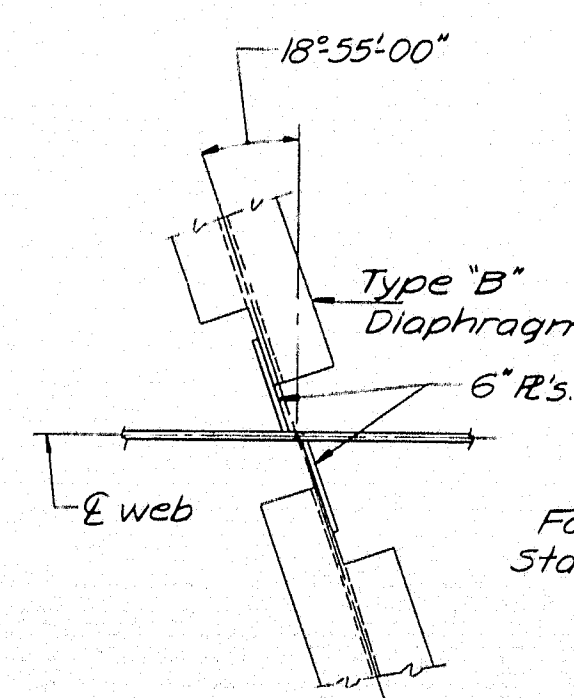
All dimensions are horizontal  
1" = 20'



\* Shear Studs to be placed parallel to piers.  
\* Lap 3' (Typical)

Total number of studs required - 6,540

#### STANDARD DIAPHRAGM MODIFICATIONS



#### NOTES

1. For Bottom of Slab Elevations Beam Grades, Diagram of Blocking Points and Dead Load Deflection Diagram see sheet 8.

#### REFERENCE

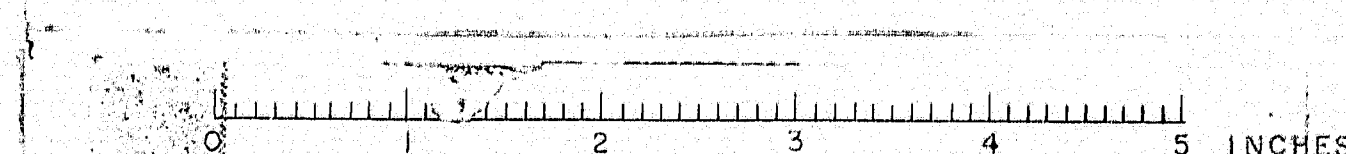
Splices - See Standard Details, BD103-64.  
Shear Connectors - See Standard Details, BD104-64.  
Pedestals - See Standard Details, BD101-64.  
Expansion Dams - See Standard Details, BD105-64.  
Diaphragms - See Standard Detail, BD104-64, and Standard Diaphragm Modification this sheet.

**SPECIFICATIONS**  
Fabrication and Erection: State of Maine Standard Specifications, for Highways and Bridges, Revision of Jan 1956 & Supplemental Specifications of February, 1960.  
Design and Detail: A.A.S.H.O. Standard Specifications, for Highway Bridges, of 1961, and Interim Specifications, 1961, 1962, 1963, & 1964.

Materials: Except as otherwise noted on the standard details, all material shall conform to the A.S.T.M. designation A36.

DESIGN - E.F.N.	DETAIL - D.A.T.	BRIDGE NO. SURVEY - PLOT -
TRACE - P.R.N.		
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159 OVER INTERSTATE 95 IN THE TOWN OF ISLAND FALLS ARROOSTOOK COUNTY STRUCTURAL STEEL		
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS NEW YORK BOSTON KANSAS CITY		
SHEET 7 OF 11 AUGUSTA, MAINE AUGUST 1965 ISLAND FALLS (36)		

M-2489A

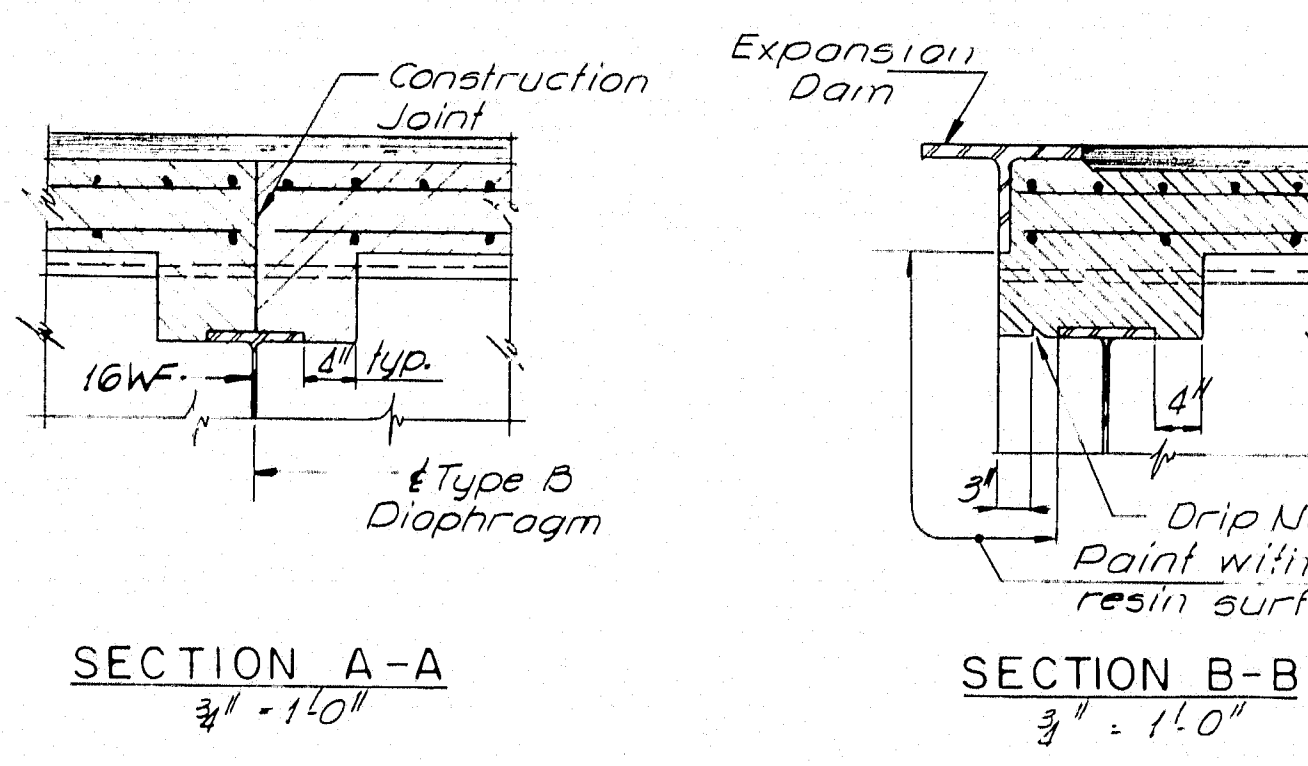
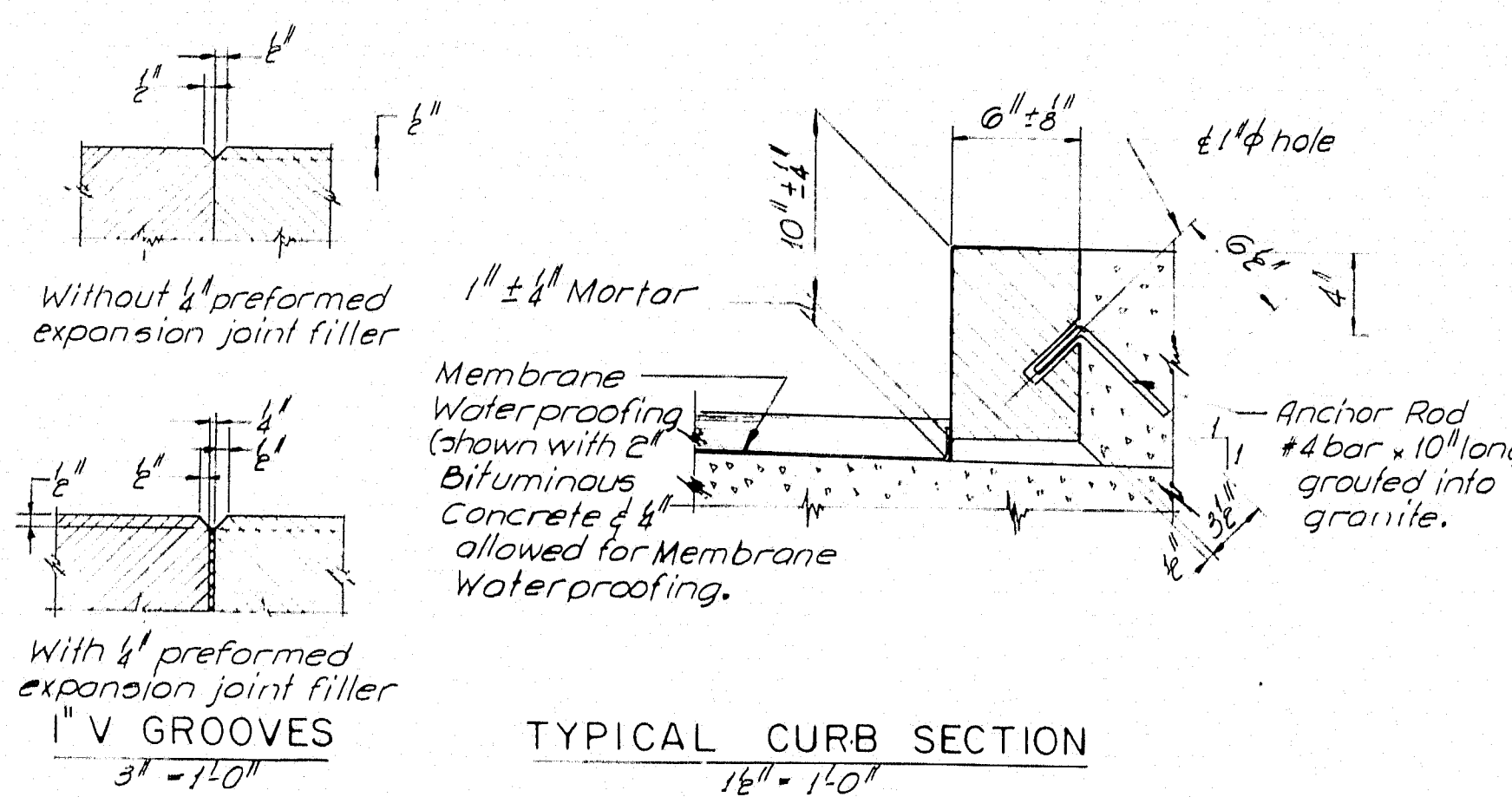
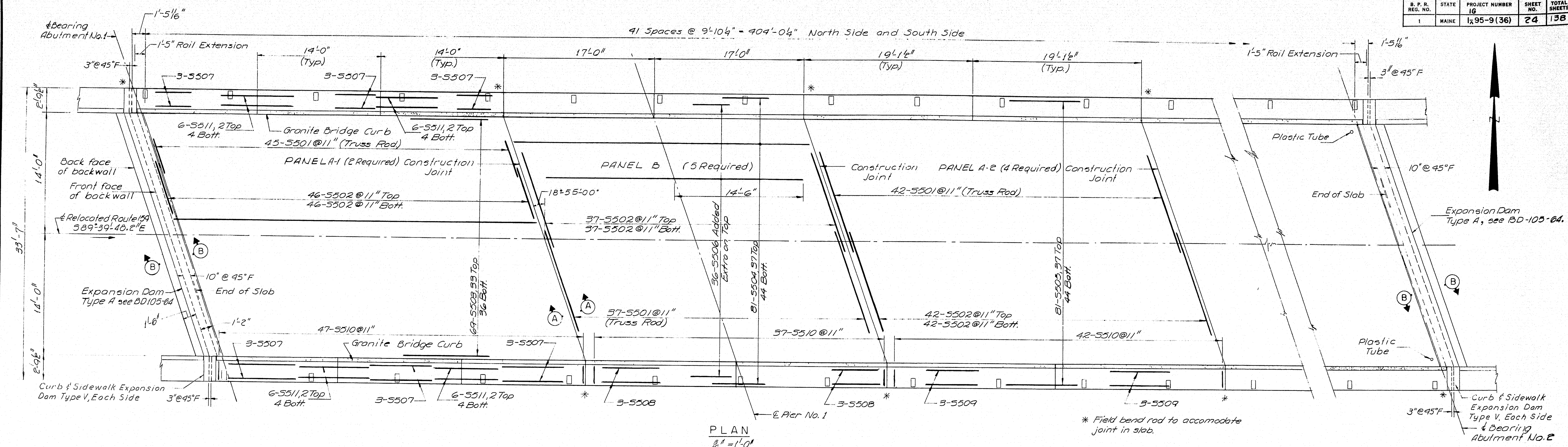




# BOTTOM OF SLAB ELEVATIONS AT BLOCKING POINTS

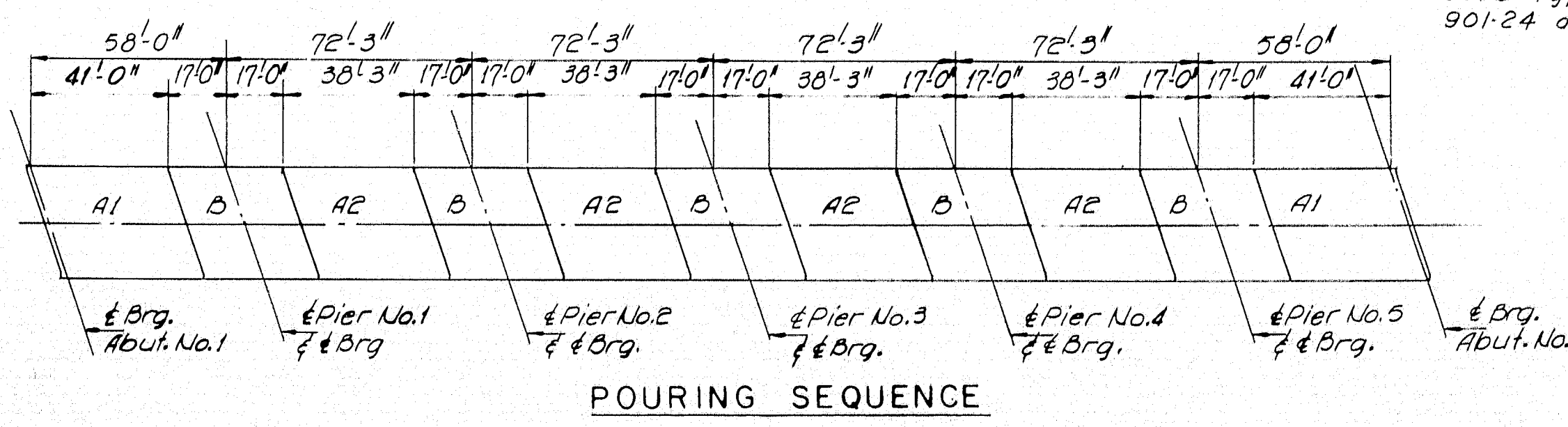
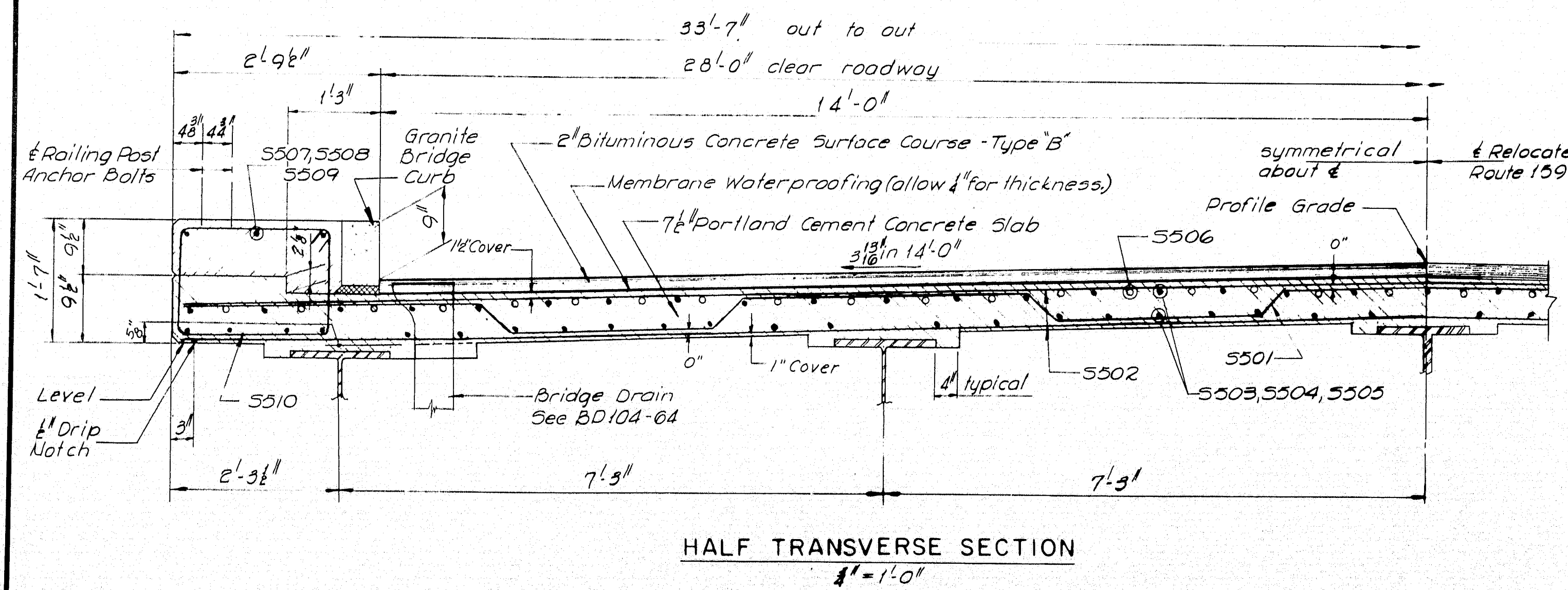
	SPAN NO. 1										SPAN NO. 2										SPAN NO. 3										SPAN NO. 4										SPAN NO. 5										SPAN NO. 6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Line	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Line 1	507.19	507.18	507.16	507.13	507.08	507.04	507.02	507.00	506.96	506.90	506.85	506.83	506.81	506.77	506.71	506.65	506.61	506.56	506.47	506.35	506.21	506.10	505.98	505.82	505.63	505.42	505.27	505.12	504.95	504.75	504.53	504.31	504.09	503.87	503.65	503.43	503.21	502.99	502.77	502.55	502.33	502.11	501.89	501.67	501.45	501.23	501.01	500.79	500.57	500.35	500.13	499.91	499.69	499.47	499.25	499.03	498.81	498.59	498.37	498.15	497.93	497.71	497.49	497.27	497.05	496.83	496.61	496.39	496.17	495.95	495.73	495.51	495.29	495.07	494.85	494.63	494.41	494.19	493.97	493.75	493.53	493.31	493.09	492.87	492.65	492.43	492.21	491.99	491.77	491.55	491.33	491.11	490.89	490.67	490.45	490.23	490.01	489.79	489.57	489.35	489.13	488.91	488.69	488.47	488.25	488.03	487.81	487.59	487.37	487.15	486.93	486.71	486.49	486.27	486.05	485.83	485.61	485.39	485.17	484.95	484.73	484.51	484.29	484.07	483.85	483.63	483.41	483.19	482.97	482.75	482.53	482.31	482.09	481.87	481.65	481.43	481.21	480.99	480.77	480.55	480.33	480.11	479.89	479.67	479.45	479.23	479.01	478.79	478.57	478.35	478.13	477.91	477.69	477.47	477.25	477.03	476.81	476.59	476.37	476.15	475.93	475.71	475.49	475.27	475.05	474.83	474.61	474.39	474.17	473.95	473.73	473.51	473.29	473.07	472.85	472.63	472.41	472.19	471.97	471.75	471.53	471.31	471.09	470.87	470.65	470.43	470.21	470.00	469.78	469.56	469.34	469.12	468.90	468.68	468.46	468.24	468.02	467.80	467.58	467.36	467.14	466.92	466.70	466.48	466.26	466.04	465.82	465.60	465.38	465.16	464.94	464.72	464.50	464.28	464.06	463.84	463.62	463.40	463.18	462.96	462.74	462.52	462.30	462.08	461.86	461.64	461.42	461.20	460.98	460.76	460.54	460.32	460.10	459.88	459.66	459.44	459.22	459.00	458.78	458.56	458.34	458.12	457.90	457.68	457.46	457.24	457.02	456.80	456.58	456.36	456.14	455.92	455.70	455.48	455.26	455.04	454.82	454.60	454.38	454.16	453.94	453.72	453.50	453.28	453.06	452.84	452.62	452.40	452.18	451.96	451.74	451.52	451.30	451.08	450.86	450.64	450.42	450.20	450.00	449.78	449.56	449.34	449.12	448.90	448.68	448.46	448.24	448.02	447.80	447.58	447.36	447.14	446.92	446.70	446.48	446.26	446.04	445.82	445.60	445.38	445.16	444.94	444.72	444.50	444.28	444.06	443.84	443.62	443.40	443.18	442.96	442.74	442.52	442.30	442.08	441.86	441.64	441.42	441.20	440.98	440.76	440.54	440.32	440.10	439.88	439.66	439.44	439.22	439.00	438.78	438.56	438.34	438.12	437.90	437.68	437.46	437.24	437.02	436.80	436.58	436.36	436.14	435.92	435.70	435.48	435.26	435.04	434.82	434.60	434.38	434.16	433.94	433.72	433.50	433.28	433.06	432.84	432.62	432.40	432.18	431.96	431.74	431.52	431.30	431.08	430.86	430.64	430.42	430.20	430.00	429.78	429.56	429.34	429.12	428.90	428.68	428.46	428.24	428.02	427.80	427.58	427.36	427.14	426.92	426.70	426.48	426.26	426.04	425.82	425.60	425.38	425.16	424.94	424.72	424.50	424.28	424.06	423.84	423.62	423.40	423.18	422.96	422.74	422.52	422.30	422.08	421.86	421.64	421.42	421.20	420.98	420.76	420.54	420.32	420.10	419.88	419.66	419.44	419.22	419.00	418.78	418.56	418.34	418.12	417.90	417.68	417.46	417.24	417.02	416.80	416.58	416.36	416.14	415.92	415.70	415.48	415.26	415.04	414.82	414.60	414.38	414.16	413.94	413.72	413.50	413.28	413.06	412.84	412.62	412.40	412.18	411.96	411.74	411.52	411.30	411.08	410.86	410.64	410.42	410.20	410.00	409.78	409.56	409.34	409.12	408.90	408.68	408.46	408.24	408.02	407.80	407.58	407.36	407.14	406.92	406.70	406.48	406.26	406.04	405.82	405.60	405.38	405.16	404.94	404.72	404.50	404.28	404.06	403.84	403.62	403.40	403.18	402.96	402.74	402.52	402.30	402.08	401.86	401.64	401.42	401.20	400.98	400.76	400.54	400.32	400.10	399.88	399.66	399.44	399.22	399.00	398.78	398.56	398.34	398.12	397.90	397.68	397.46	397.24	397.02	396.80	396.58	396.36	396.14	395.92	395.70	395.48	395.26	395.04	394.82	394.60	394.38	394.16	393.94	393.72	393.50	393.28	393.06	392.84	392.62	392.40	392.18	391.96	391.74	391.52	391.30	391.08	390.86	390.64	390.42	390.20	390.00	389.78	389.56	389.34	389.12	388.90	388.68	388.46	388.24	388.02	387.80	387.58	387.36	387.14	386.92	386.70	386.48	386.26	386.04	385.82	385.60	385.38	385.16	384.94	384.72	384.50	384.28	384.06	383.84	383.62	383.40	383.18	382.96	382.74	382.52	382.30	382.08	381.86	381.64	381.42	381.20	380.98	380.76	380.54	380.32	380.10	379.88	379.66	379.44	379.22	379.00	378.78	378.56	378.34	378.12	377.90	377.68	377.46	377.24	377.02	376.80	376.58	376.36	376.14	375.92	375.70	375.48	375.26	375.04	374.82	374.60	374.38	374.16	373.94	373.72	373.50	373.28	373.06	372.84	372.62	372.40	372.18	371.96	371.74	371.52	371.30	371.08	370.86	370.64	370.42	370.20	370.00	369.78	369.56	369.34	369.12	368.90	368.68	368.46	368.24	368.02	367.80	367.58	367.36	367.14	366.92	366.70	366.48	366.26	366.04	365.82	365.60	365.38	365.16	364.94	364.72	364.50	364.28	364.06	363.84	363.62	363.40	363.18	362.96	362.74	362.52	362.30	362.08	361.86	361.64	361.42	361.20	360.98	360.76	360.54	360.32	360.10	359.88	359.66	359.44	359.22	359.00	358.78	358.56	358.34	358.12	357.90	357.68	357.46	357.24	357.02	356.80	356.58	356.36	356.14	355.92	355.70	355.48	355.26	355.04	354.82	354.60	354.38	354.16	353.94	353.72	353.50	353.28	353.06	352.84	352.62	352.40	352.18	351.96	351.74	351.52	351.30	351.08	350.86	350.64	350.42	350.20	350.00	349.78	349.56	349.34	349.12	348.90	348.68	348.46	348.24	348.02	347.80	347.58	347.36	347.14	346.92	346.70	346.48	346.26	346.04	345.82	345.60	345.38	345.16	344.94	344.72	344.50	344.28	344.06	343.84	343.62	343.40	343.18	342.96	342.74	342.52	342.30	342.08	341.86	341.64	341.42	341.20	340.98	340.76	340.54	340.32	340.10	339.88	339.66	339.44	339.22	339.00	338.78	338.56	338.34	338.12	337.90	337.68	337.46	337.24	337.02	336.80	336.58	336.36	336.14	335.92	335.70	335.48	335.26	335.04	334.82	334.60	334.38	334.16	333.94	333.72	333.50	333.28	333.06	332.84	332.62	332.40	332.18	331.96	331.74	331.52	331.30	331.08	330.86	330.64	330.42	330.20	330.00	329.78	329.56	329.34	329.12	328.90	328.68	328.46	328.24	328.02	327.80	327.58	327.36	327.14	326.92	326.70	326.48	326.26	326.04	325.82	325.60	325.38	325.16	324.94	324.72	324.50	324.28	324.06	323.84	323.62	323.40	323.18	322.96	322.74	322.52	322.30	322.08	321.86	321.64	321.42	321.20	320.98	320.76	320.54	320.32	320.10	319.88	319.66	319.44	319.22	319.00	318.78	318.56	318.34	318.12	317.90	317.68	317.46	317.24	317.02	316.80	316.58	316.36	316.14	315.92	315.70	315.48	315.26	315.04	314.82	314.60	314.38	314.16	313.94	313.72	313.50	313.28	313.06	312.84	312.62	312.40	312.18	311.96	311.74	311.52	311.30	311.08	310.86	310.64	310.42	310.20	310.00	309.78	309.56	309.34	309.12	308.90	308.68	308.46	308.24	308.02	307.80	307.58	307.36	307.14	306.92	306.70	306.48	306.26	306.04	305.82	305.60	305.38	305.16	304.94	304.72	304.50	304.28	304.06	303.84	303.62	303.40	303.18	302.96	302.74	302.52	302.30	302.08	301.86	301.64	301.42	301.20	300.98	300.76	300.54	300.32	300.10	299.88	299.66	299.44	299.22	299.00	298.78	298.56	298.34	298.12	297.90	297.68	297.46	297.24	297.02	296.80	296.58	296.36	296.14	295.92	295.70	295.48	295.26	295.04	294.82	294.60	294.38	294.16	293.94	293.72	293.50	293.28	293.06	292.84	292.62	292.40	292.18	291.96	291.74	291.52	291.30	291.08	290.86	290.64	290.42	290.20	290.00	289.78	289.56	289.34	289.12	288.90	288.68	288.46	288.24	288.02	287.80	287.58	287.36	287.14	286.92	286.70	286.48	286.26	286.04	285.82	285.60	285.38	285.16	284.94	284.72	284.50	284.28	284.06	283.84	283.62	283.40	283.18	282.96	282.74	282.52	282.30	282.08	281.86	281.64	281.42	281.20	280.98	280.76	280.54	280.32	280.10	279.88	279.66	279.44	279.22	279.00	278.78	278.56	278.34	278.12	277.90	277.68	277.46	277.24	277.02	276.80	276.58	276.36	276.14	275.92	275.70	275.48	275.26	275.04	274.82	274.60	274.38	274.16	273.94	273.72	273.50	273.28	273.06	272





- ### GENERAL SUPERSTRUCTURE NOTES
- At joints in curbs and granite bridge curbs over piers, use 1/2" preformed expansion joint filler. At all other curbs joints, break the bond between concrete surfaces with a suitable grade of asphalt paint. Form a 1/2" groove on outside face of curb and slab at each vertical joint. Provide joints in granite bridge curb at curb construction joints.
  - At low points in slabs, place a plastic tube 1/4" through the slab for drainage. Exact location to be determined in the field. Do not cover the tube with waterproofing. This work will be incidental to contract items. Tubes shall extend 2' below bottom of slab. Place tubes to drip clear of bridge seat.
  - For bridge rail, see standard details, BD-107-64 & BD-108-64.
  - Place concrete in 'A' panels before placing concrete in 'B' panels.
  - Granite Bridge Curb means Vertical Bridge Curb-Type I and will be paid for under Items 901-24 and 901-25.

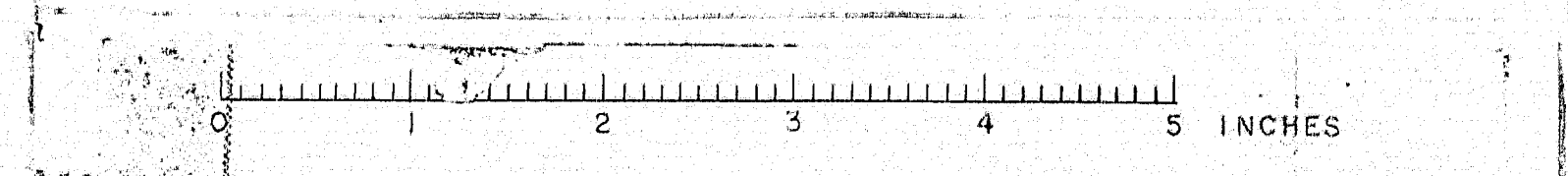
- ### BRIDGE DRAIN NOTES
- Two bridge drains each side Spans 1 and 5. Three bridge drains each side Spans 3 and 4.
  - For approximate locations see Sheet 1, exact position to be determined in field.
  - Bridge drains to be placed a minimum 10' clear of pier.



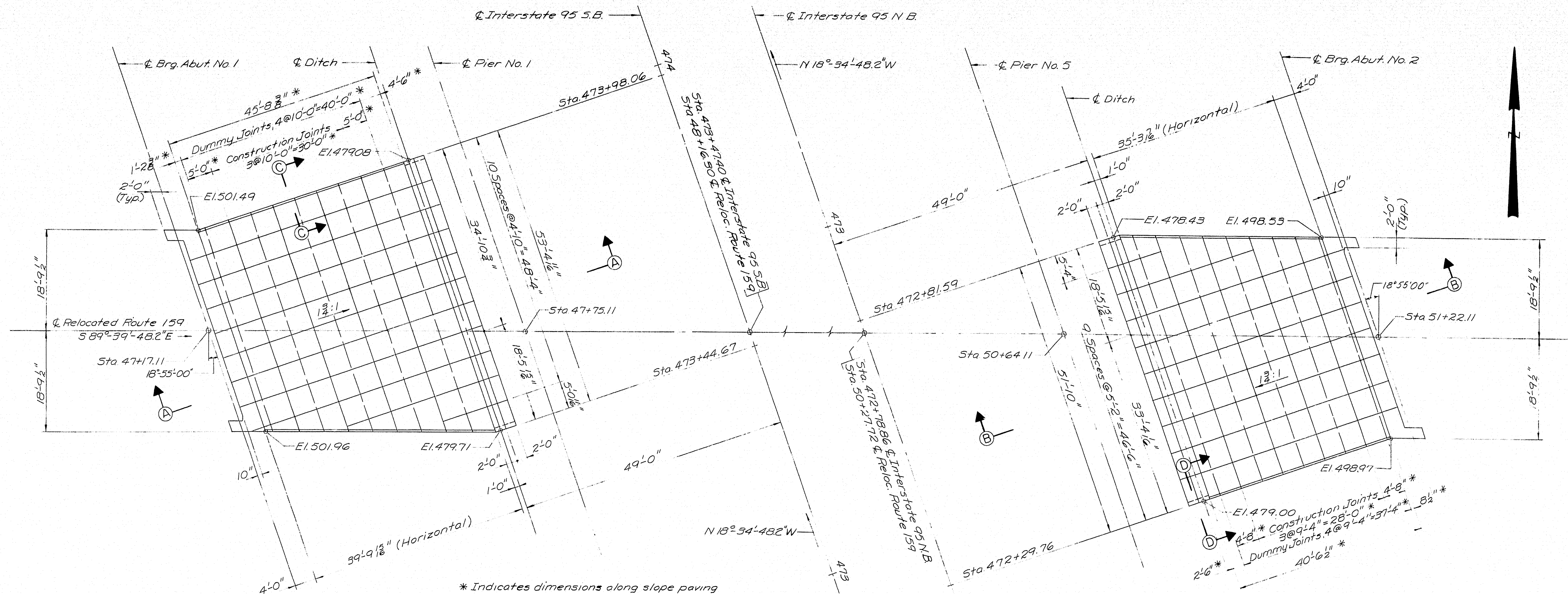
DESIGN - E.F.K.	DETAIL - D.A.T.	BRIDGE NO.
CHECK - P.R.N.		SURVEY - PLOT -
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159 OVER INTERSTATE 95 IN THE TOWN OF ISLAND FALLS ARROSTOOK COUNTY SUPERSTRUCTURE		
SHEET 9 OF 11 AUGUSTA, MAINE AUGUST 1965 ISLAND FALLS(36)		

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
NEW YORK BOSTON KANSAS CITY

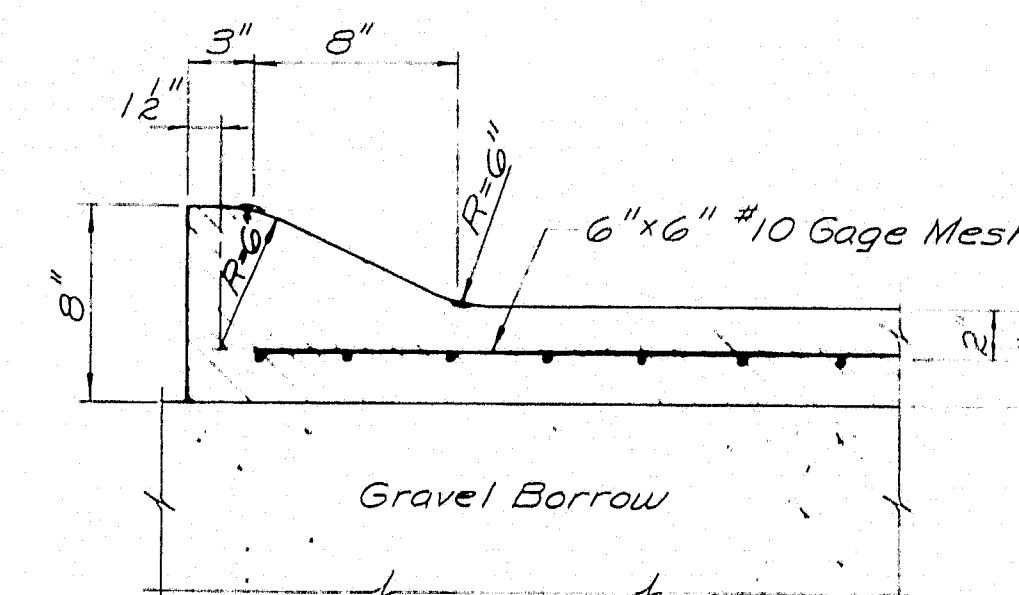
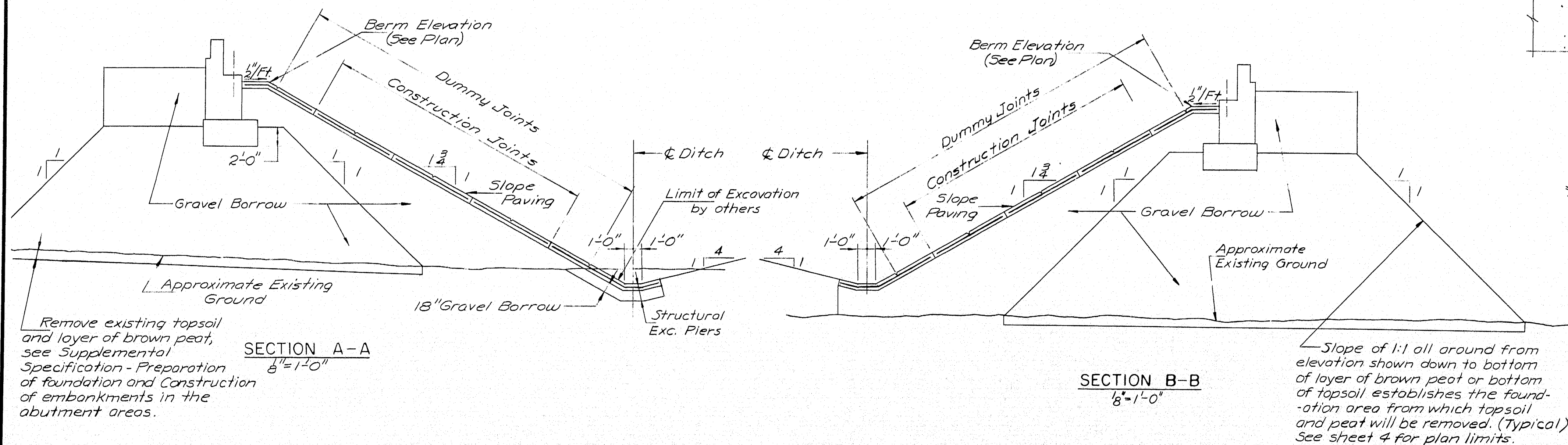
M-2489C



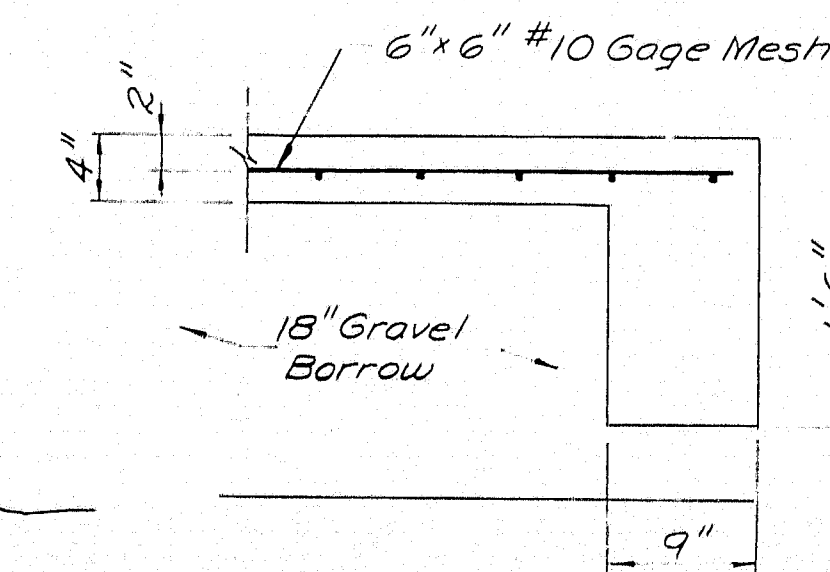




PLAN  
1"=10'



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



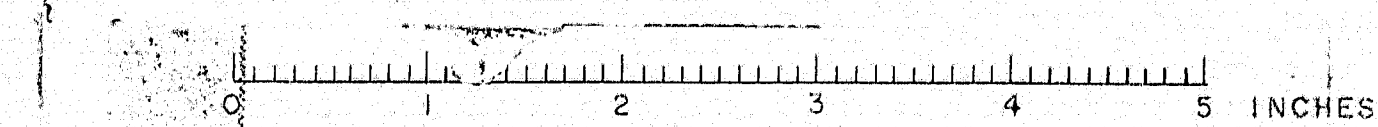
SECTION D-D  
1"=1'-0"

NOTES:

1. In excavation provide 18" of Gravel Borrow under slope paving.
2. The 18" Gravel Borrow under slope paving may be reduced or omitted, if in the opinion of the Engineer the existing material is suitable.
3. Payment for any excavation required for slope paving will be made under Structural Earth Excavation, Piers Item 204-14.
4. Slope Paving shall conform to Section 808 of the Supplemental Specifications dated February 1960 and as modified in October 1964.
5. Break bond at construction joints with a coat of asphalt paint.
6. Reinforce with #10 gage 6"x6" steel mesh, not to pass through construction joints.
7. Dummy joints shall be made with a sidewalk edging tool to a depth of 4".
8. Payment for removing topsoil and peat will be made under Earth Excavation Item 203-9.

DESIGN- TRACE- CHECK-R.R.S.	DETAIL-R.O.L.	BRIDGE NO. SURVEY- PLOT-
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159 OVER INTERSTATE 95 IN THE TOWN OF ISLAND FALLS ARROOSTOOK COUNTY SLOPE PAVING		
SHEET 10 OF 11 AUGUSTA, MAINE AUGUST 1965		

M-2489D ISLAND FALLS(36)

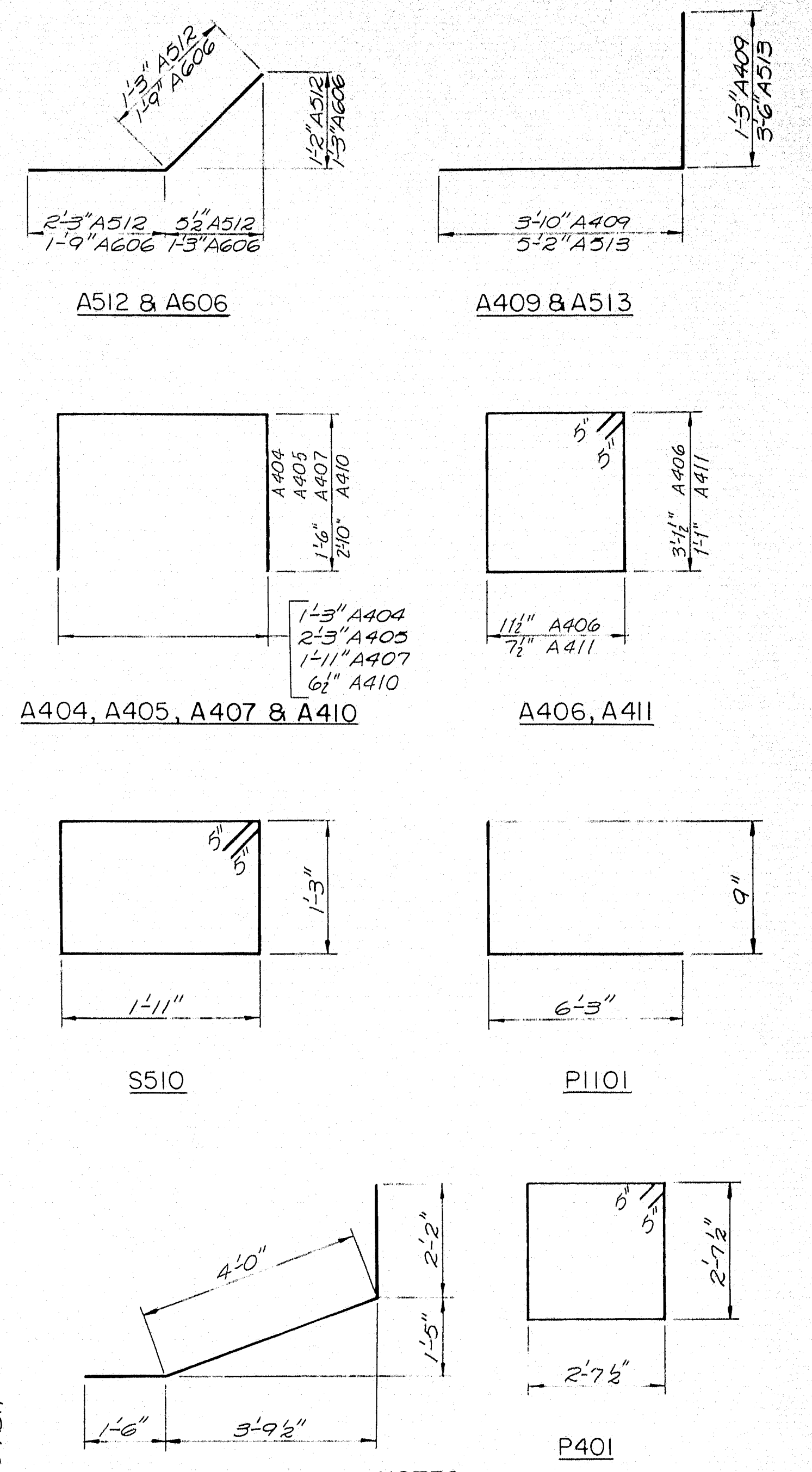




MARK	SIZE	NUMBER	LENGTH	INCR.	LOCATION
<b>ABUTMENTS 1 &amp; 2</b>					
<b>STRAIGHT BARS</b>			<i>Totals are for two abutments</i>		
A401	4	12	31'0"		Backwall
A402	4	44	11'6"		Wingwall Stem
A403	4	40	1'8"		End Post
A501	5	50	2'9"		Stem Dowels
A502	5	40	8'6"		Abutment Stem
A503	5	8	6'8"		"
A504	5	12	34'0"		Abutment Stem
A505	5	50	2'10"		Backwall
A506	5	8	32'3"		Abutment Stem
A507	5	90	4'8"		Backwall
A508	5	92	10'11"		Wingwall Stem
A509	5	44	11'6"		Wingwall Stem
A510	5	16	4'0"		Abutment Stem
A514	5	52	3'0"		Wingwall Dowel
A601	6	10	9'2" to 10'6"	4"	Footing 2 Groups of 5
A602	6	22	3'9"		"
A603	6	10	10'6" to 11'1"	1 3/4"	" 2 Groups of 5
A604	6	60	5'6"		"
A605	6	28	19'4"		Footing
<b>BENT BARS</b>					
A404	4	20	4'3"		Pads
A405	4	20	5'3"		Pads
A406	4	16	9'0"		End Post
A407	4	48	4'11"		Sidewalk
A408	4	6	5'0"		Backwall
A409	4	6	5'1"		Backwall
A410	4	12	6'2"		Guard Rail End Post
A411	4	12	4'3"		Guard Rail End Post
A511	5	8	6'0"		Abutment Stem
A512	5	8	3'6"		"
A513	5	50	8'8"		Abutment Stem
A606	6	42	3'6"		Approach Slab Seat
<b>APPROACH SLABS</b>					
<b>STRAIGHT BARS</b>			<i>Totals are for two approach slabs</i>		
A5401	4	40	28'0"		Approach Slab
A5601	6	216	14'6"		Approach Slab
<b>PIER 1</b>					
<b>STRAIGHT BARS</b>					
P601	6	32	5'6"		Footing
P602	6	14	7'6"		Footing
P603	6	2	33'8"		Cap
P604	6	2	32'3"		Cap
P901	9	36	5'9"		Footing Dowels
P902	9	12	26'1"		Columns
P903	9	12	27'1"		"
P904	9	12	27'7"		Columns
P905	9	6	33'8"		Cap
P906	9	4	26'0"		Cap
<b>BENT BARS</b>					
P401	4	72	11'4"		Column Ties
P501	5	54	12'1"		Cap Stirrups
P502	5	4	11'9"		"
P503	5	4	11'1"		"
P504	5	4	10'5"		"
P505	5	4	9'9"		Cap Stirrups
P605	6	8	7'8"		Cap

MARK	SIZE	NUMBER	LENGTH	INCR.	LOCATION
<b>PIER 2</b>					
<b>STRAIGHT BARS</b>					
P601	6	32	5'6"		Footing
P602	6	14	7'6"		Footing
P603	6	2	33'8"		Cap
P604	6	2	32'3"		Cap
P901	9	36	5'9"		Footing Dowels
P911	9	12	28'4"		Columns
P912	9	12	27'10"		"
P913	9	12	27'4"		Columns
P905	9	6	33'8"		Cap
P906	9	4	26'0"		Cap
<b>BENT BARS</b>					
P401	4	76	11'4"		Column Ties
P501	5	54	12'1"		Cap Stirrups
P502	5	4	11'9"		"
P503	5	4	11'1"		"
P504	5	4	10'5"		"
P505	5	4	9'9"		Cap Stirrups
P605	6	8	7'8"		Cap
<b>PIER 3</b>					
<b>STRAIGHT BARS</b>					
P601	6	30	5'6"		Footing
P603	6	2	33'8"		Cap
P604	6	2	32'3"		Cap
P701	7	36	8'6"		Footing
P903	9	6	33'8"		Cap
P906	9	4	26'0"		Cap
P1102	11	36	31'8"		Columns
P1103	11	24	21'0"		Columns
<b>BENT BARS</b>					
P401	4	84	11'4"		Column Ties
P501	5	54	12'1"		Cap Stirrups
P502	5	4	11'9"		"
P503	5	4	11'1"		"
P504	5	4	10'5"		"
P505	5	4	9'9"		Cap Stirrups
P605	6	8	7'8"		Cap
<b>PIER 4</b>					
<b>STRAIGHT BARS</b>					
P601	6	34	5'6"		Footing
P603	6	2	33'8"		Cap
P604	6	2	32'3"		Cap
P701	7	14	8'6"		Footing
P901	9	36	5'9"		Footing Dowels
P921	9	12	31'2"		Column
P922	9	12	29'8"		"
P923	9	12	29'2"		Column
P905	9	6	33'8"		Cap
P906	9	4	26'0"		Cap
<b>BENT BARS</b>					
P401	4	81	11'4"		Column Ties
P501	5	54	12'1"		Cap Stirrups
P502	5	4	11'9"		"
P503	5	4	11'1"		"
P504	5	4	10'5"		"
P505	5	4	9'9"		Cap Stirrups
P605	6	8	7'8"		Cap

MARK	SIZE	NUMBER	LENGTH	INCR.	LOCATION
<b>PIER 5</b>					
<b>STRAIGHT BARS</b>					
P601	6	34	5'6"		Footing
P603	6	2	33'8"		Cap
P604	6	2	32'3"		Cap
P701	7	14	8'6"		Footing
P901	9	36	5'9"		Footing Dowels
P903	9	6	33'8"		Cap
P906	9	4	26'0"		Cap
P931	9	36	33'10"		Columns
<b>BENT BARS</b>					
P401	4	93	11'4"		Column Ties
P501	5	54	12'1"		Cap Stirrups
P502	5	4	11'9"		"
P503	5	4	11'1"		"
P504	5	4	10'5"		"
P505	5	4	9'9"		Cap Stirrups
P605	6	8	7'8"		Cap
<b>SUPERSTRUCTURE</b>					
<b>STRAIGHT BARS</b>					
S502	5	890	35'2"		Slab Transverse
S503	5	138	40'11"		Slab Longitudinal
S504	5	405	33'8"		"
S505	5	324	37'11"		"
S506	5	180	29'0"		Slab Longitudinal
S507	5	36	13'8"		Safety Walk
S508	5	60	16'8"		"
S509	5	48	18'9"		Safety Walk
S511	5	48	21'8"		Slab Longitudinal
<b>BENT BARS</b>					
S501	5	443	36'5"		Slab Truss Rod
S510	5	894	7'2"		Safety Walk



**NOTES:**

1. All dimensions are to the center of bars.
2. All reinforcing bars shall be intermediate grade steel.
3. Reinforcing steel to have 2" minimum cover, unless otherwise shown.

DESIGN - TRACE - CHECK - P.R.N.      DETAIL - R.W.O.L.      BRIDGE NO. SURVEY - PLOT -

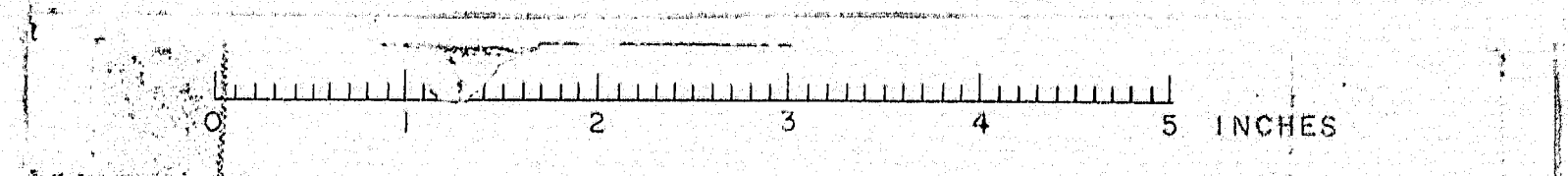
**STATE HIGHWAY COMMISSION  
BRIDGE DIVISION**

RELOCATED ROUTE 159  
OVER  
INTERSTATE 95  
IN THE TOWN OF  
ISLAND FALLS  
AROSTOOK COUNTY  
REINFORCING STEEL

**HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS**

NEW YORK      BOSTON      KANSAS CITY

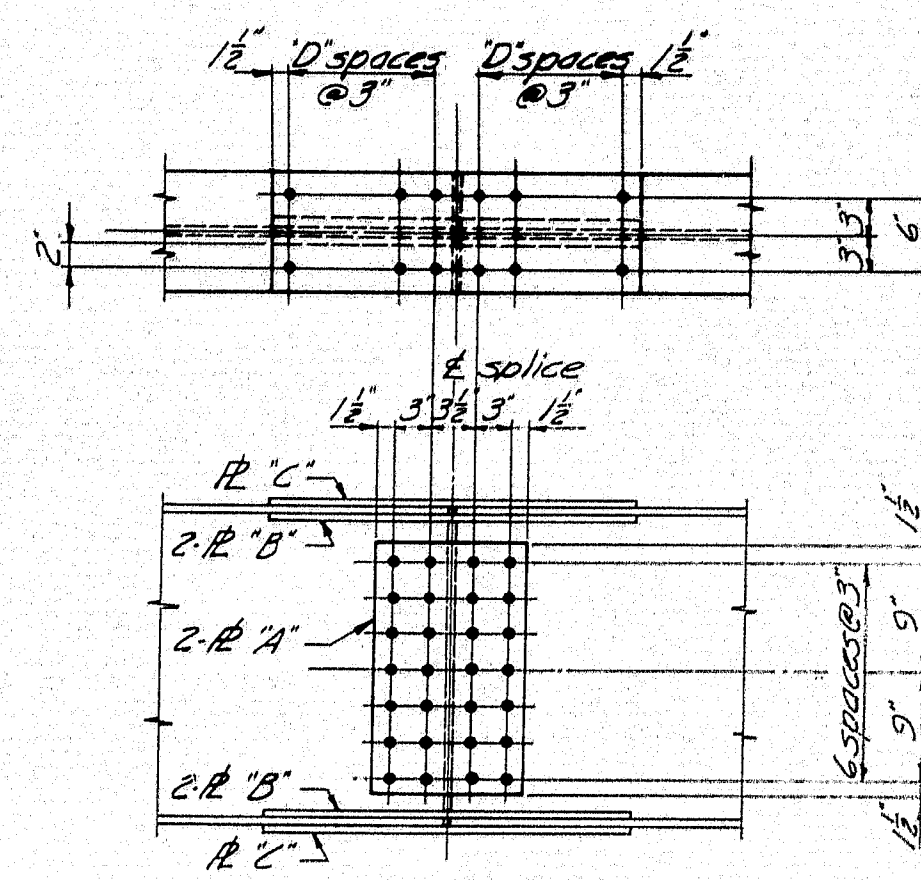
M-2490



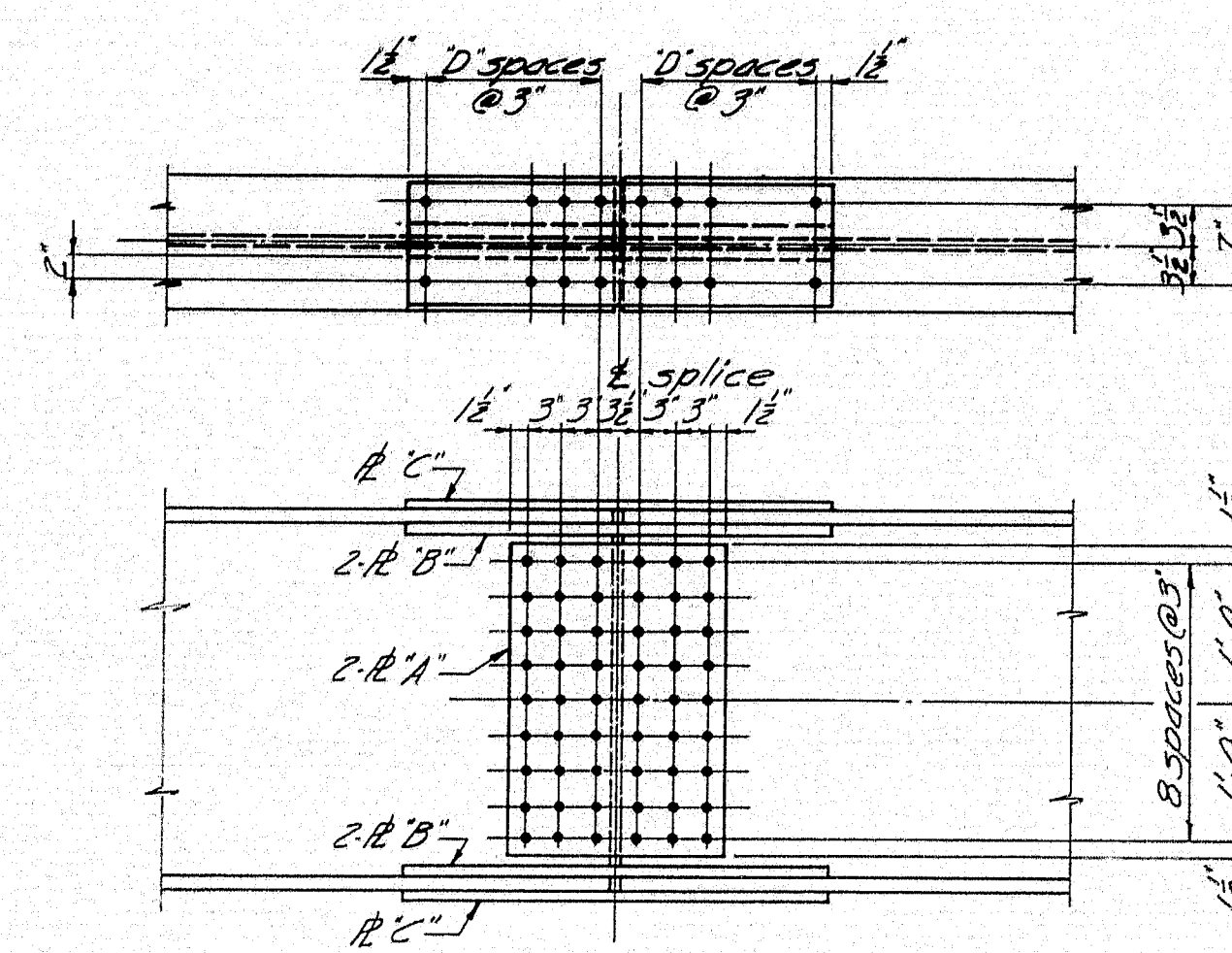




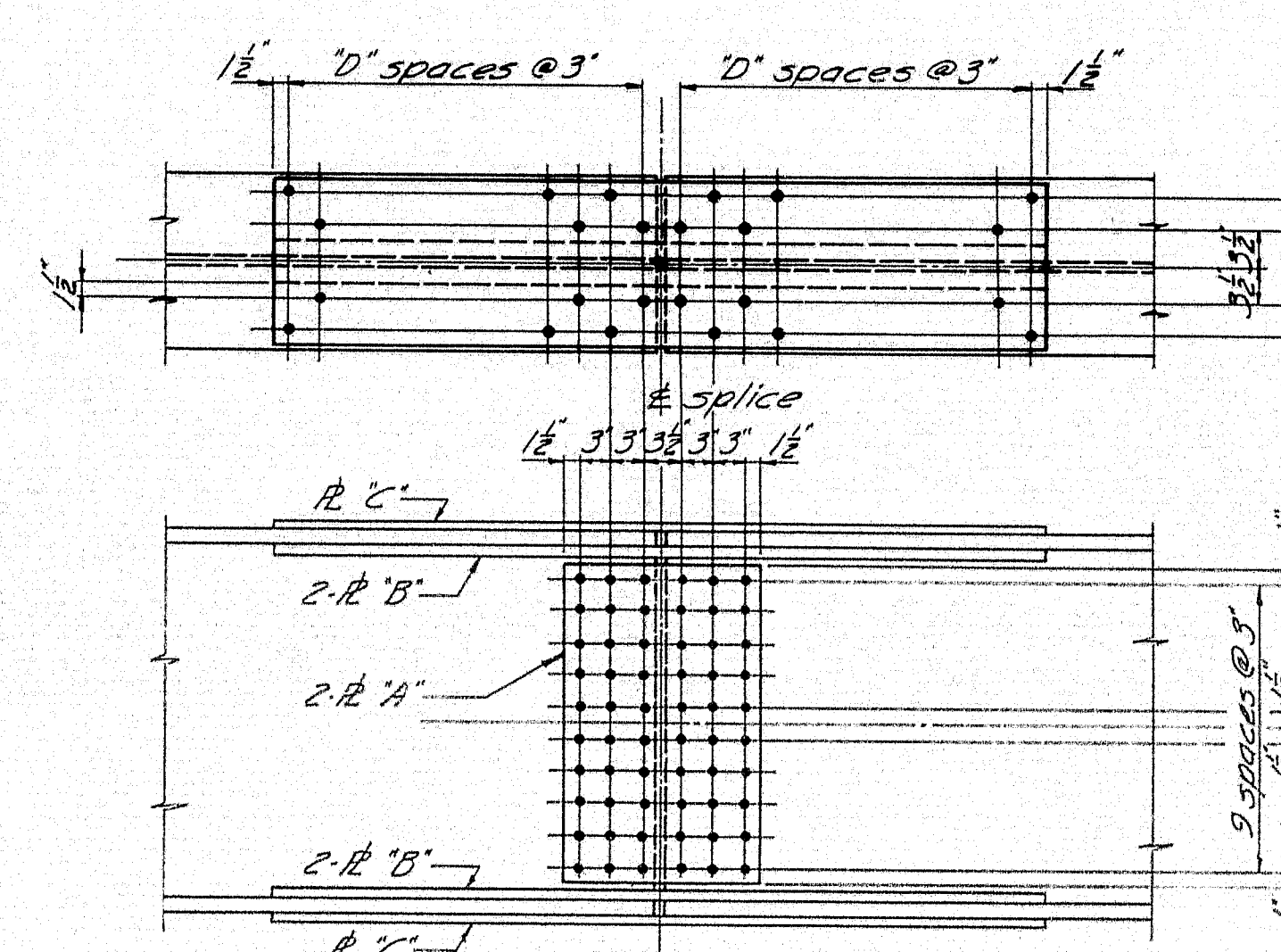




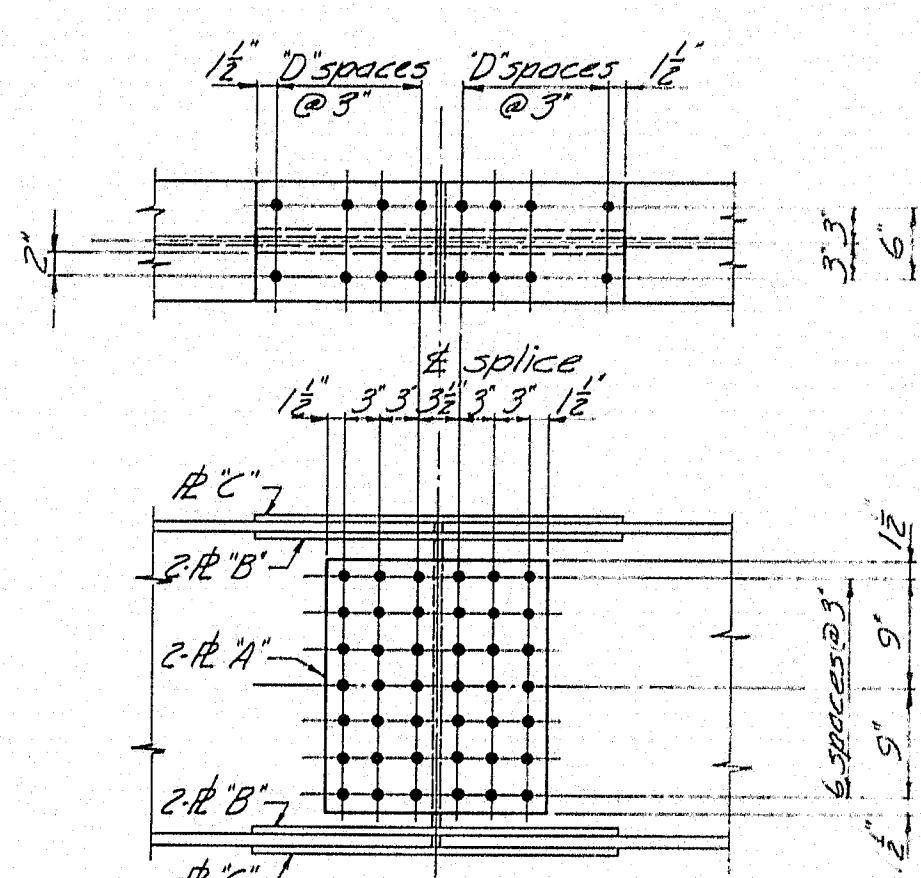
**27 WF 84**



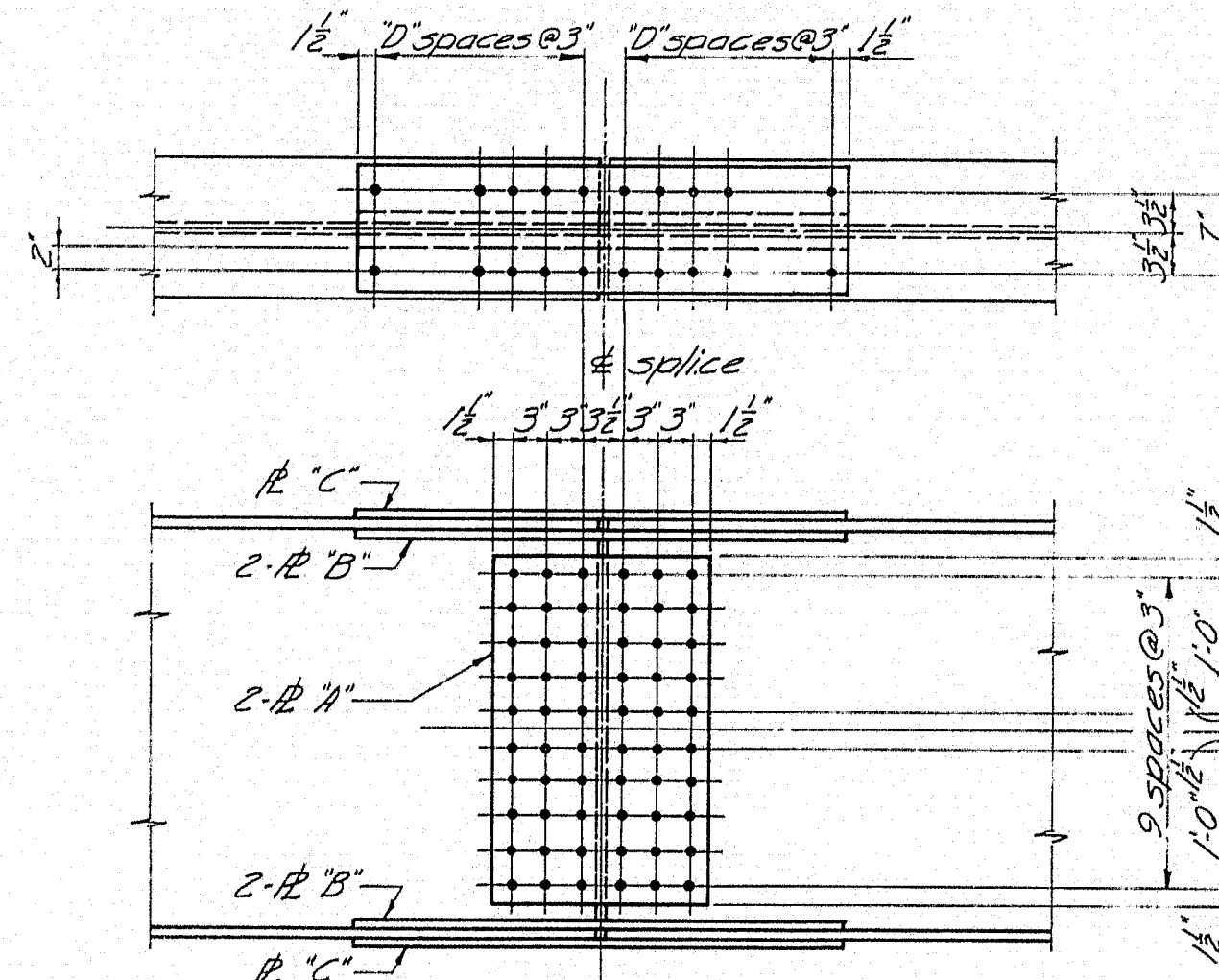
**33 WF 118, 130, 141, 152**



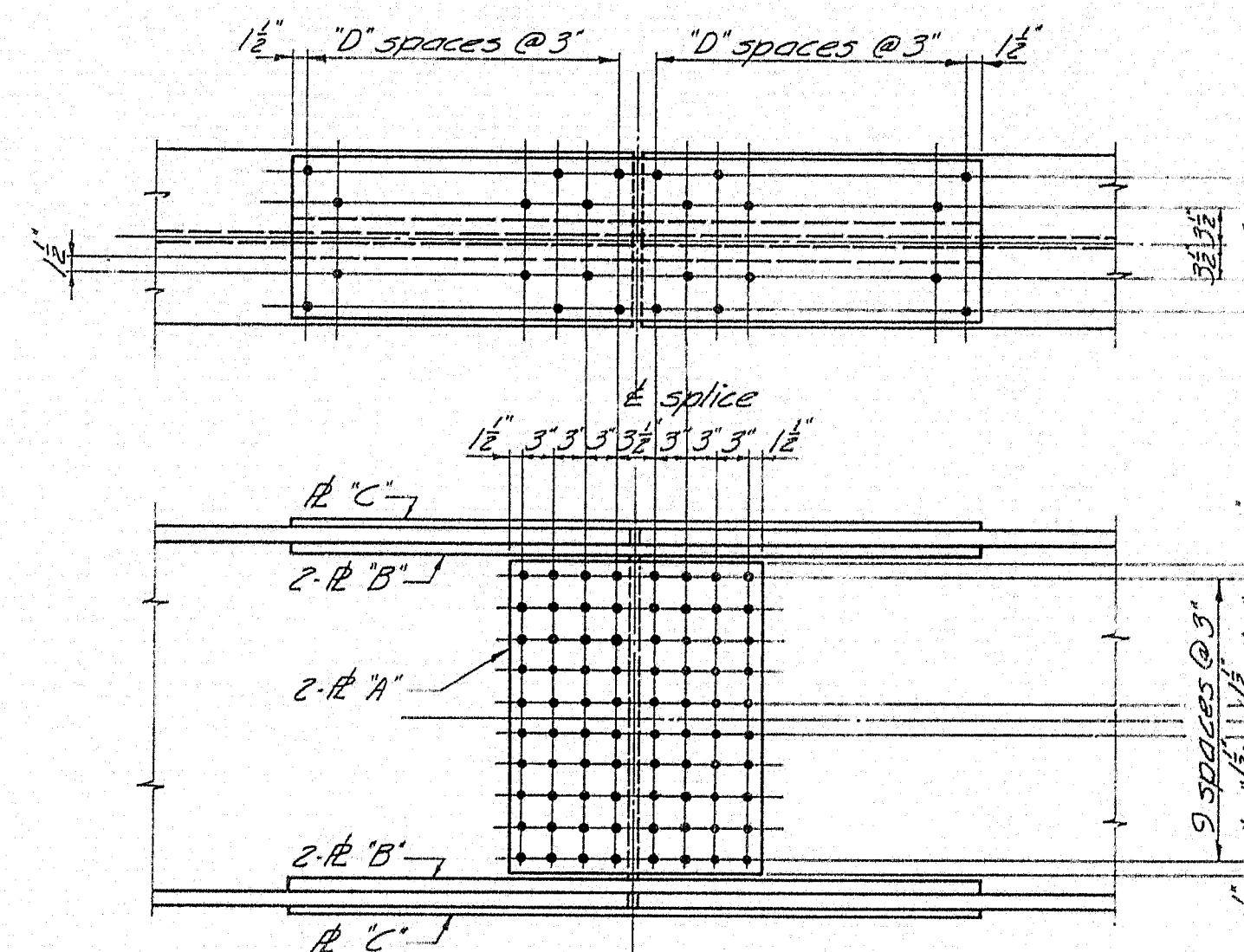
**36 WF 245, 280**



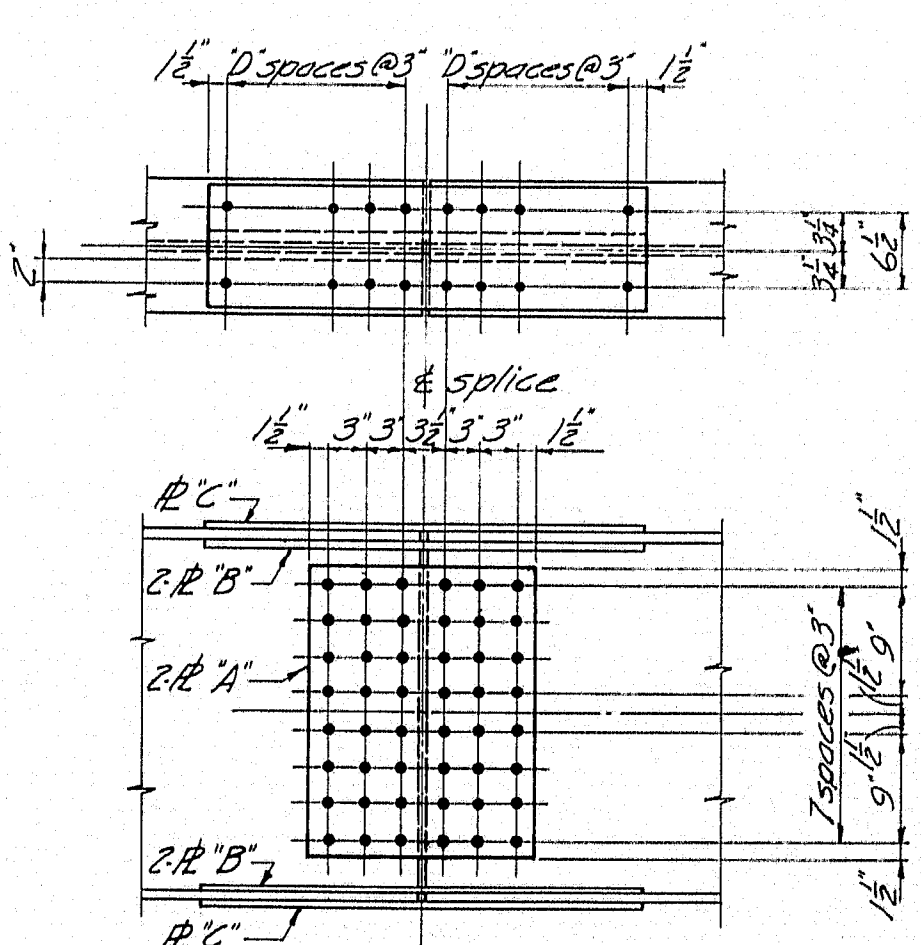
**27 WF 94, 102, 114**



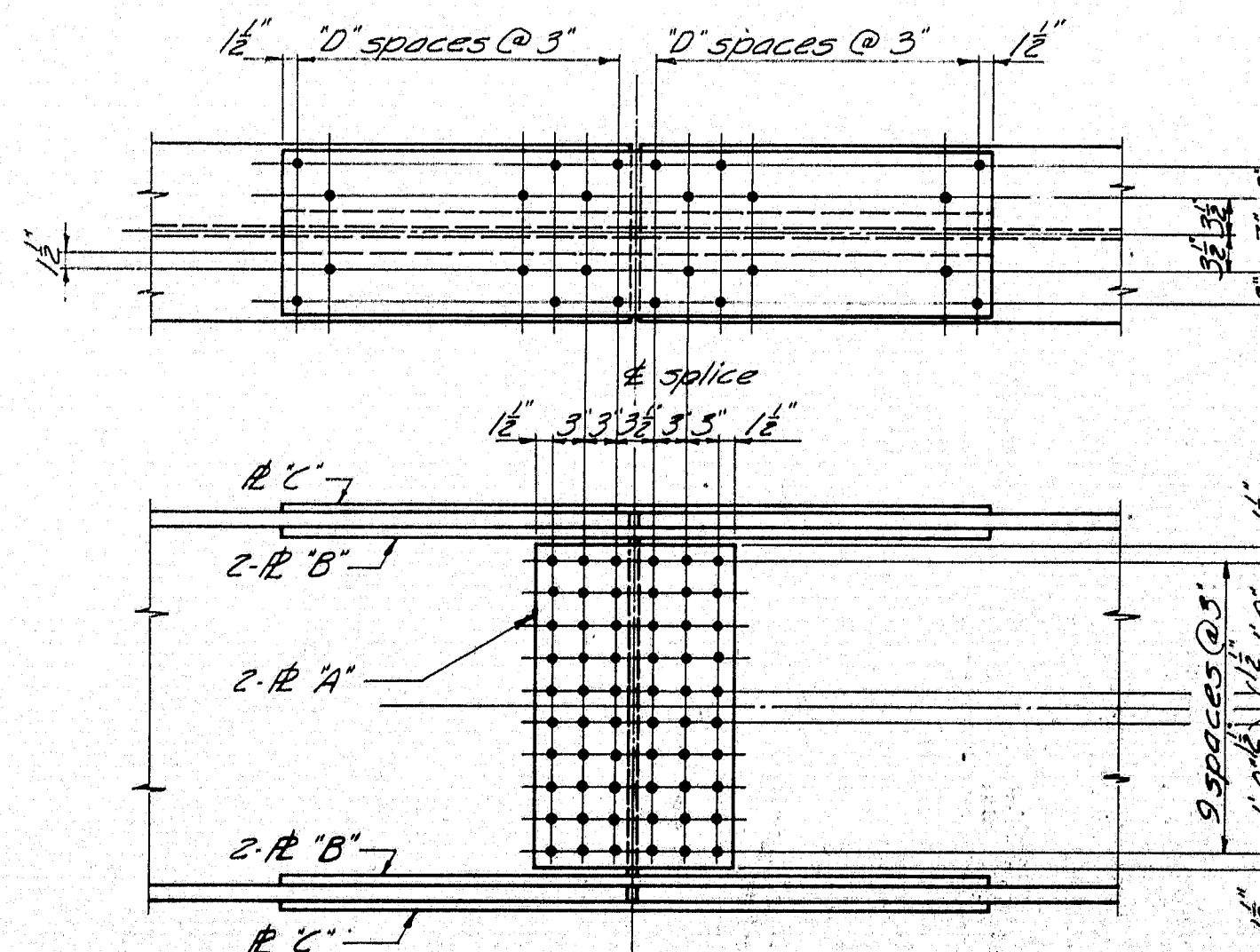
**36 WF 135, 150, 160, 170, 182, 194**



**36 WF 300**



**30 WF 99, 108, 116, 124, 132**



**36 WF 230, 260**

SPlice DESIGN, PLATES AND FLANGE HOLES						
BEAM	BEND. M.	SHEAR	PLATE "A"	PLATE "B"	PLATE "C"	"D"
27 WF 84	3070"	111"	12" x 1/2"	4 x 1/2"	10 x 1/2"	3
27 WF 94	3520"	119"	12" x 1/2"	4 x 1/2"	10 x 1/2"	3
27 WF 102	3862"	126"	12" x 1/2"	4 x 1/2"	10 x 1/2"	4
27 WF 114	4341"	140"	12" x 1/2"	4 x 1/2"	10 x 1/2"	4
30 WF 99	3921"	139"	12" x 1/2"	4 x 1/2"	10 x 1/2"	3
30 WF 108	4360"	147"	12" x 1/2"	4 x 1/2"	10 x 1/2"	4
30 WF 116	4780"	152"	12" x 1/2"	4 x 1/2"	10 x 1/2"	4
30 WF 124	5170"	159"	12" x 1/2"	4 x 1/2"	10 x 1/2"	4
30 WF 132	5539"	168"	12" x 1/2"	4 x 1/2"	10 x 1/2"	5
33 WF 118	5287"	164"	12" x 1/2"	4 x 1/2"	11 x 1/2"	4
33 WF 130	5978"	173"	12" x 1/2"	4 x 1/2"	11 x 1/2"	5
33 WF 141	6604"	181"	12" x 1/2"	4 x 1/2"	11 x 1/2"	5
33 WF 152	7193"	191"	12" x 1/2"	4 x 1/2"	11 x 1/2"	6
36 WF 135	6473"	191"	12" x 1/2"	4 x 1/2"	11 x 1/2"	4
36 WF 150	7436"	202"	12" x 1/2"	4 x 1/2"	11 x 1/2"	5
36 WF 160	8005"	212"	12" x 1/2"	4 x 1/2"	11 x 1/2"	6
36 WF 170	8574"	221"	12" x 1/2"	4 x 1/2"	11 x 1/2"	6
36 WF 182	9204"	237"	12" x 1/2"	4 x 1/2"	11 x 1/2"	7
36 WF 194	9838"	253"	12" x 1/2"	4 x 1/2"	11 x 1/2"	8
36 WF 230	12574"	287"	12" x 1/2"	6 x 1/2"	16 x 1/2"	10
36 WF 245	13441"	269"	12" x 1/2"	6 x 1/2"	16 x 1/2"	11
36 WF 260	14330"	276"	12" x 1/2"	6 x 1/2"	16 x 1/2"	12
36 WF 280	15351"	291"	12" x 1/2"	6 x 1/2"	16 x 1/2"	13
36 WF 300	16676"	312"	12" x 1/2"	6 x 1/2"	16 x 1/2"	14

### GENERAL NOTES

- Splice connections to be made with 3/8" & high tensile strength bolts. Holes to be 1/8" &.
- The design bending moment is 90% of the net resisting moment of the beam with an allowable stress of 20,000 p.s.i. The design shear is 75% of the shear strength of the gross section of the web with an allowable stress of 12,000 p.s.i.
- If beams of different sizes are to be spliced, use splice details shown for the smaller of the beams being spliced unless otherwise directed by design details. See design details for filler thickness. Place fillers to limits of splice plates only, with no extensions.
- See design details for slopes of beams in order to correctly fabricate bevels at the splices.

### A.S.T.M. STEEL CLASSIFICATION

High Tensile Strength Bolts..... A-325  
Splice Plates..... A-36

### DESIGN SPECIFICATIONS

AA540 Standard Specifications for Highway Bridges, 1961 with Interim Specifications, 1961 & 1962

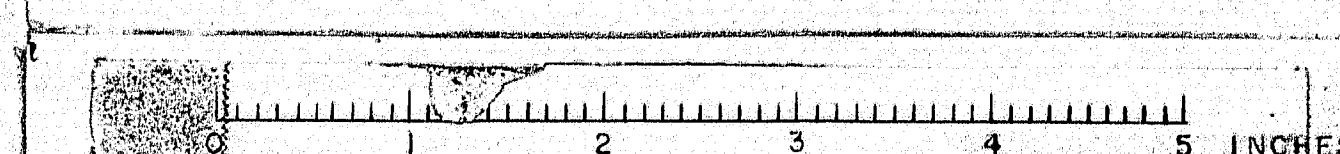
MAINE STATE HIGHWAY COMMISSION  
AUGUSTA, MAINE

**STANDARD DETAILS**  
(BD 103-64)

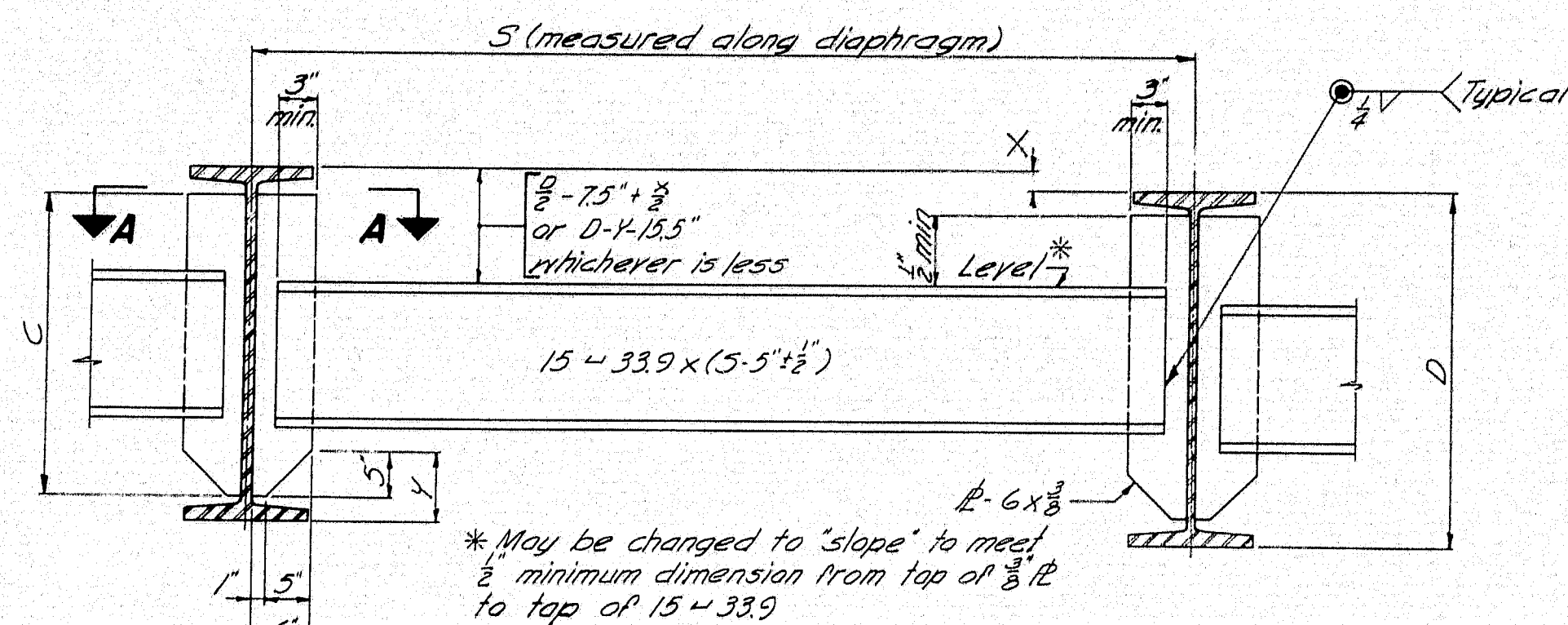
**BEAM SPLICES**

JANUARY 1964

M-2490B







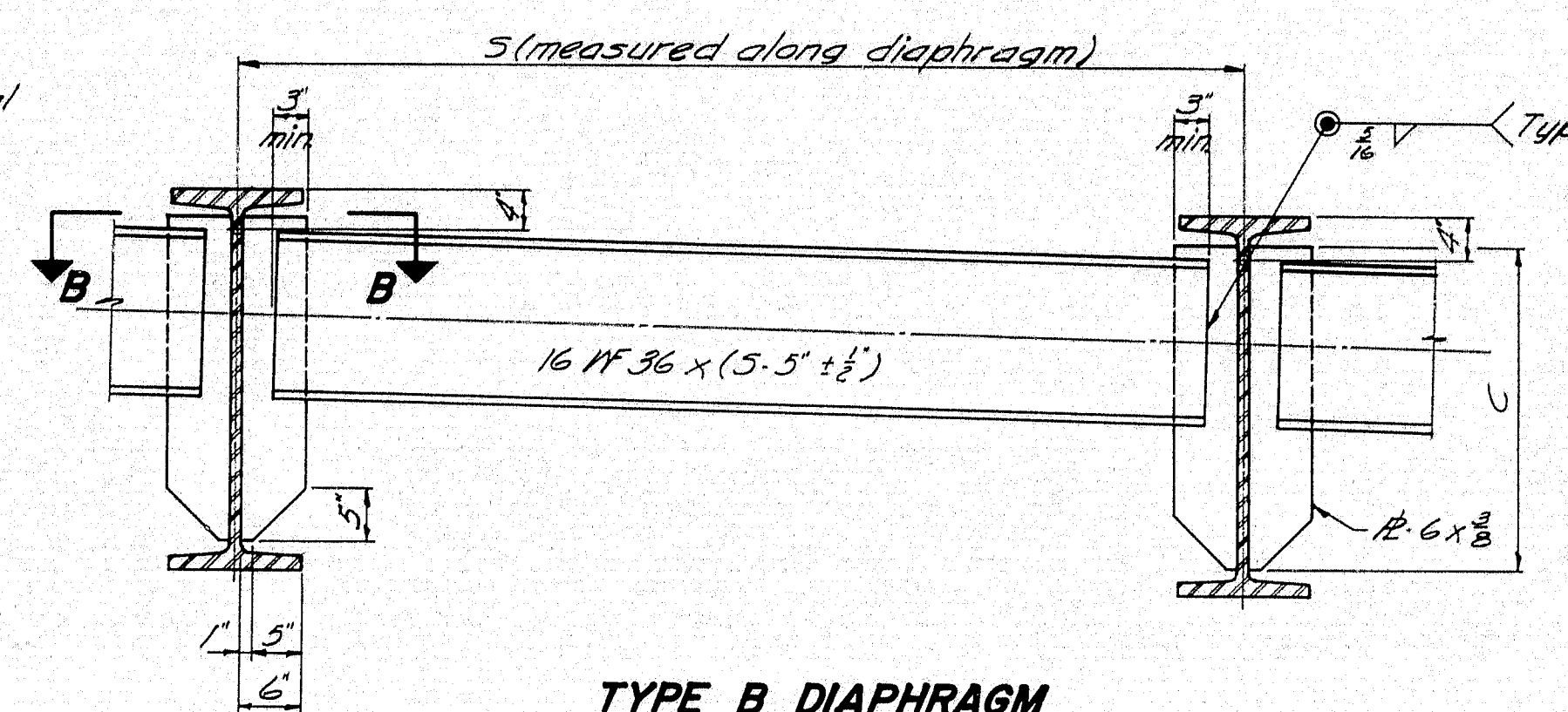
**TYPE A DIAPHRAGM**

**SECTION A-A**  
Skew Angle 0° to 18°-30'

**SECTION A-A**  
Skew Angle over 18°-30' to 30°-00'

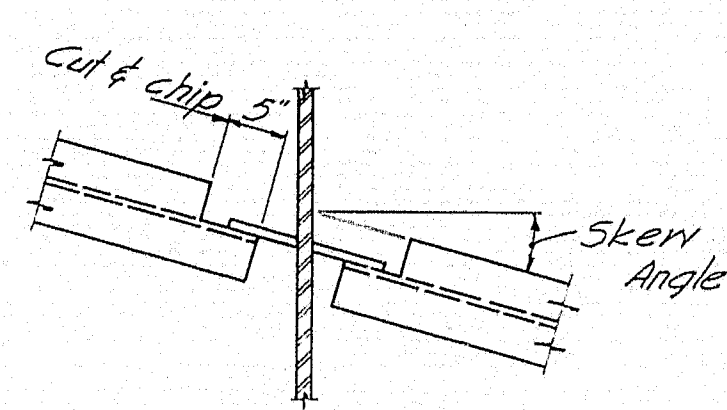
**SECTION A-A**  
Skew Angle over 30°-00'

FILLET WELD SIZE "N" & DIMENSION "C" FOR DIAPHRAGM PLATES		
BEAM	C	N
27 1/4" 84 to 114 incl.	1-11"	3/4"
30 1/4" 99 to 132 incl.	2-2"	3/4"
33 1/4" 118 to 152 incl.	2-5"	3/4"
36 1/4" 135 to 184 incl.	2-7"	3/4"
36 1/4" 230 to 300 incl.	2-6"	3/4"

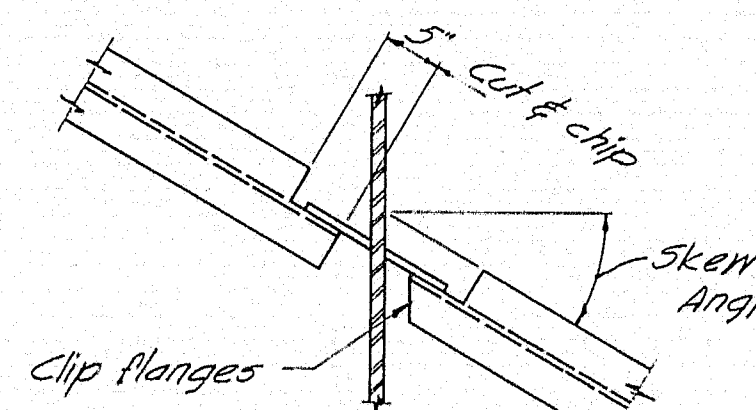


**TYPE B DIAPHRAGM**

Welding 6x3 plates to web same as for Type A Diaphragm.



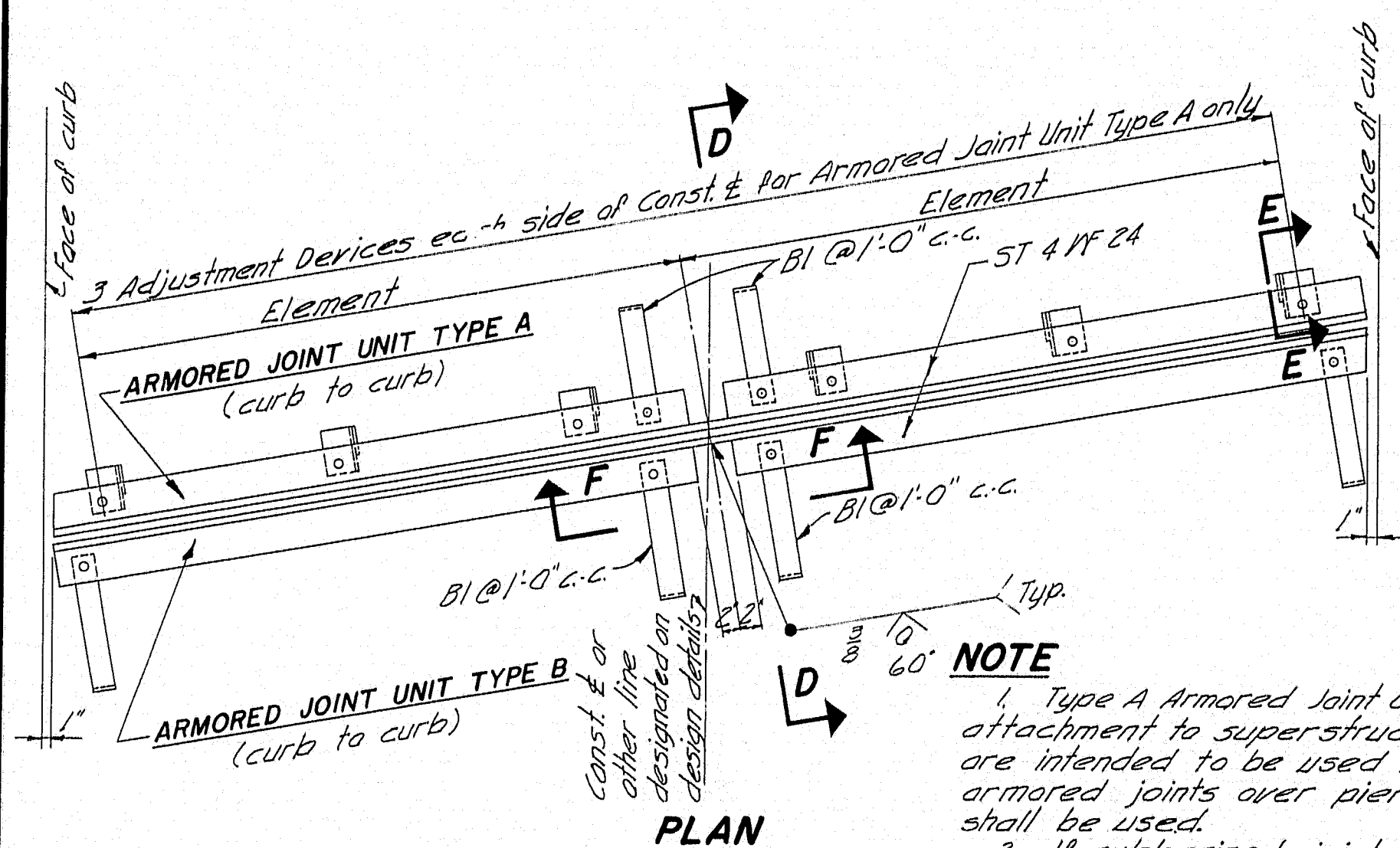
**SECTION B-B**  
Skew Angle 0° to 25°-00'



**SECTION B-B**  
Skew Angle over 25°-00'

**NOTE**  
See design details for diaphragm type, location and skew.

## DIAPHRAGMS

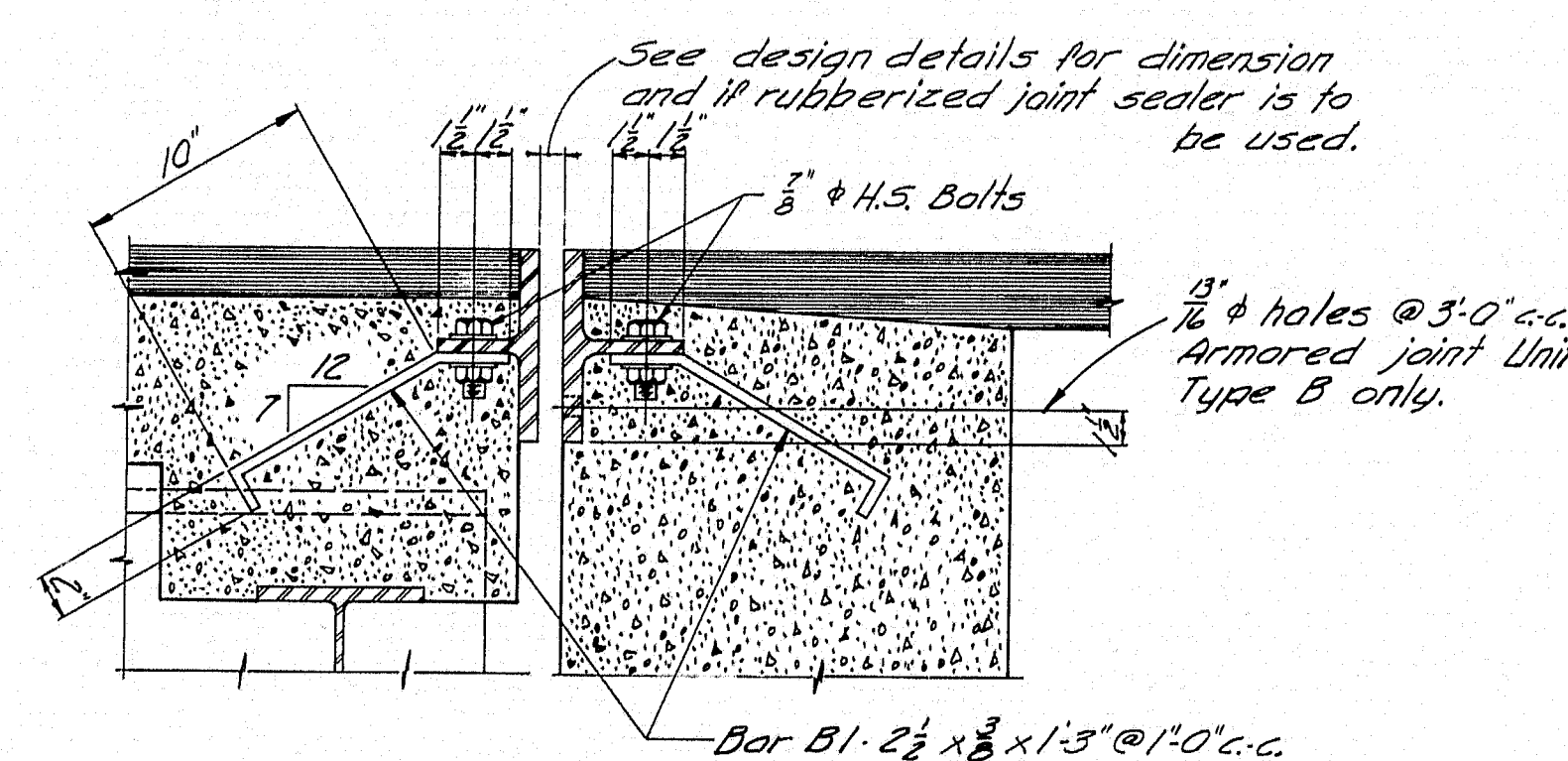


**PLAN**

**NOTE**  
1. Type A Armored Joint Units are intended to be used for attachment to superstructures. Type B Armored Joint Units are intended to be used for attachment to abutments. At armored joints over piers, two Type A Armored Joint Units shall be used.  
2. If rubberized joint sealer is called for on the design details the area to which it is to be bonded shall not be painted and it shall be supported on non-bituminous material. At the Contractor's option the supporting material may be left in place or be removed. If the supporting material is left in place, it shall be compressible in accordance with specification AA540 M153.54. In either case bond between the supporting material and the rubberized joint sealer shall be prevented by a minimum thickness of Poly-urethane foam.  
3. If more elements than the two shown in the 'Plan' are required by the design details, there shall be three adjustment devices for each element for Armored Joint Unit Type A and the elements of both units shall be field welded together in the same manner as shown in the 'Plan'.  
4. Armored Joints to be paid for as Structural Steel.

## ARMORED JOINT

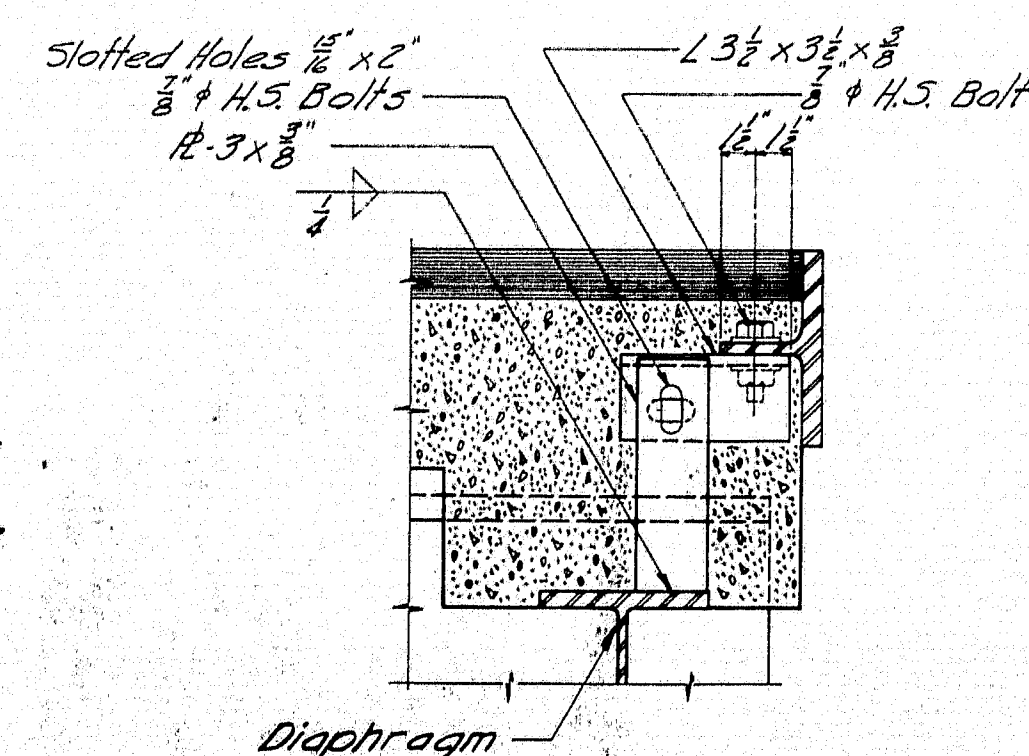
An armored joint consists of two armored joint units. See note 1.



**ARMORED JOINT UNIT TYPE A**

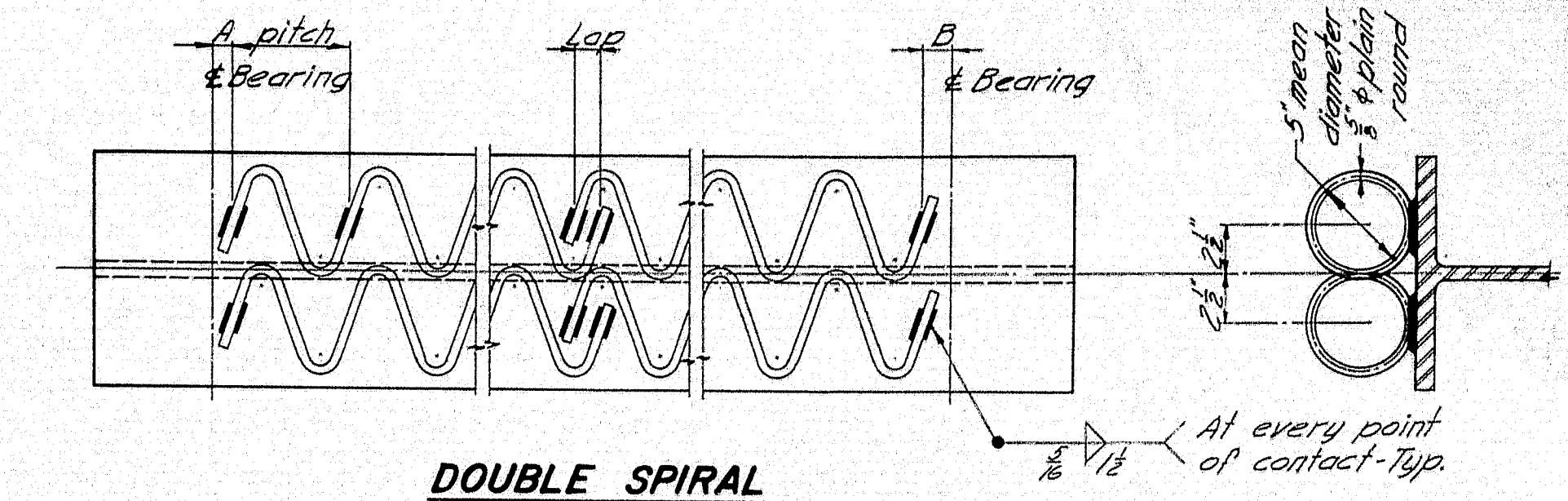
**ARMORED JOINT UNIT TYPE B**

**SECTION D-D**

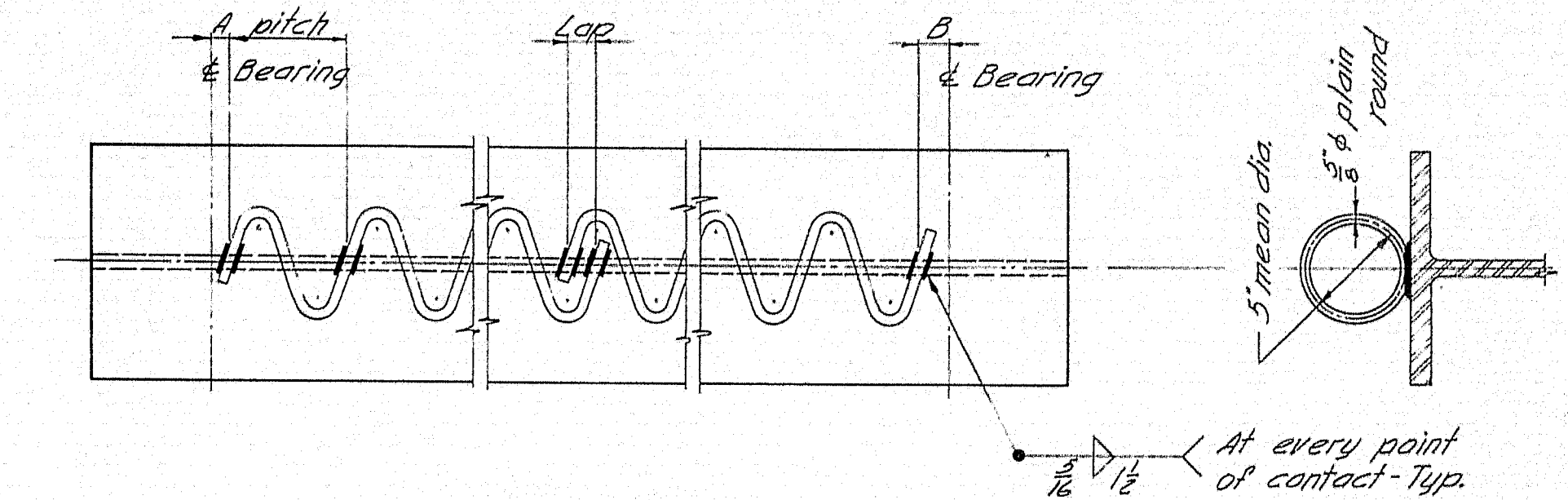


**SECTION E-E**

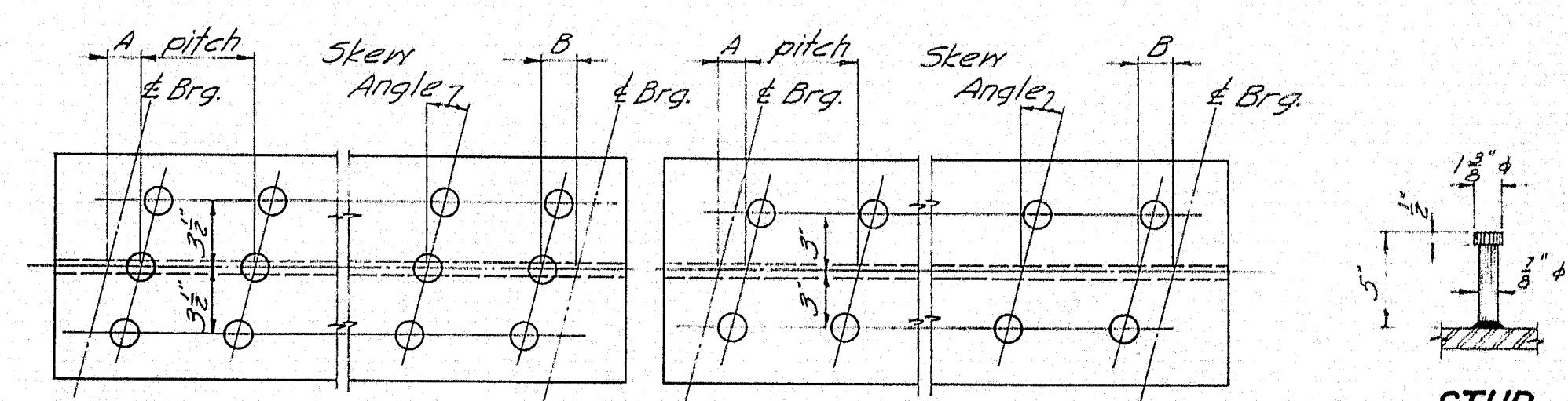
Showing Adjustment Device Armored Joint Unit Type A only - After Unit is in final position weld 1/2 inch to angle with 1/2 inch fillet



**DOUBLE SPIRAL**



**SINGLE SPIRAL**



**TRIPLE STUDS**

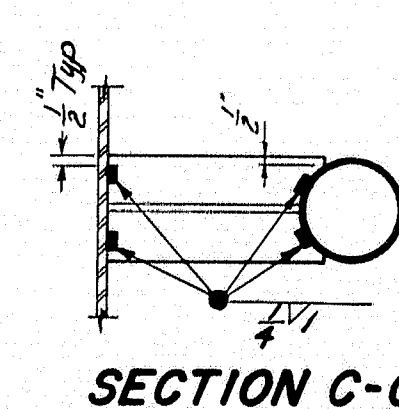
**DOUBLE STUDS**

**STUD DETAIL**

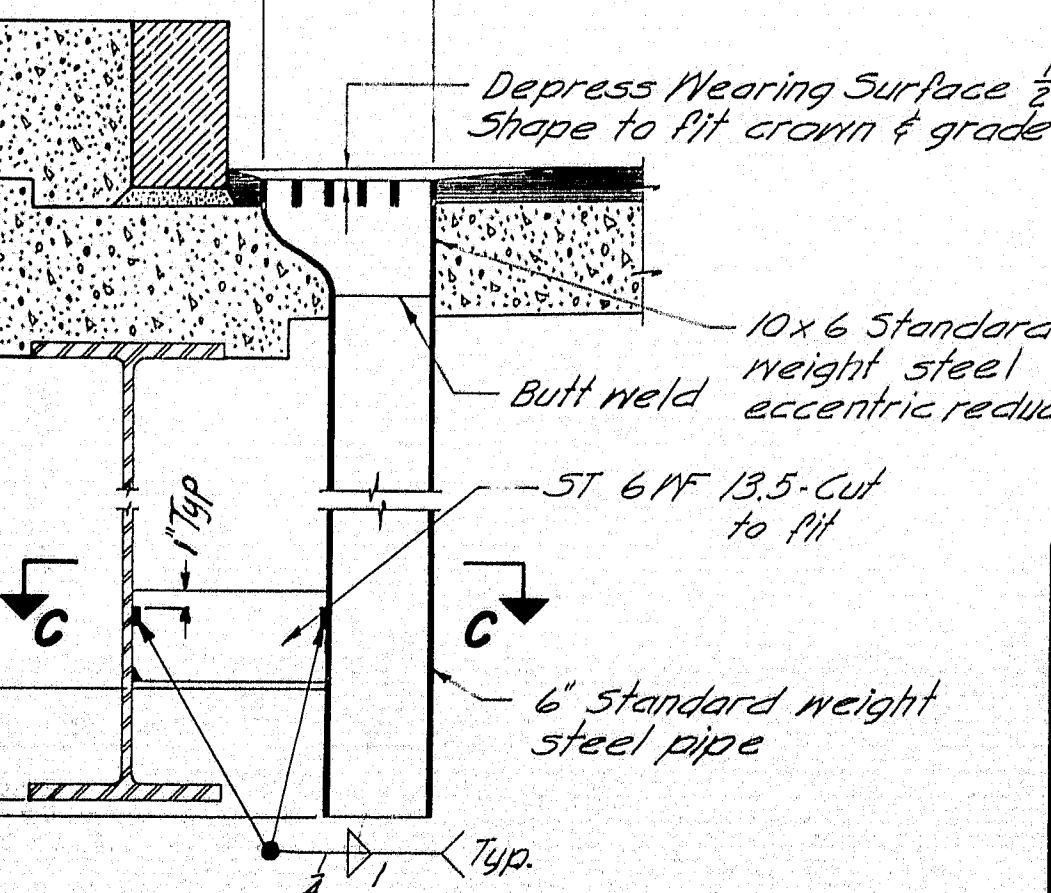
**NOTE**  
1. Spiral reinforcing or studs may be used at the option of the Contractor.  
2. If studs are used they shall be granular or solid flux filled and automatically end welded to the top flange in the shop or field.  
3. Studs are a patented product. If the Contractor elects to use them, he shall pay the royalty and payment to the contractor will be included in the lump sum price for Shear Connectors.  
4. See the design details for Dimensions 'A' and 'B', spiral and stud pitch and skew angle for studs.

## SHEAR CONNECTORS

Cut 4 holes 1/2" x 2" 1/2" from top. Do not cover with concrete or waterproofing.



**SECTION C-C**



**DRAIN**

**NOTE**  
1. Drain may be rotated 180°. See design details.  
2. See design details for location and number of drains and beam size to which it is connected.  
3. Drains to be paid for as structural steel.

## GENERAL NOTE

Use only those items called for on design details. In case of conflict between these Standard Details and the design details, the requirements of the design details shall be followed.

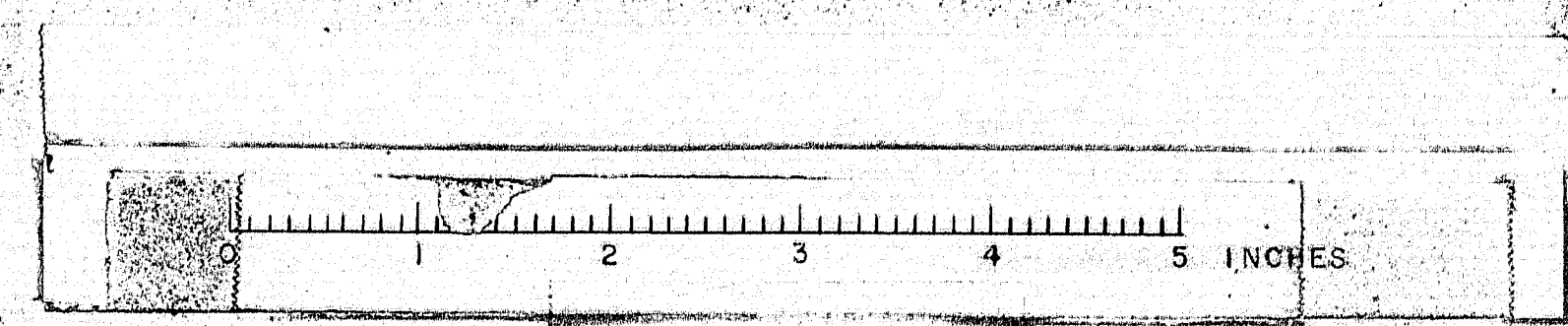
MAINE STATE HIGHWAY COMMISSION  
AUGUSTA, MAINE

**STANDARD DETAILS**  
(BD 104-64)  
**DIAPHRAGMS, ARMORED JOINT, SHEAR CONNECTORS, DRAIN**

Revised Nov 1964, Welding Drain Support

JANUARY 1964

M-2490C









Curve	Radius	"X"	"Y"
#1	24"	24"	$3\frac{15}{32}$ "
#2	45"	45"	$2\frac{27}{32}$ "
#3	15"	$15\frac{11}{16}$ "	$4\frac{23}{32}$ "
#4	$9\frac{3}{4}$ "	$20\frac{11}{16}$ "	$2\frac{13}{32}$ "
#5	19"	$28\frac{17}{32}$ "	11"
#6	6"	$16\frac{17}{32}$ "	$16\frac{1}{16}$ "


ASTM B211 Alloy 2024-T4  
3/8" 16 NC x 1" hexagonal  
socket set screw with  
cone point and finished  
hexagonal jam nut.

[illegible]

Casting to be supplied with a 60 grid belt grind finish on all gating rib surfaces around entire casting.

ASTM B26 Alloy 43-F or 356-F  $\Delta_3$

At each rail post  
See Article 702-80, Supplemental Specification  
of Feb. 1960 for Pad & Fabric Washers.

RAIL POST   
Aluminum Association Alloy A344-T4

*Bolts, Nuts & Std. Washers = ASTM A325 Galvanized ASTM A153*

POSSIBLE DOCT DETAIL  
Cadmium Plate metal parts ASTM A165

A.A.S.H.O. Interim Specifications  
Int. I (64).

4 A 344-T4 Alloy conforming to  
ASTM B108

ALTERATION:

Δ - Added Detail "A" and Origin Location.  
Principal Curves. Nov. 19, 1964.

② - Removed Alloy 6062-T6 May 5, 1966  
③ Revised Alloy for Rail Cap.

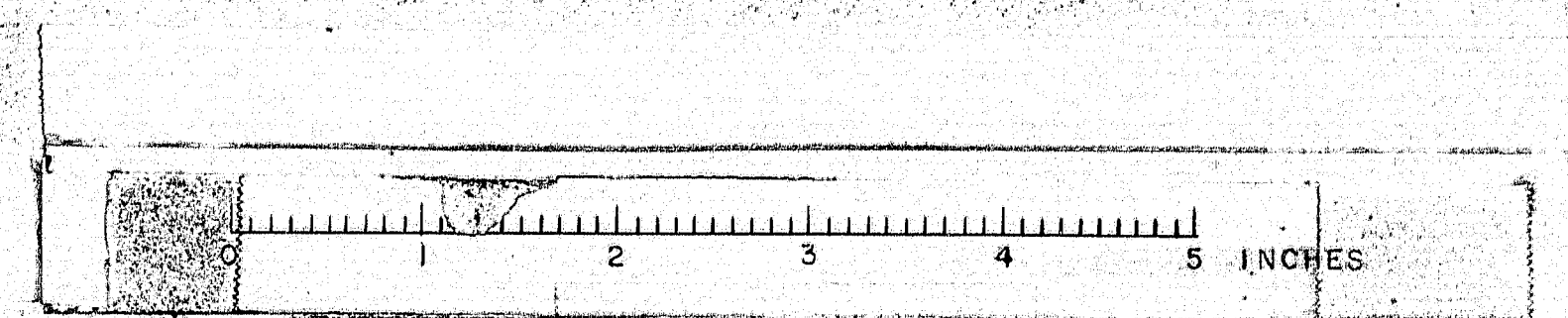
MAINE STATE HIGHWAY COMMISSION

MAINE STATE HIGHWAY COMMISSION  
AUGUSTA, MAINE

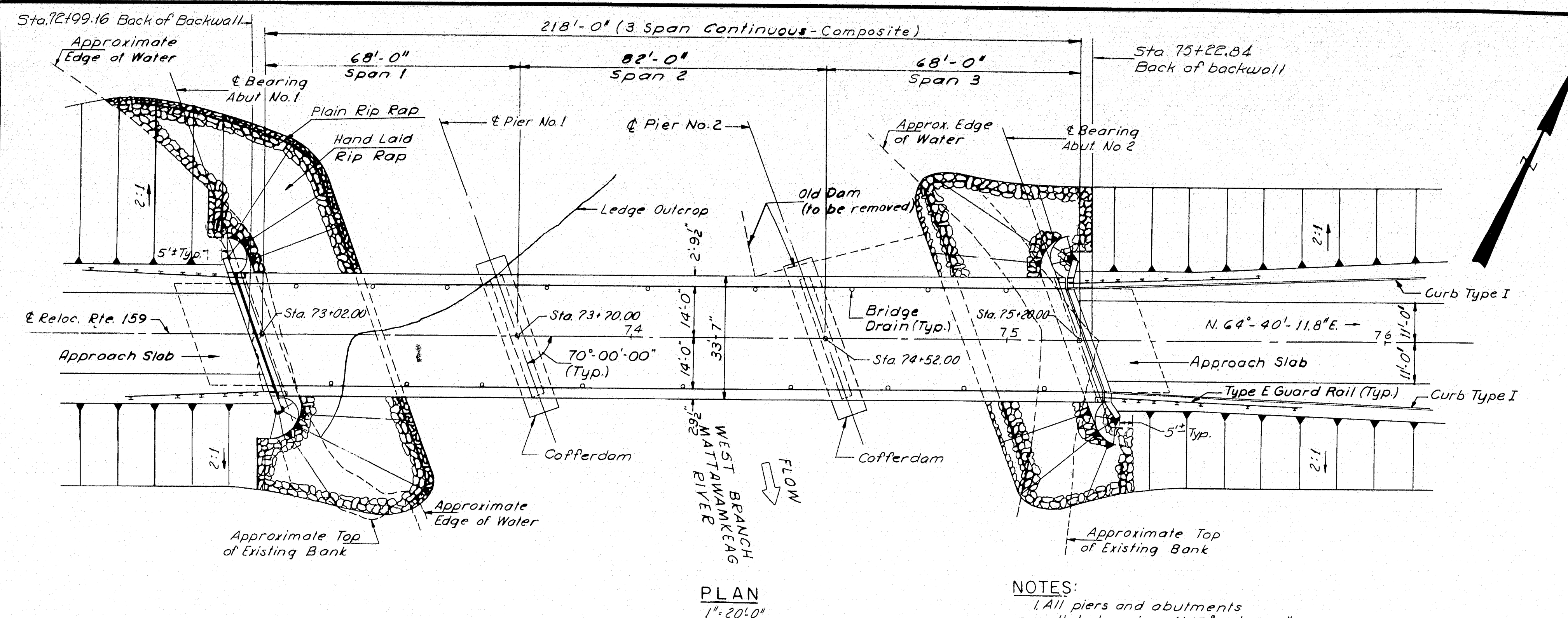
**STANDARD DETAILS**  
(BD 108-64)  
**ALUMINUM RAIL**  
2 - BAR (TUBE RAIL)  
CAST POST

OCT. 1964

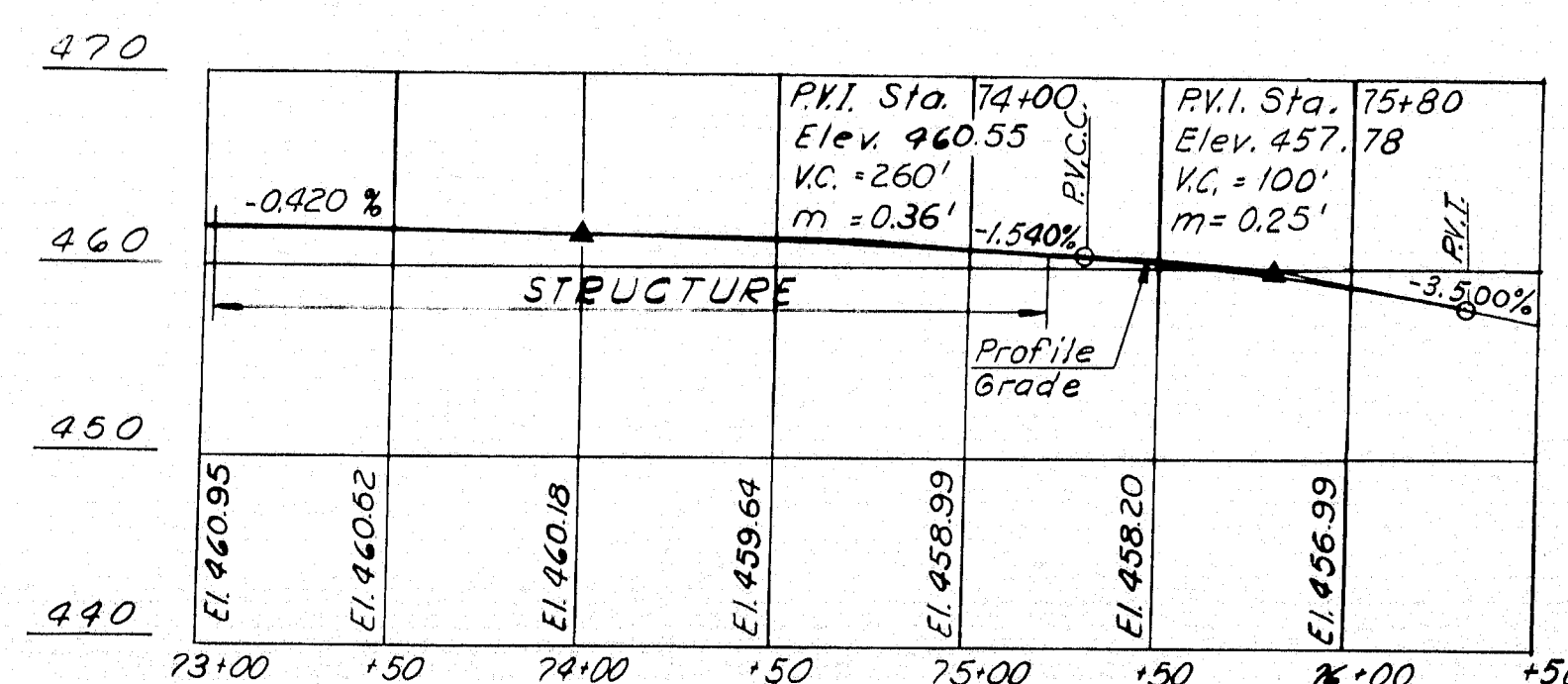
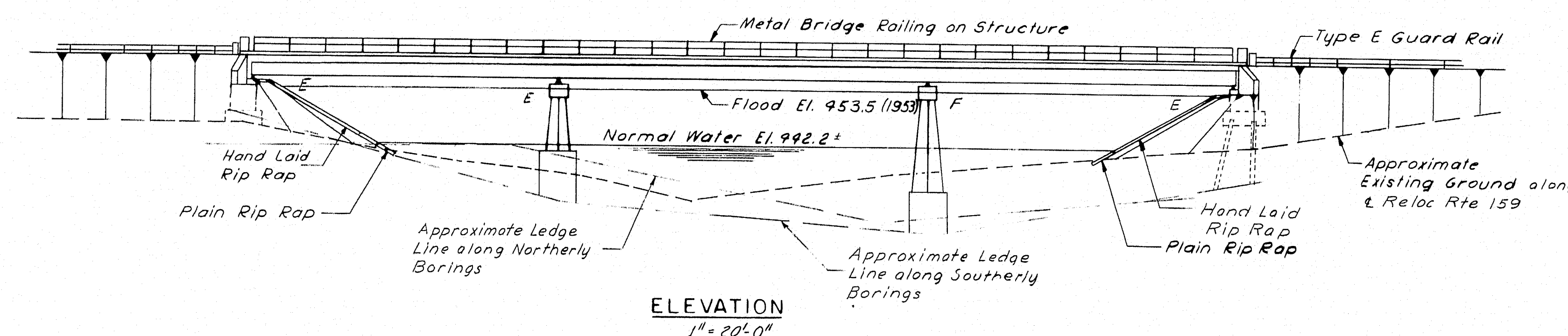
M-2490E



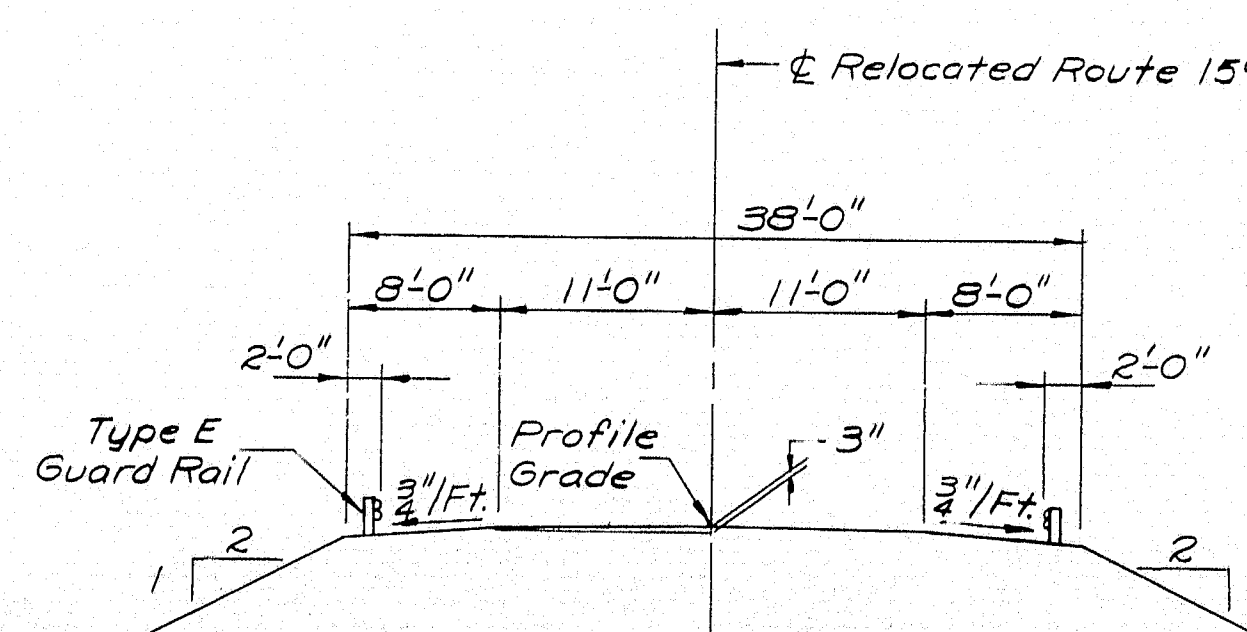




NOTES:  
1. All piers and abutments parallel, bearing N45°-19'-48.2"W  
2.0 Indicates bridge drains.



PROFILE RELOCATED ROUTE 159  
1" = 10'-0" Vert.  
1" = 50'-0" Horiz.



APPROACH SECTION  
1" = 10'-0"

# SPECIFICATIONS

DESIGN:  
AASHTO Standard Specifications for Highway Bridges 1961 with Interim Specifications, 1961, 1962, 1963 & 1964.

CONTRACT:  
State of Maine, State Highway Commission, Standard Specifications for Highways and Bridges, Revision of January 1956 and Supplemental Specifications of February 1960.

## LIVE LOADING

H520-44

## FOUNDATIONS

Abutment #2 10BP42 End Bearing Piles, 37 Ton Capacity.  
Abutment #1 & Piers Spread Footing on Ledge

## ALLOWABLE STRESSES

Concrete ( $n=10$ )  $f_c = 1200$  p.s.i.  
Reinforcing Steel, Int. Grade  $f_s = 20,000$  p.s.i.  
Structural Steel,  $f_s = 20,000$  p.s.i. (A.S.T.M. A36)

## CONCRETE CLASSIFICATION

All Concrete shall be Class 'A' except concrete seal for pier foundations which shall be Class 'S'

## HYDRAULIC DATA

Refer to U.S. Route 2 bridge 1700' downstream

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
204-12	Structural Earth Exc. Abut. & Ret. Walls	5	C.Y.
204-13	Structural Rock Exc. Abut. & Ret. Walls	6	C.Y.
204-142	Structural Earth Exc. Piers (Reloc. Rte. 159 over W. Br. Matt. River)	628	C.Y.
204-15	Structural Rock Exc. Piers	18	C.Y.
205-12	Gravel Borrow I.P.M.	970	C.Y.
404-29	Bituminous Concrete Surface Course Type B	76	Tons
701-33	P.C.C. Abut. & Ret. Walls	122	C.Y.
701-35.2	P.C.C. Piers (Reloc. Rte. 159 over West Branch Mattawamkeag River)	156	C.Y.
701-36	P.C.C. Piers (Placed Under Water)	228	C.Y.
701-40	P.C.C. Rdwy. & Sidewalk Slabs, on Steel Bridges	222	C.Y.
701-50	P.C.C. Approach Slabs	21	C.Y.
701-54	Portland Cement for Riprap Grout	14	Bbls.
702-103.2	Structural Steel Fabricated & Delivered (Reloc. Rte. 159 over W. Br. Matt. River)	L.S.	L.S.
702-104.2	Structural Steel Erection (Reloc. Rte. 159 over W. Br. Matt. River)	L.S.	L.S.
702-105.2	Structural Steel Field Painting (Reloc. Rte. 159 over W. Br. Matt. River)	L.S.	L.S.
705-13	Reinforcing Steel - Delivered	76,500	Lbs.
705-14	Reinforcing Steel - Placing	76,500	Lbs.
705-17.2	Shear Connectors (Reloc. Rte. 159 over W. Br. Matt. River)	4,406	pcs.
708-16	Steel H-Beam - Piles 42 Lbs./Ft.	252	L.F.
803-7	Cofferdam Pier 1	L.S.	L.S.
803-8	Cofferdam Pier 2	L.S.	L.S.
805-8	Bridge Rail	431	L.F.
807-9	Membrane Waterproofing	690	S.Y.
807-11	Epoxy Resin Surface Sealant	85	S.Y.
901-24	Vertical Bridge Curb Type I	443	L.F.
901-25	Vertical Bridge Curb Type I Circular	6	L.F.
907-9	Plain Riprap	140	C.Y.
907-10	Hand Laid Riprap	627	C.Y.

Estimated weight of structural steel including drains is 207,400 lbs.  
Estimated weight of shear connectors Spirals - 4,406 lbs.  
Estimated number of shear connectors Studs - 3,770 pcs.

## INDEX OF SHEETS

- GENERAL PLAN & QUANTITIES
- FOUNDATION SURVEY
- FOUNDATION SURVEY
- ABUTMENT NO. 1
- ABUTMENT NO. 2 & APPROACH SLAB
- PIERS
- STRUCTURAL STEEL & BLOCKING
- SUPERSTRUCTURE
- SLOPE PROTECTION
- REINFORCING STEEL

## STANDARD DETAIL SHEETS

- |           |   |
|-----------|---|
| BD 101-64 | BEARING PEDESTALS                                   |
| BD 103-64 | BEAM SPLICES  |
| BD 104-64 | DIAPHRAGMS, ARMORED JOINT, SHEAR CONNECTORS, DRAIN. |
| BD 105-64 | EXPANSION DAMS                                      |
| BD 109-66 | STEEL RAIL  |
| BD 108-64 | ALUMINUM RAIL                                       |

## NOTES

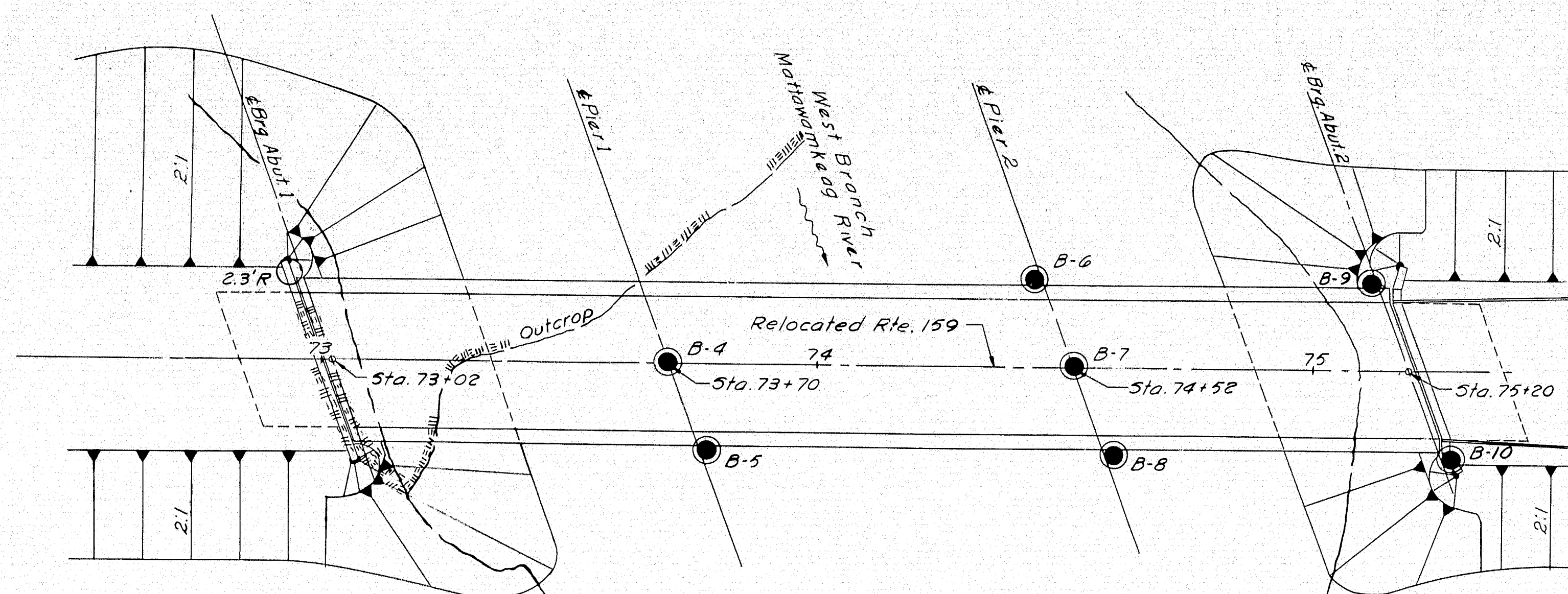
- All fill within the limits as shown on Profile Sheet 5G shall be placed by the Controlled Density Method.
- Size of stone in gravel borrow through which abutment piles are driven should not exceed 6 inches and concentrations of stones in the area shall be avoided.
- Place gravel borrow to elevation of abutment footings before driving piles.

DESIGN - R.R.K.	DETAIL - R.R.K.	BRIDGE NO. SURVEY - PLOT -
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159 OVER WEST BRANCH MATTAWAMKEAG RIVER IN THE TOWN OF ISLAND FALLS AROOSTOOK COUNTY GENERAL PLAN & QUANTITIES		
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS		SHEET 1 OF 10 AUGUSTA, MAINE AUGUST 1965

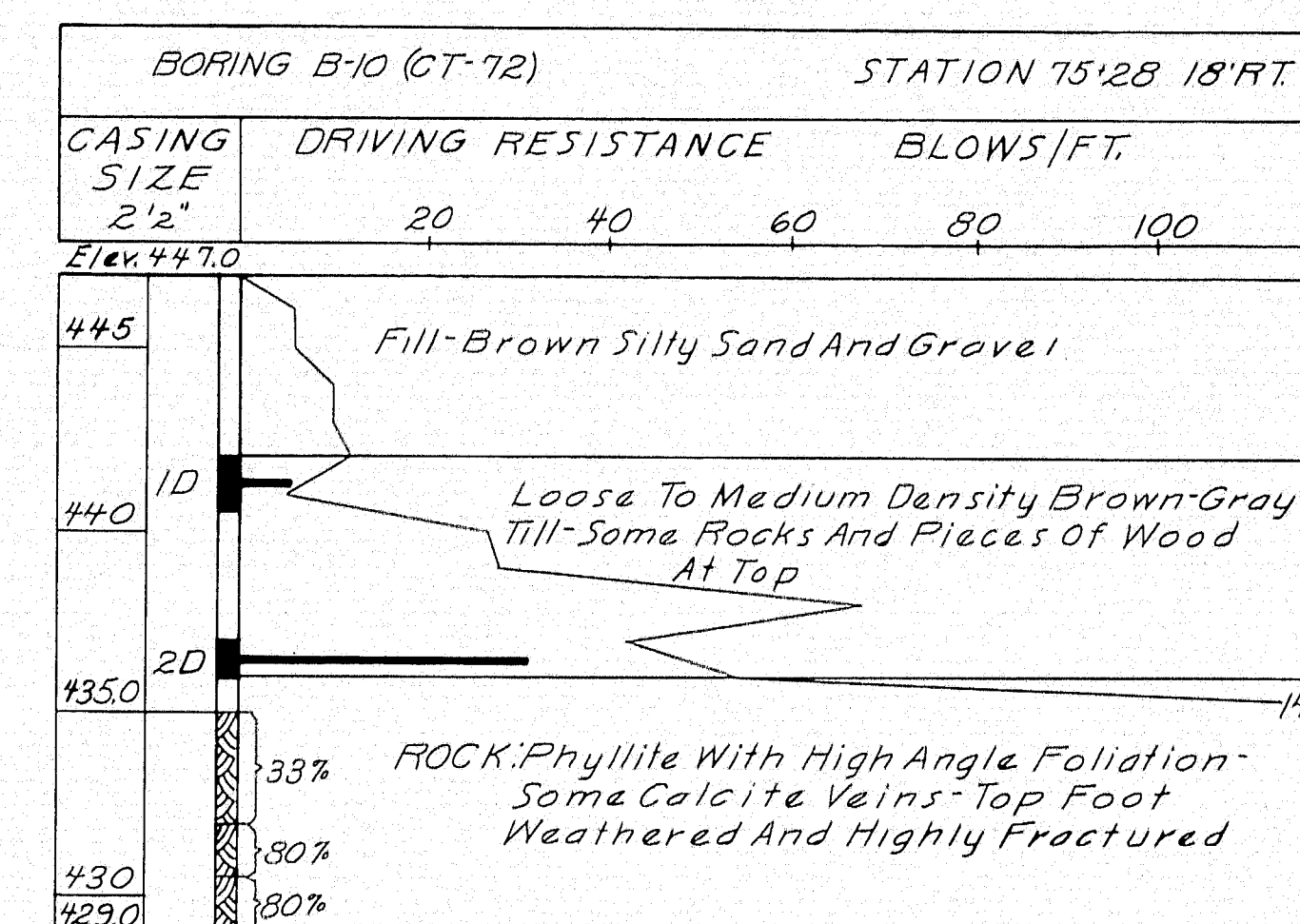
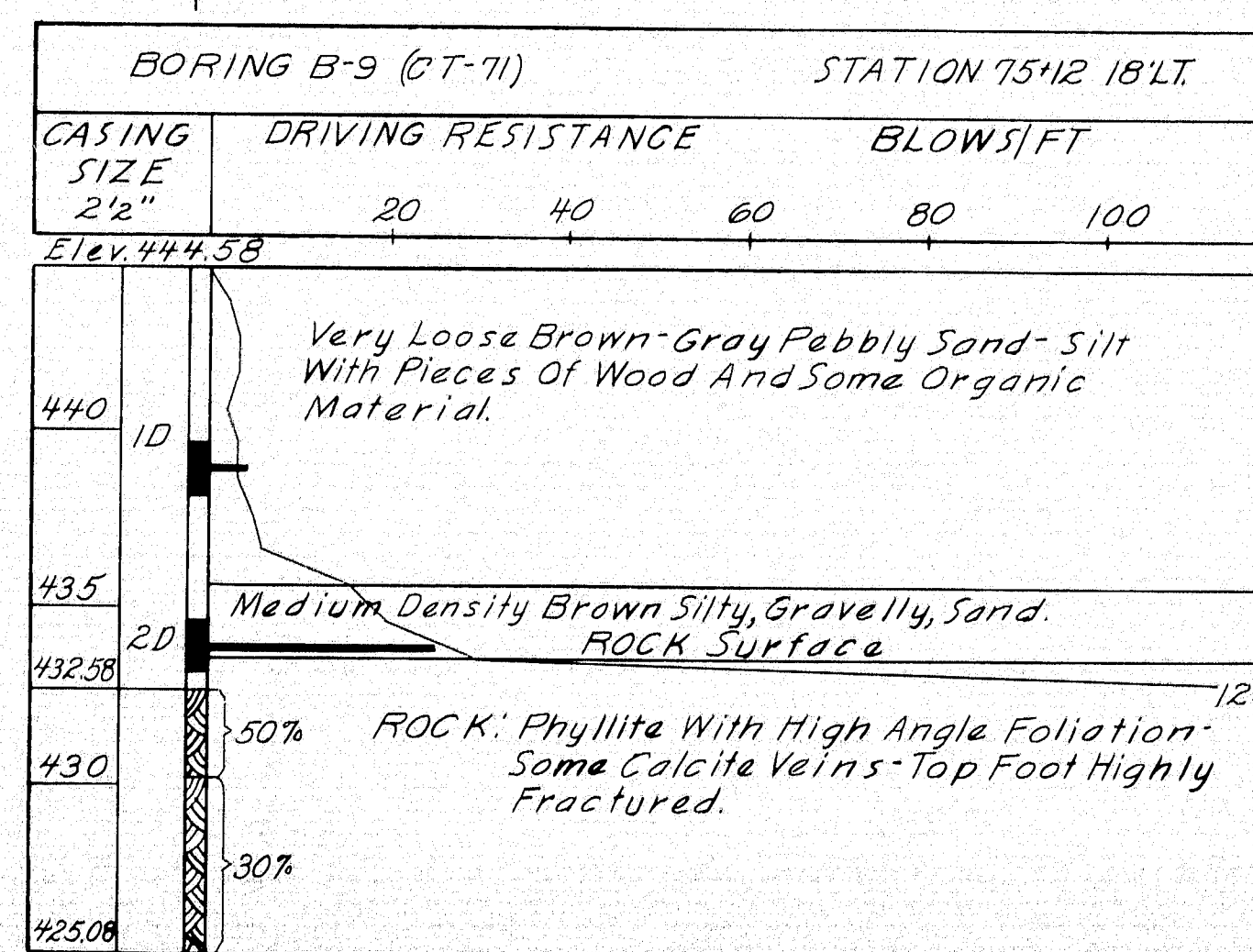
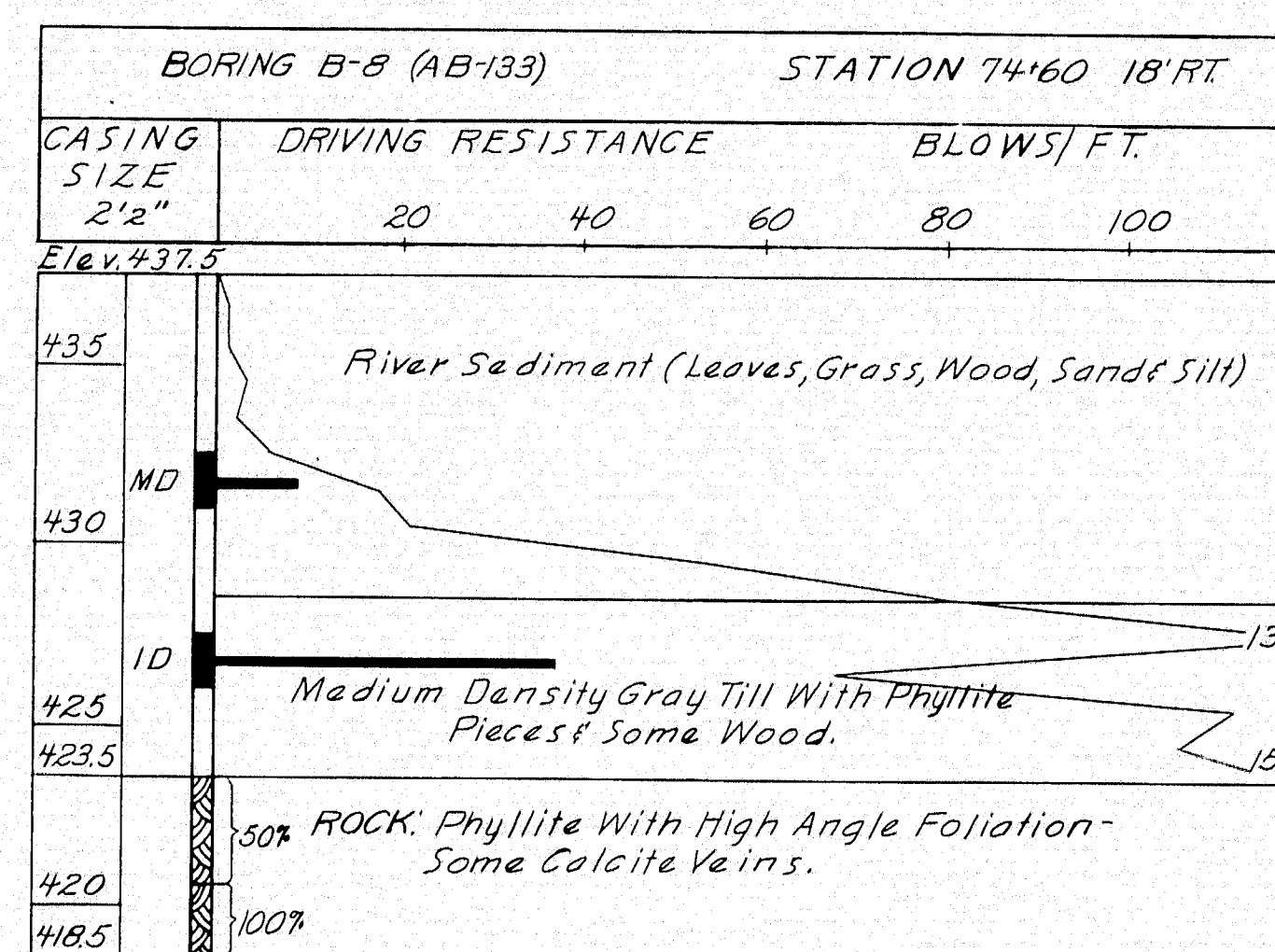
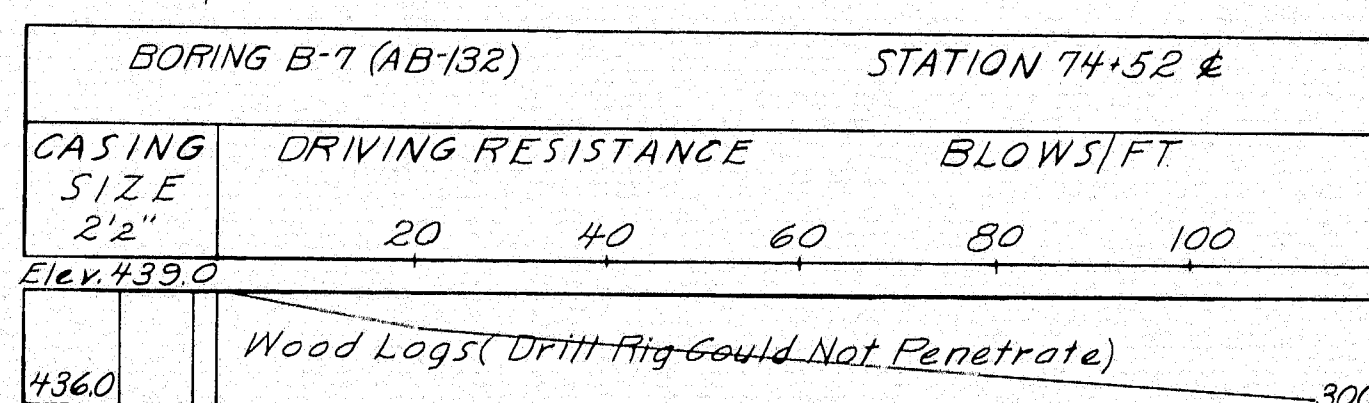
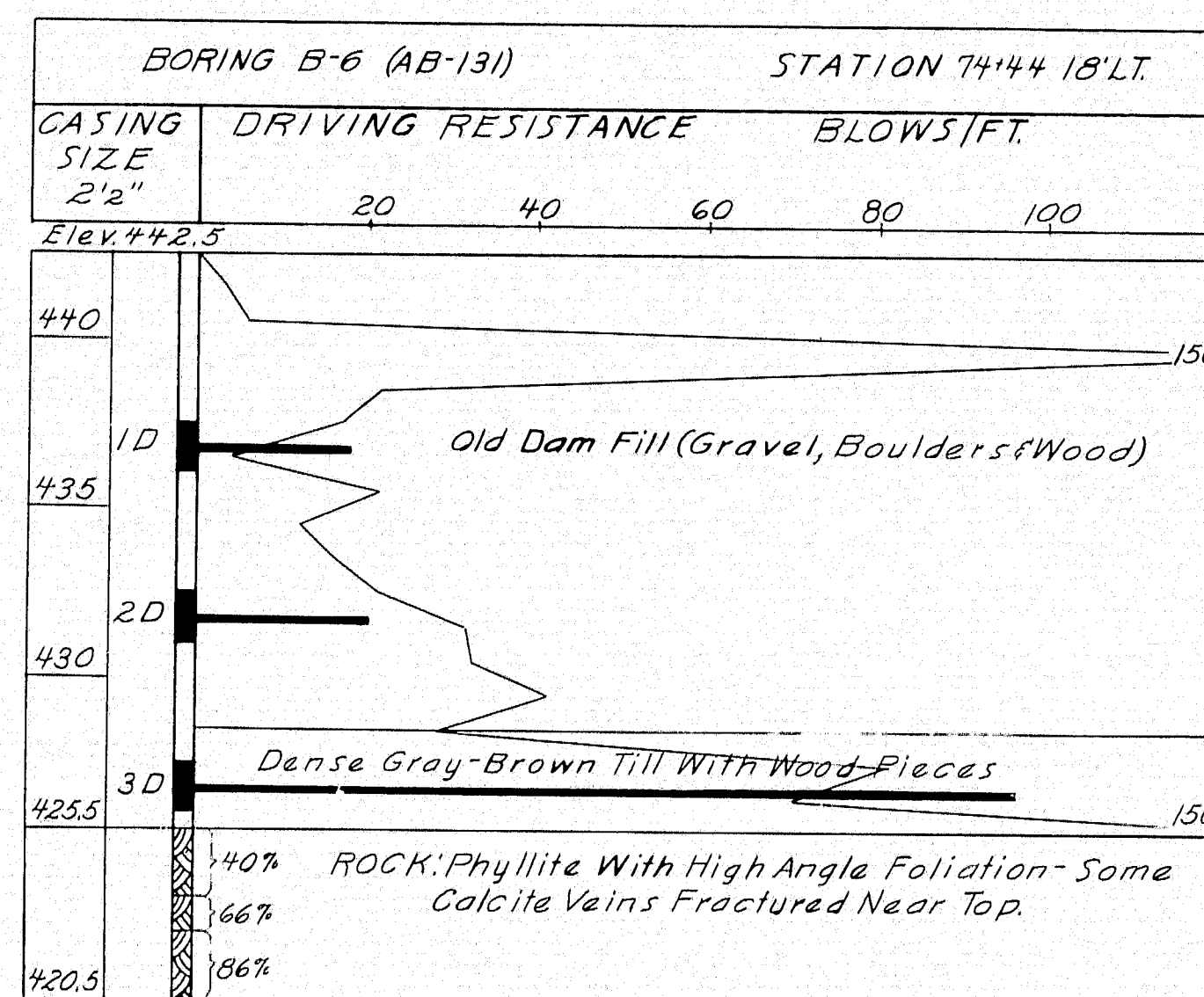
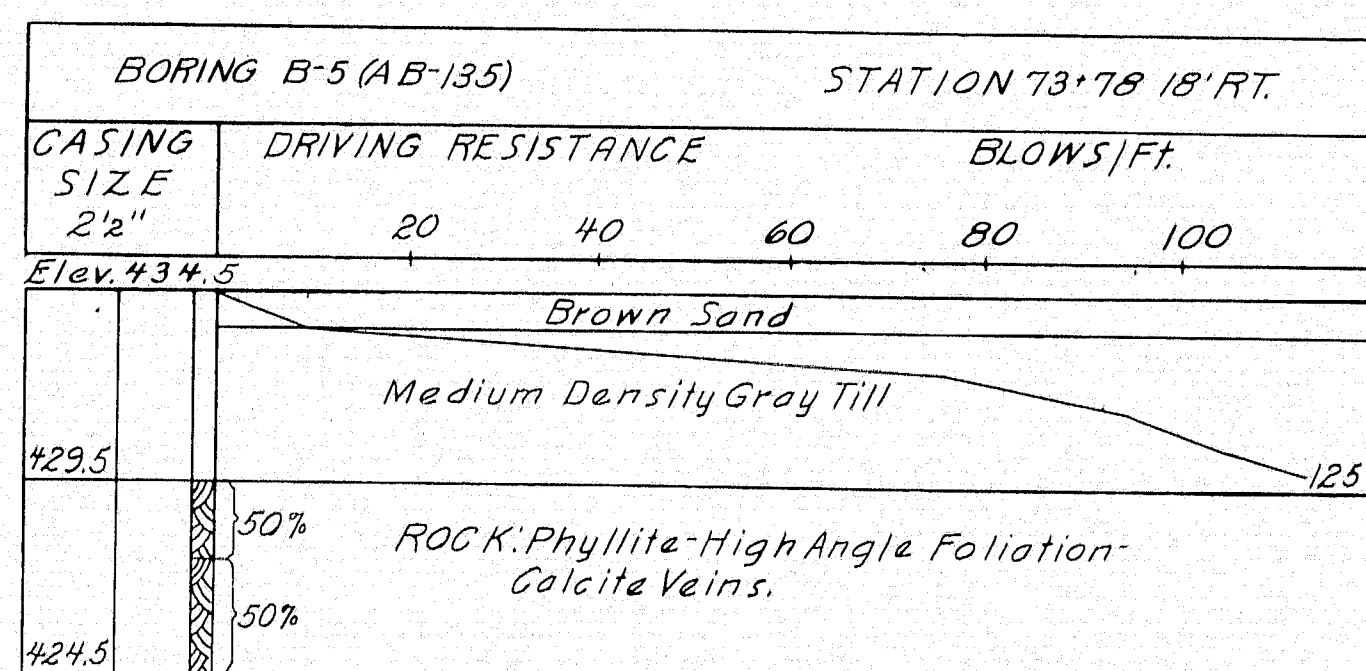
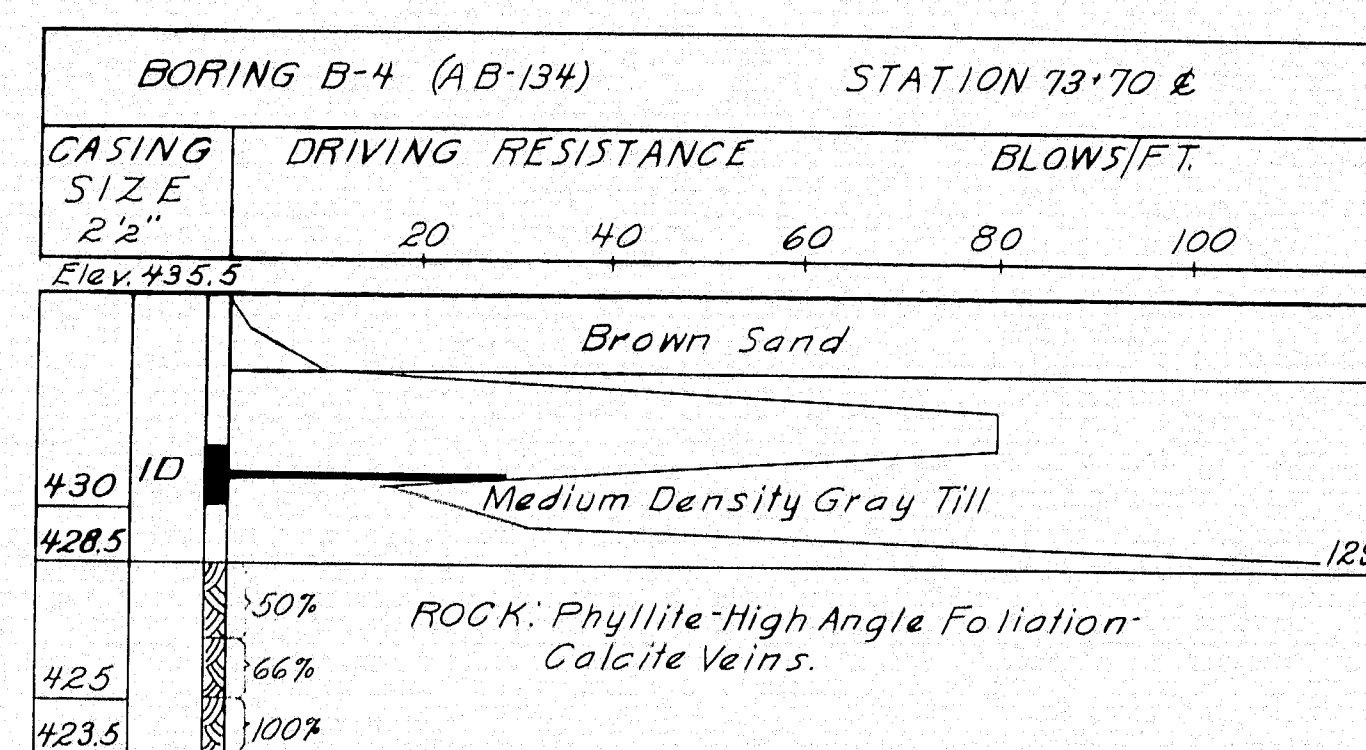
M-2491

ISLAND FALLS (36)





PLAN  
1"=20'-0"

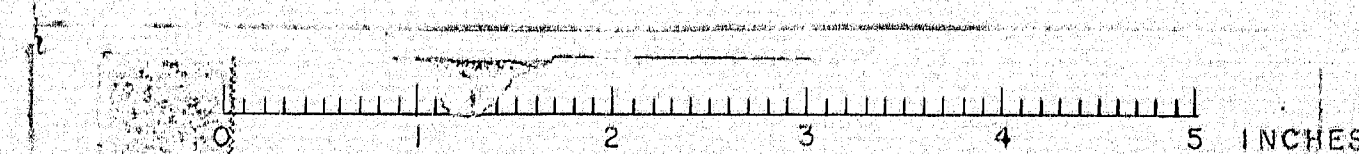


**NOTES**

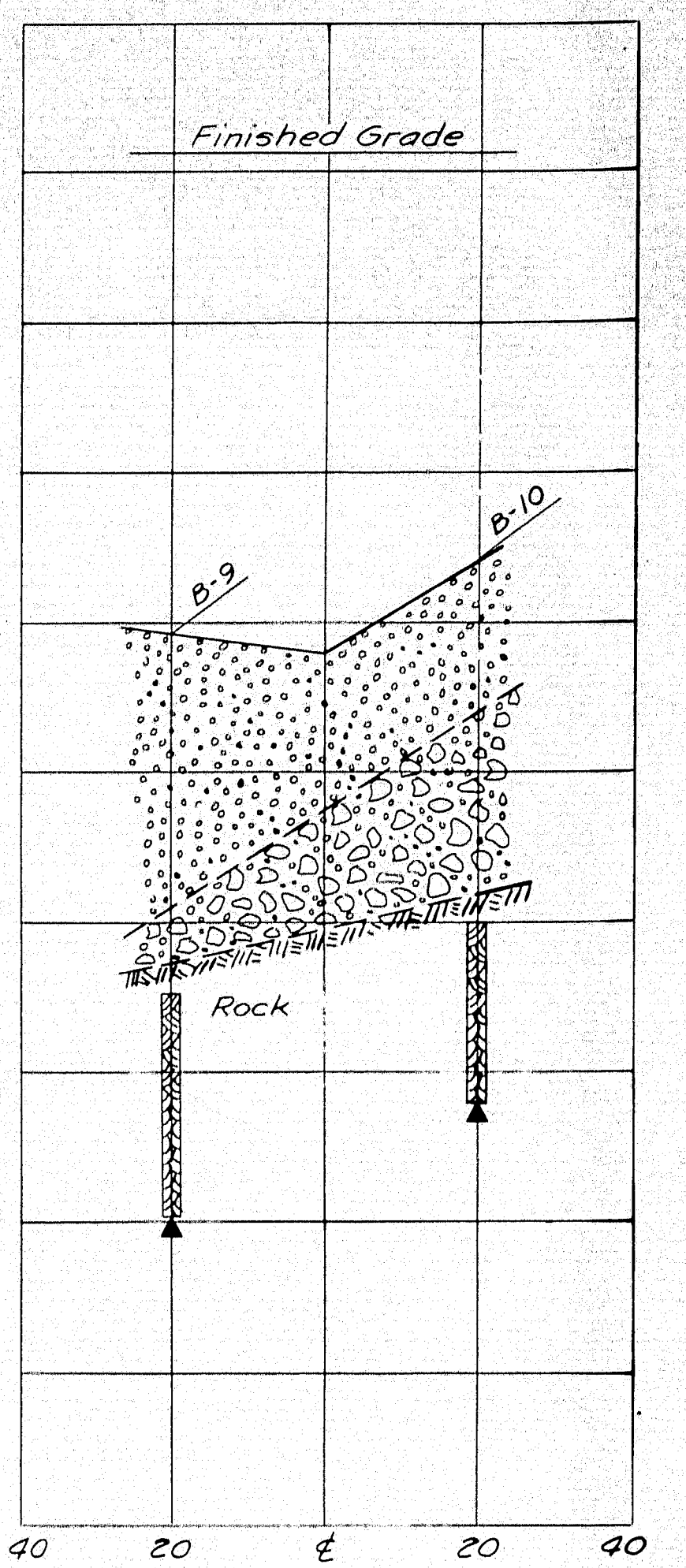
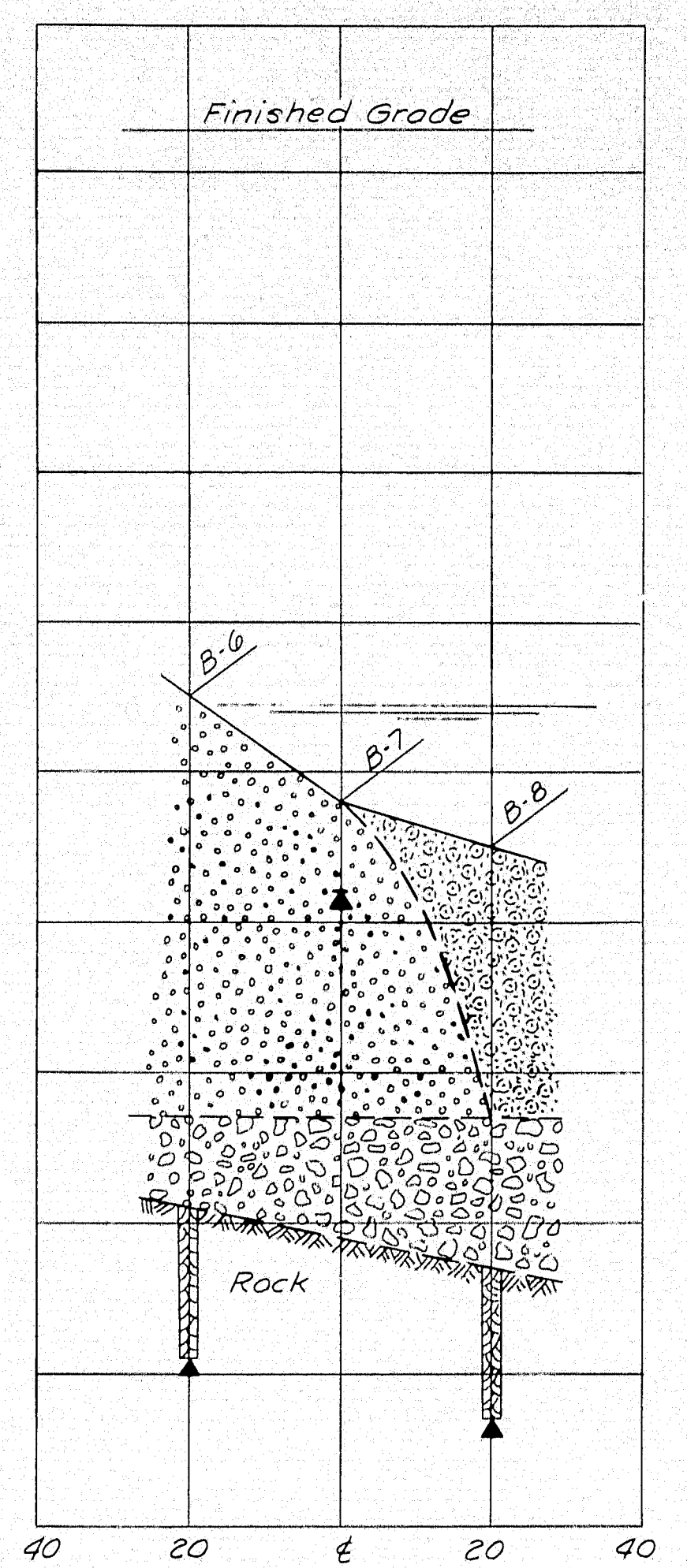
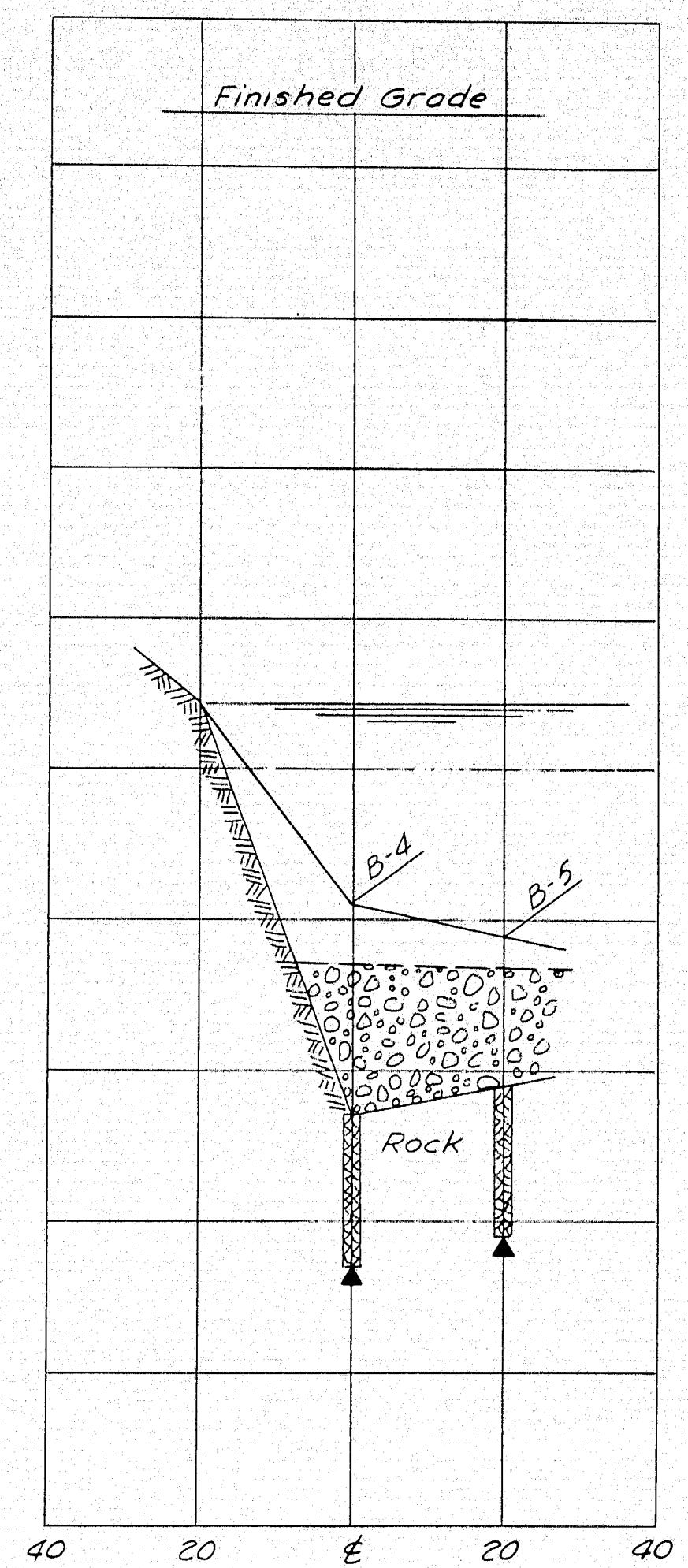
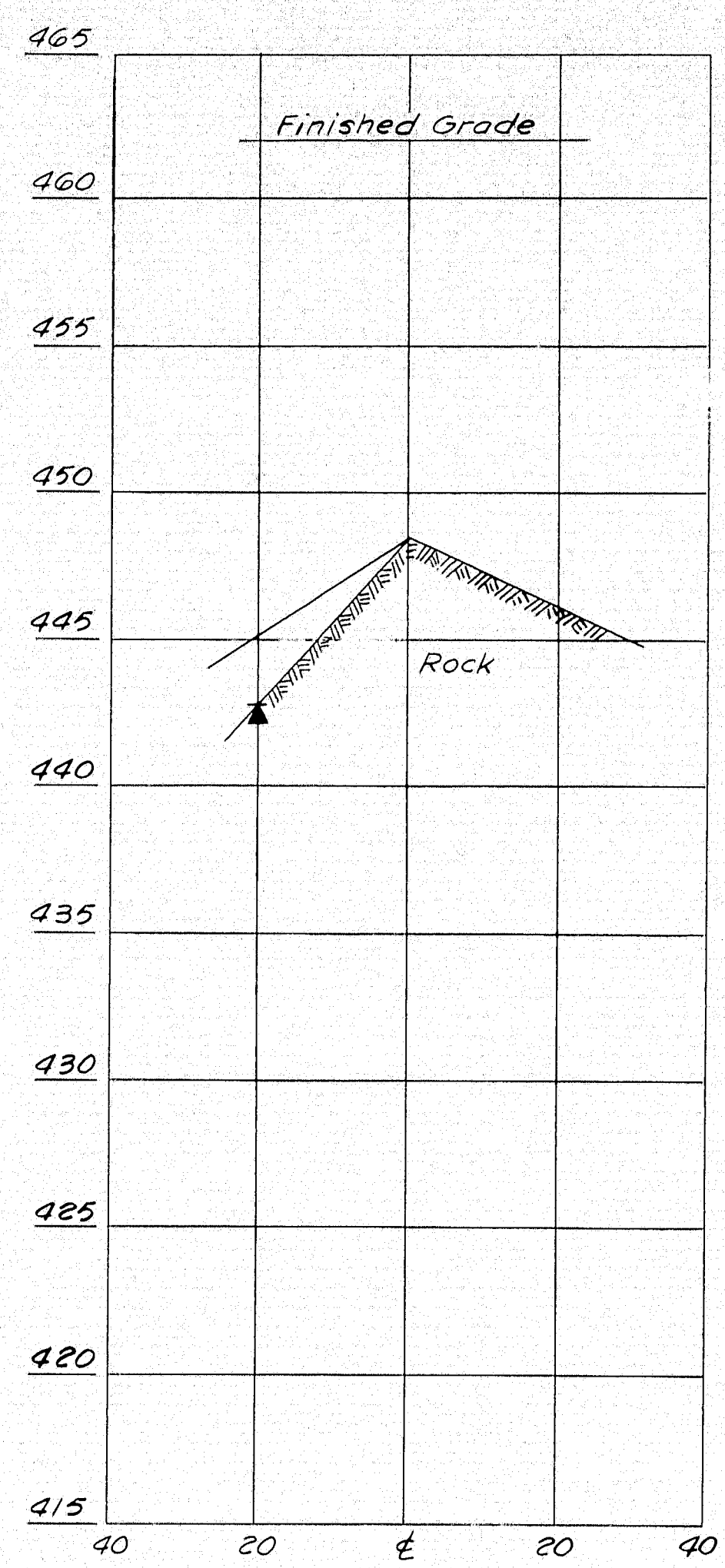
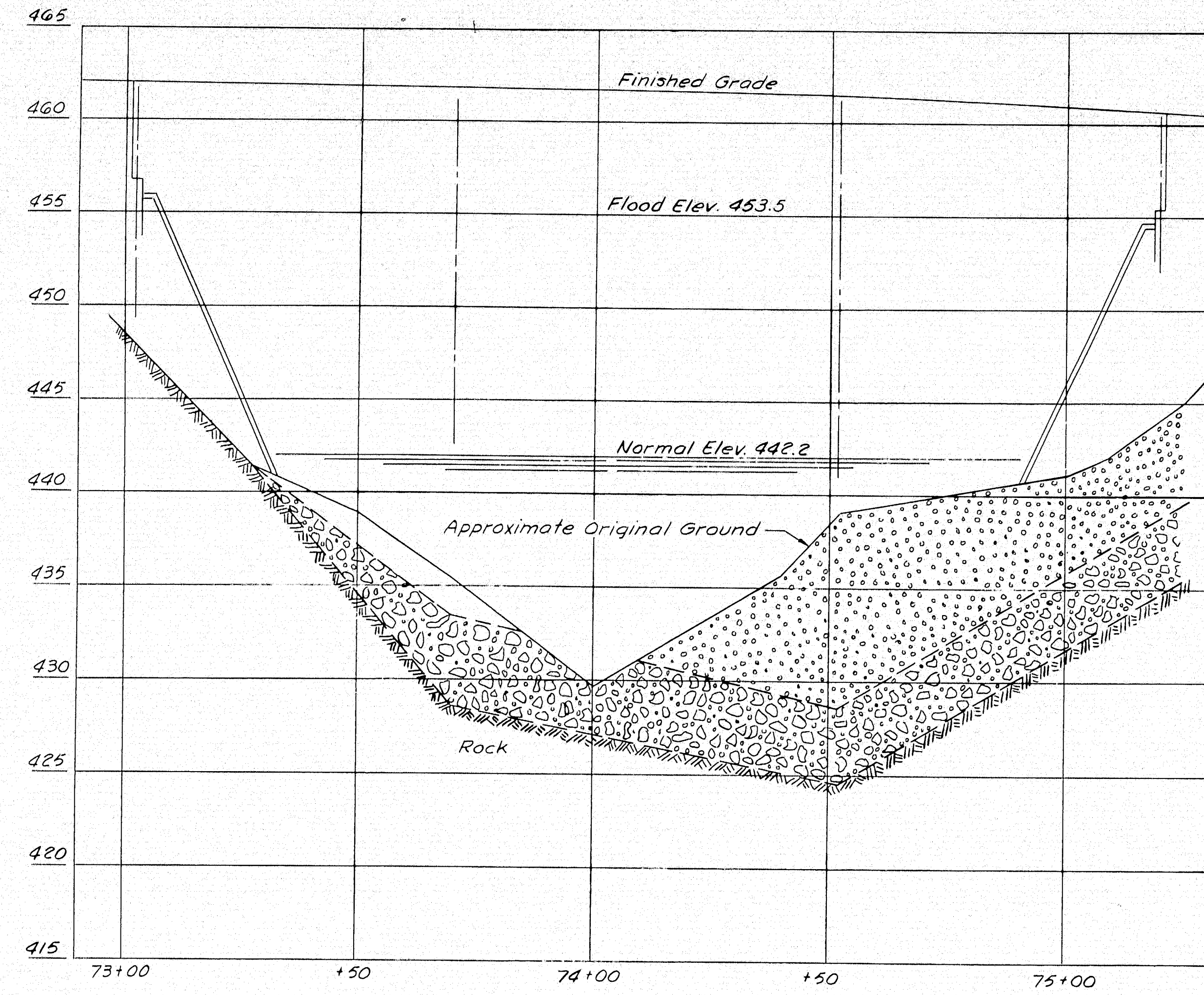
- Number of blows required to drive extra heavy casing one foot with 400 ft. lbs. of energy per blow.
- Location of sample or sample attempt.
- ID S&H Sampler #1290's.
- MD Unsuccessful sample attempt and type of sampler.
- Number of blows required to drive spoon or tubing one foot with 350 ft. lbs. of energy per blow.
- Bottom of boring (may not be bottom of soil strata)
- Location cored by diamond bit and per cent recovery of rock.

DESIGN- TRACE- CHECK- P.E.N.	DETAIL-G.F.K.	BRIDGE NO. SURVEY- PLOT-
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159 OVER WEST BRANCH MATTAWAMKEAG RIVER IN THE TOWN OF ISLAND FALLS AROOSTOOK COUNTY FOUNDATION SURVEY		
SHEET 2 OF 10 AUGUSTA, MAINE AUGUST 1965		

M-2492 ISLAND FALLS (36)







PROFILE  
Vert. 1" = 5'  
Horiz. 1" = 20'

ABUT. NO. 1

PIER NO. 1

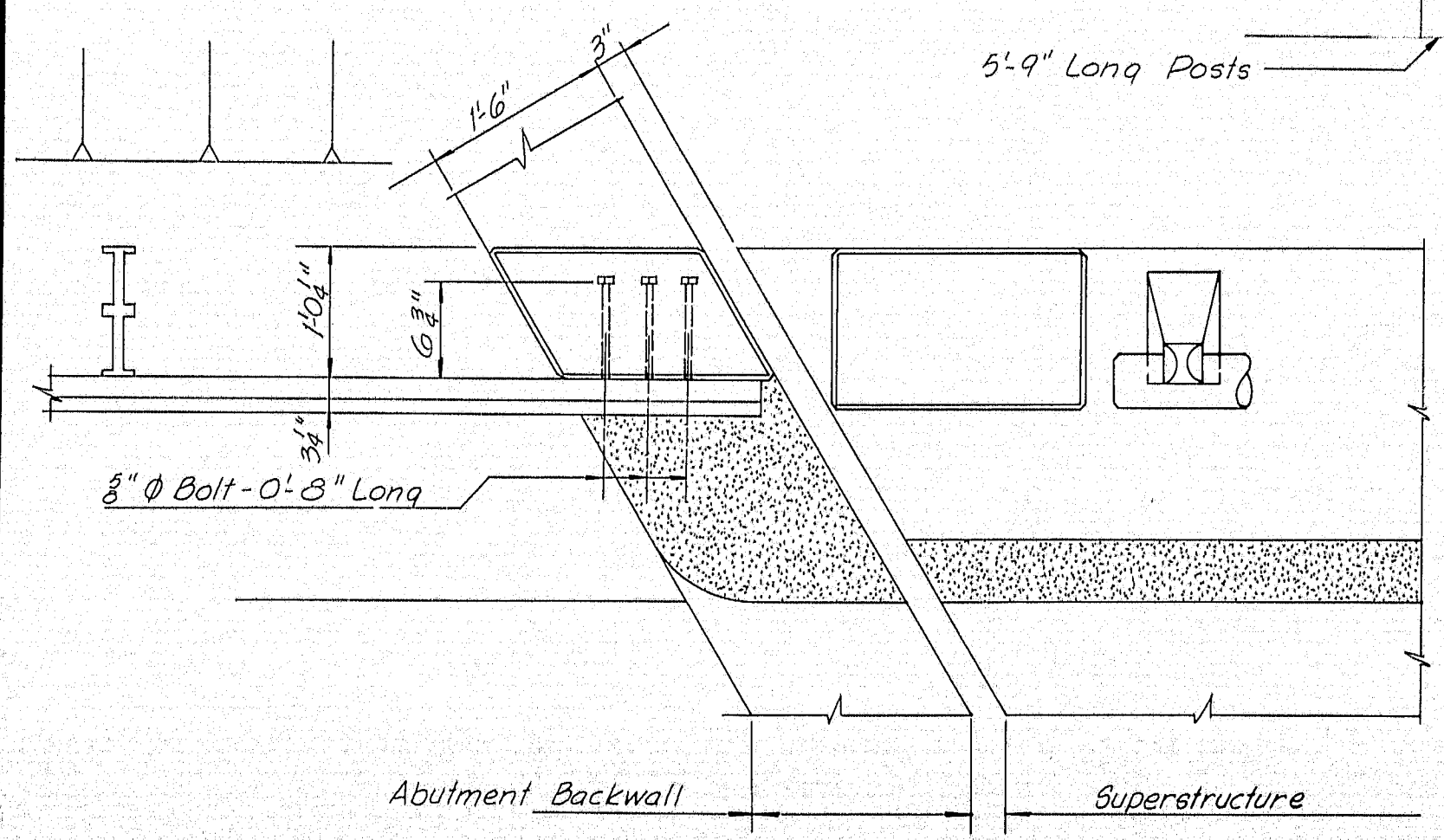
PIER NO. 2

ABUT. NO. 2

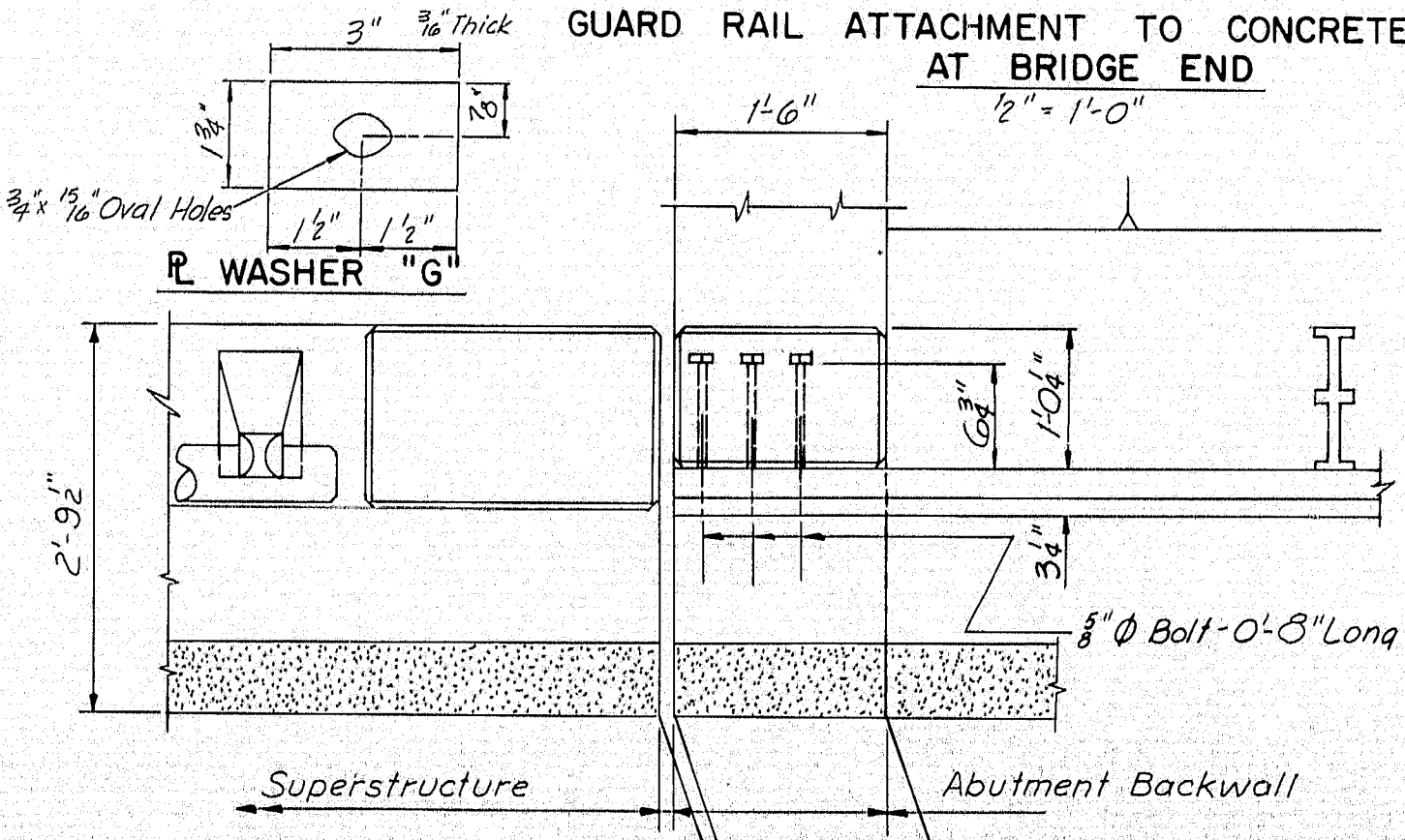
TRANSVERSE SECTIONS  
Vert. 1" = 5'  
Horiz. 1" = 20'

LEGEND

- Brown Sand
  - Medium Density Gray Sand
  - Silty Sand and Gravel (Till)
  - Fill (Silty Sand, Gravel, Wood and Boulders)
  - River Sediment (Leaves, Grass, Wood, Sand and Silt)
- Note:  
For boring notes and logs see Sheet 2

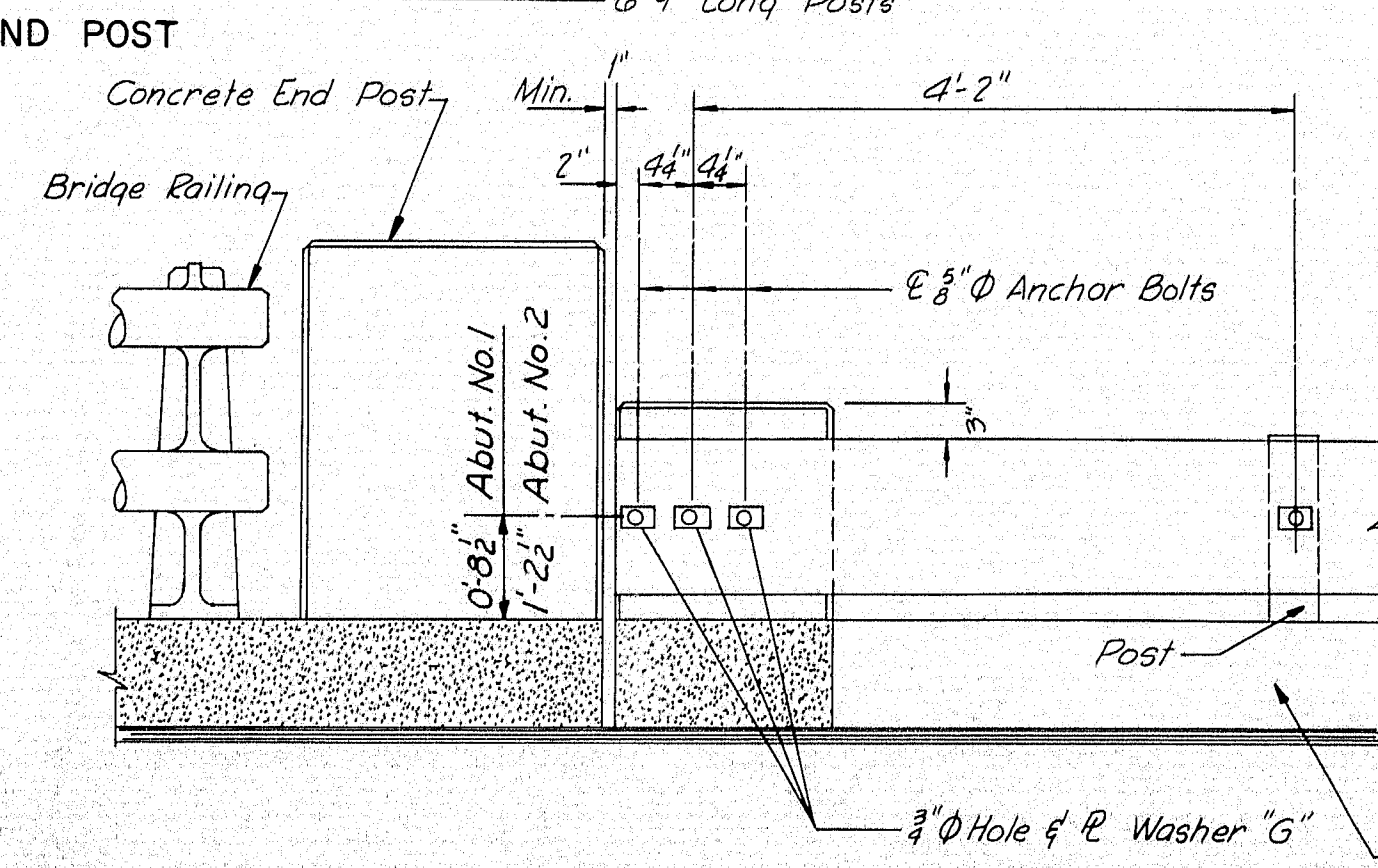


PLAN AT ABUTMENT NO. 1  
3/4" = 1'-0"



PLAN AT ABUTMENT NO. 2  
3/4" = 1'-0"

END POST DETAILS



FRONT ELEVATION  
3/4" = 1'-0"

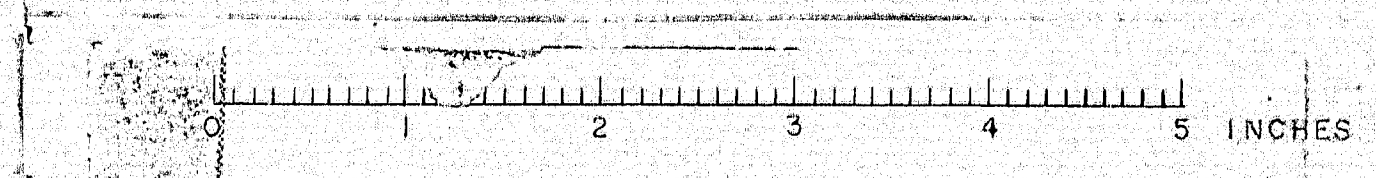
END POST NOTES

- Guard Rail shall be connected to the structure as shown. Payment for the connection to the structure and additional post shall be incidental to the Guard Rail Item.
- Splice holes in Guard Rail Beam that are not used in connection to be plugged with button head bolts or omitted.
- Three anchor bolts required at each end post. Bolts to be furnished with hex head nut and washer. All parts to be galvanized. Payment for furnishing and installing bolts shall be incidental to concrete items.

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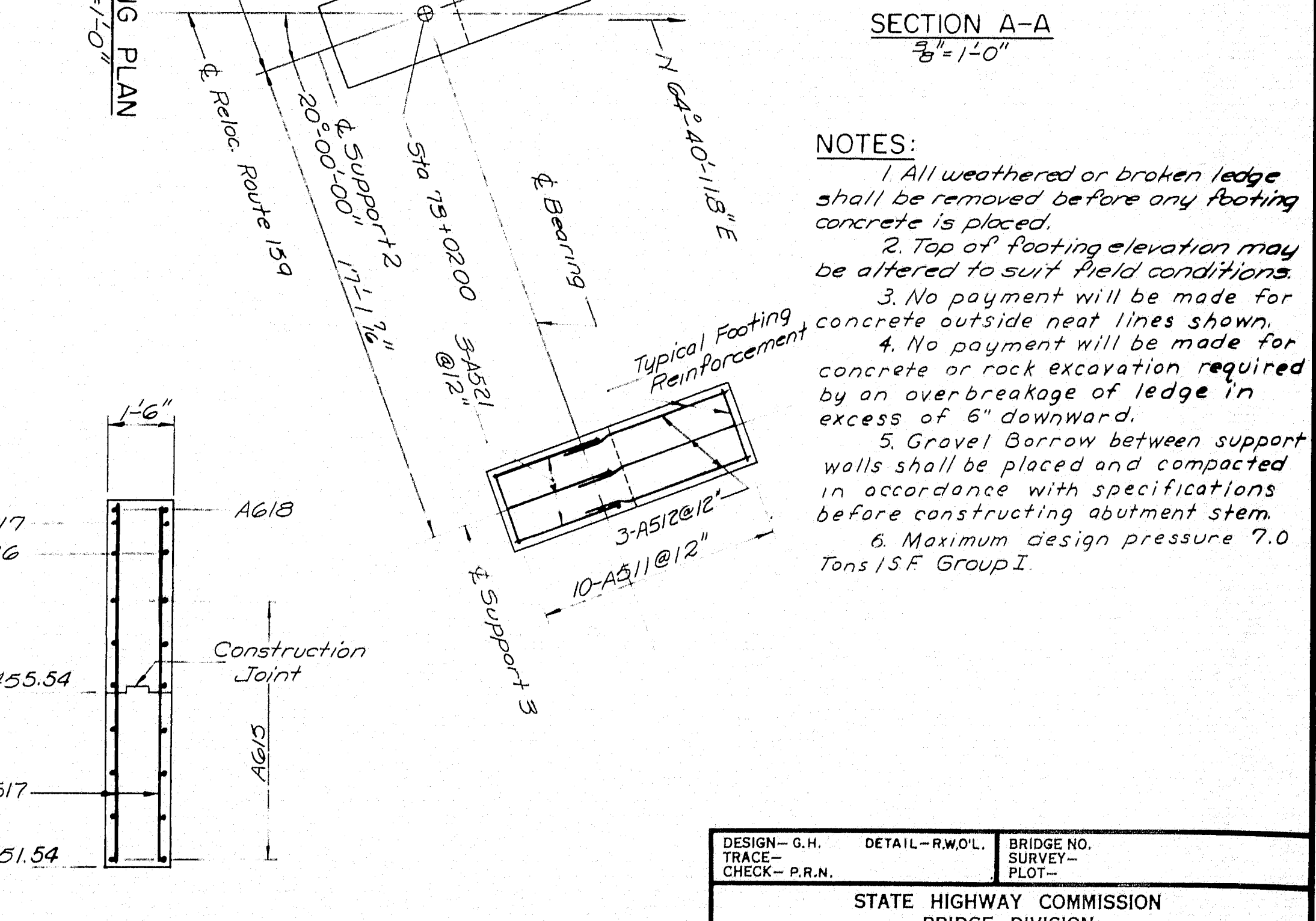
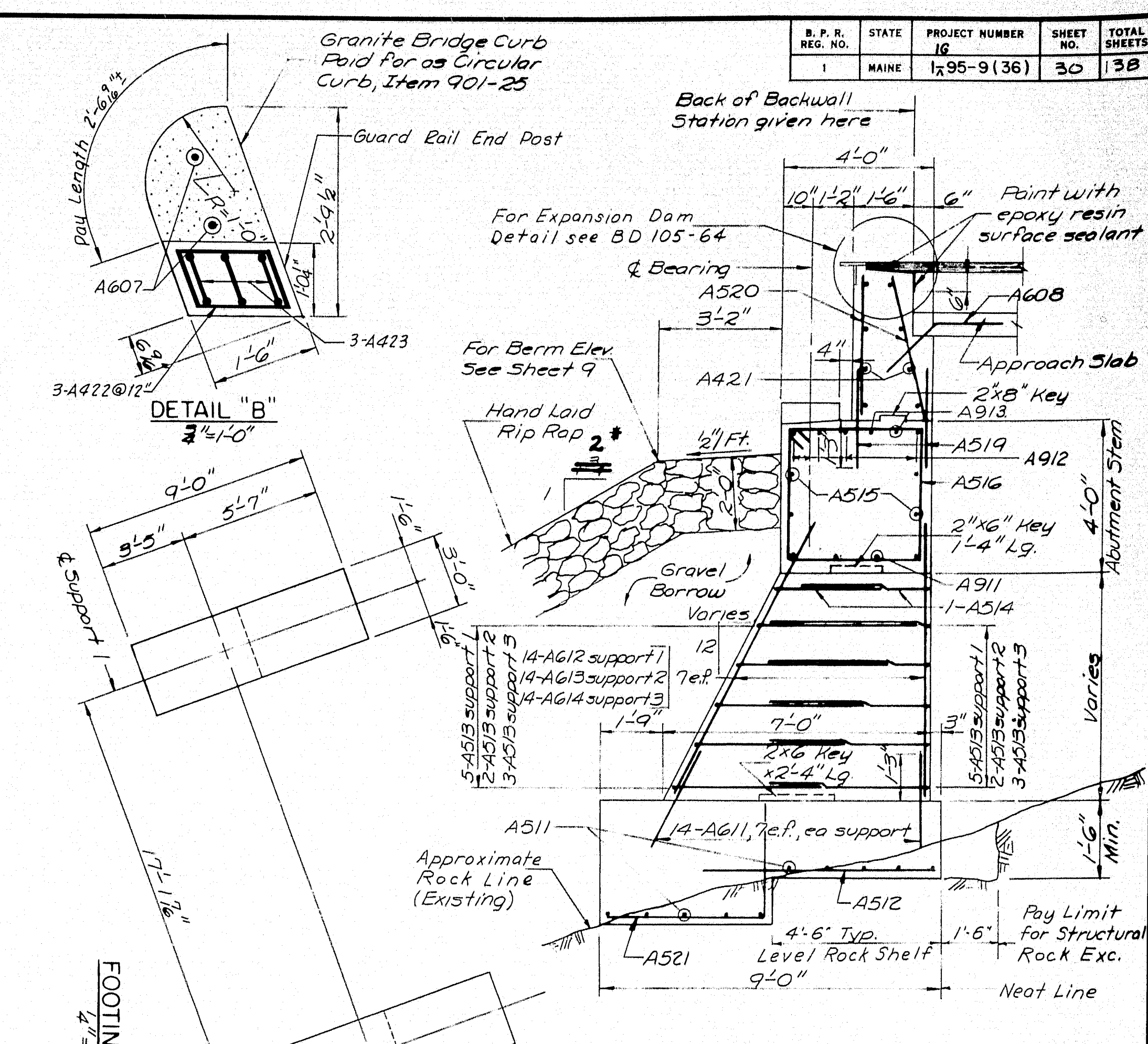
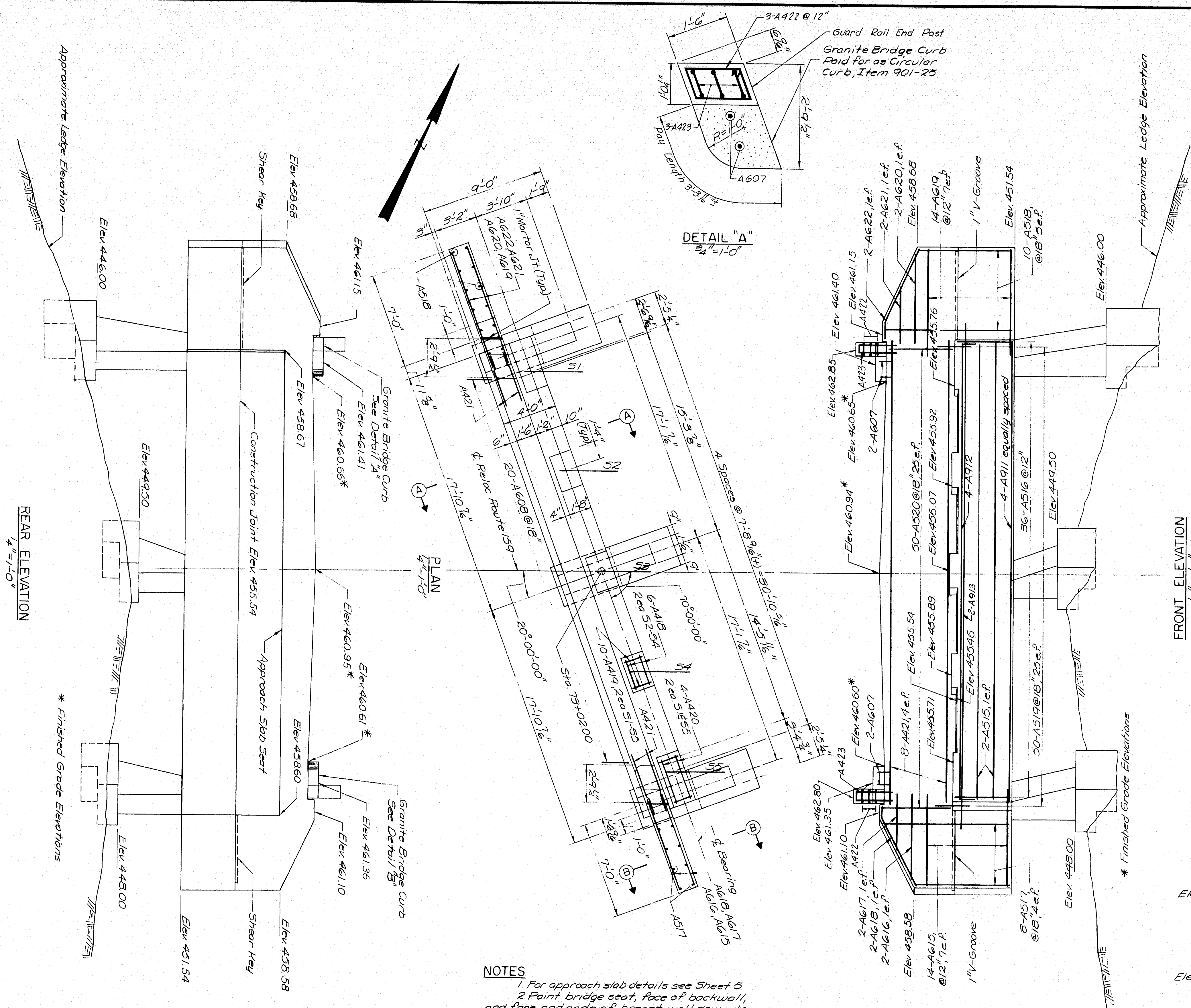
STATE HIGHWAY COMMISSION  
BRIDGE DIVISION  
RELOCATED ROUTE 159  
OVER  
WEST BRANCH  
MATTAWAMKEAG RIVER  
IN THE TOWN OF  
ISLAND FALLS  
AROOSTOOK COUNTY  
FOUNDATION SURVEY  
SHEET 3 OF 10 AUGUSTA, MAINE AUGUST 1965  
ISLAND FALLS (36)

M-2493





N. P. R. RES. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	1295-9(36)	30	138



- NOTES:**
1. For approach slab details see Sheet 5
  2. Paint bridge seat, face of backwall, and face and ends of breast wall down to 1'-0" below top of slope protection with gray epoxy resin surface sealant.
  3. Dress bearing areas 1" larger all around than the masonry plates to exact elevations shown.
  4. Reinforcing steel to have 5" minimum cover unless otherwise shown.
  5. Place reinforcing to clear anchor bolts.
  6. n.r. denotes near face, f.r. denotes far face, e.r. denotes each face.
  7. For Granite Curb notes, see sheet 5.
  8. For Guard Rail End Post Details see sheet 3.

- NOTES:**
1. All weathered or broken ledge shall be removed before any footing concrete is placed.
  2. Top of footing elevation may be altered to suit field conditions.
  3. No payment will be made for concrete outside neat lines shown.
  4. No payment will be made for concrete or rock excavation required by an overbreakage of ledge in excess of 6" downward.
  5. Gravel borrow between support walls shall be placed and compacted in accordance with specifications before constructing abutment stem.
  6. Maximum design pressure 7.0 tons 15F Group I.

DESIGN - G.H.	DETAIL - R.W.O.L.	BRIDGE NO.
TRACE -	SURVEY -	BRIDGE DIVISION
CHECK - P.R.N.	PLOT -	
STATE HIGHWAY COMMISSION		
BRIDGE DIVISION		
RELOCATED ROUTE 159		
OVER		
WEST BRANCH		
MATTAWAMKEAG RIVER		
IN THE TOWN OF		
ISLAND FALLS		
ARROOSTOOK COUNTY		
ABUTMENT NO. 1		
SHEET 4 OF 10		
AUGUSTA, MAINE		
AUGUST 1965		

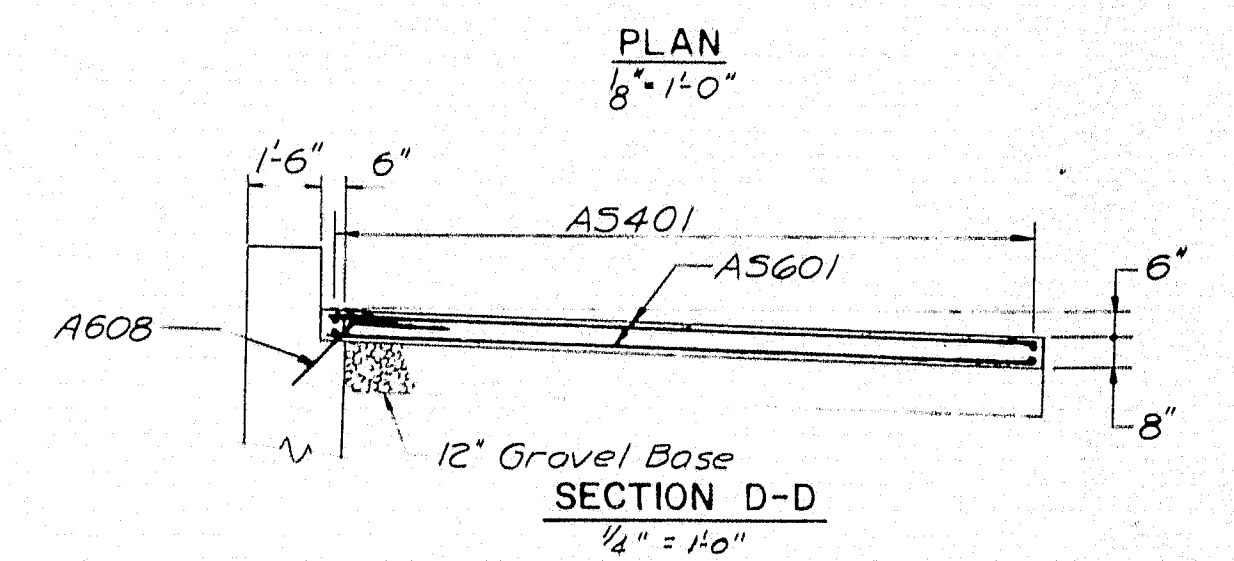
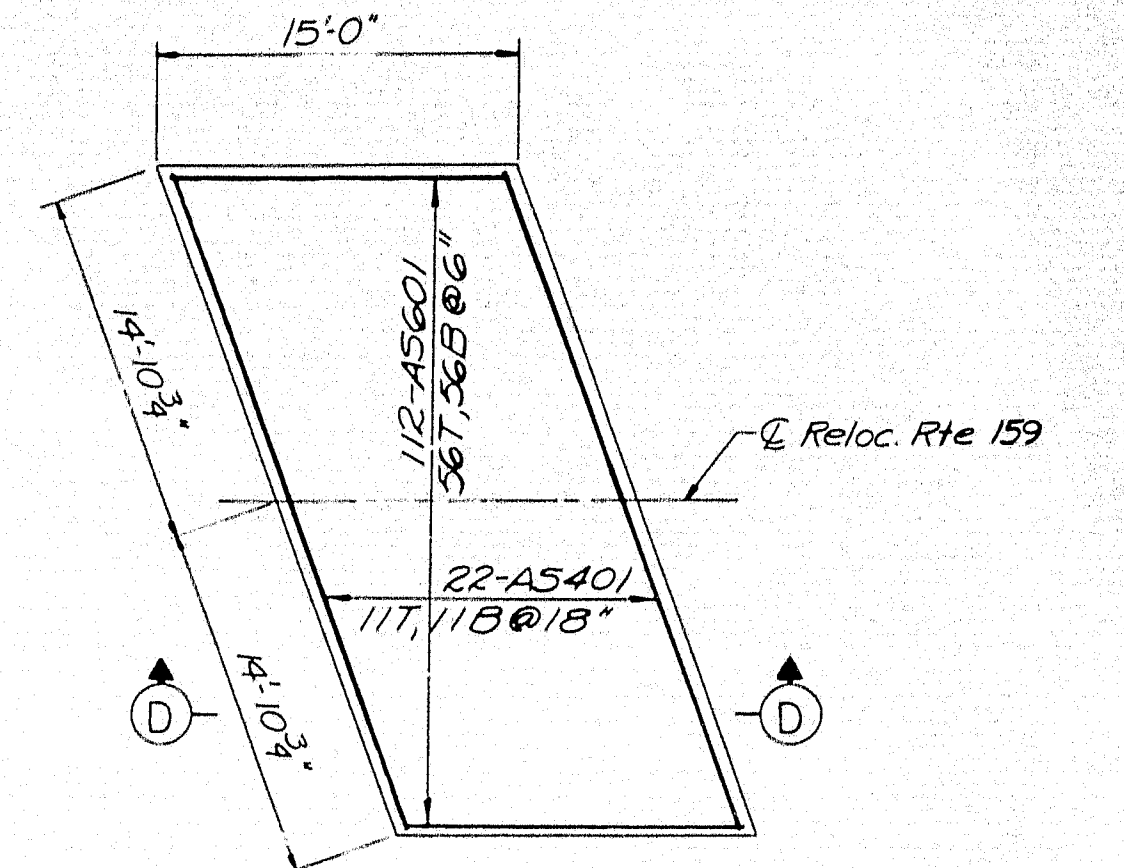
\* Revised - 1/18/68 - F.S. Foster

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CONSULTING ENGINEERS

NEW YORK BOSTON KANSAS CITY

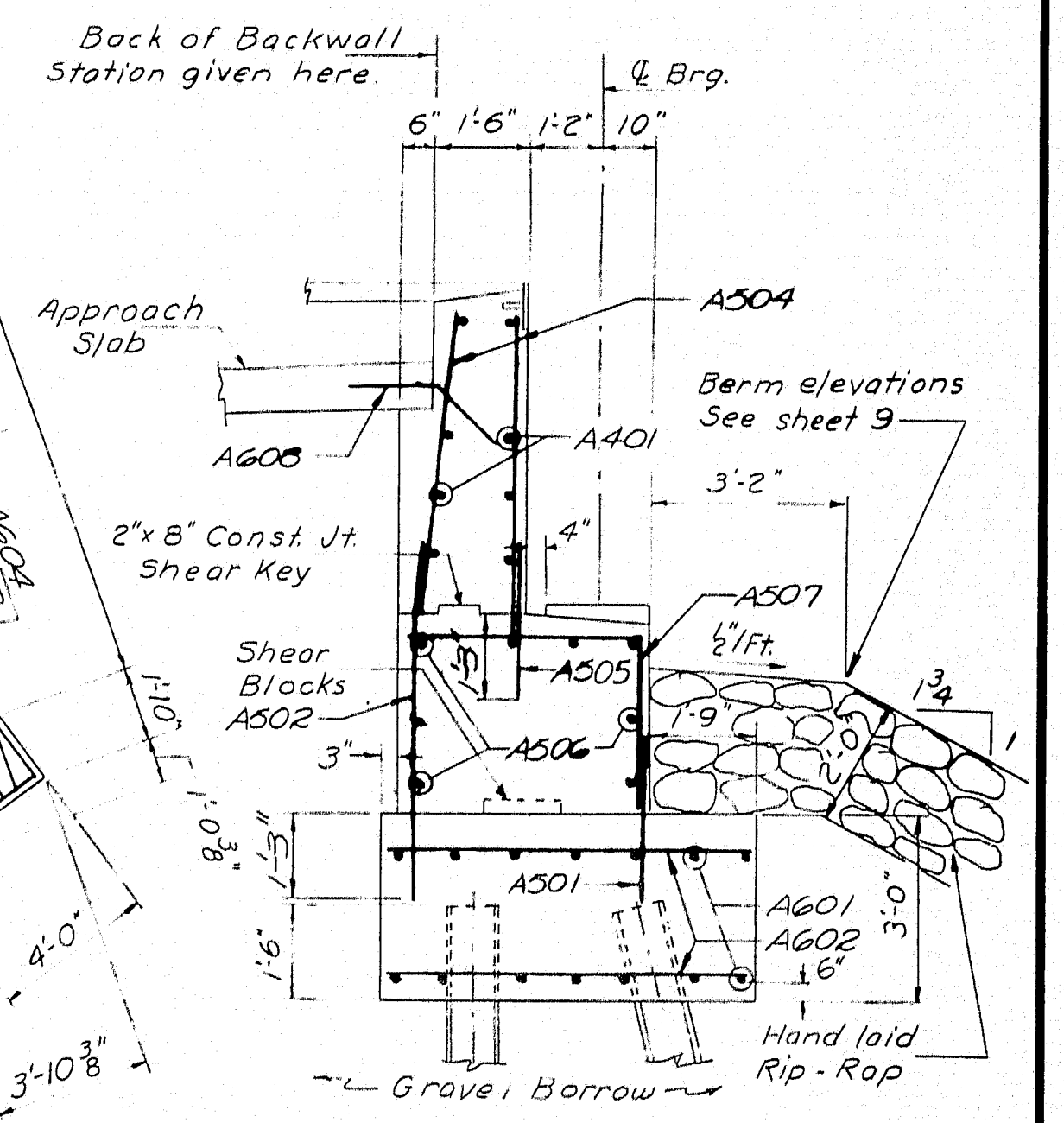
M-2494 ISLAND FALLS (36)





All material below the 2 1/2" Bit. Conc. Surface Course over the top of the Approach Slab shall be Asphalt Stabilized Base Course placed in layers not exceeding 3" when compacted.

APPROACH SLAB DETAILS



DESIGN - I.S.  
TRACE - P.R.N.  
CHECK - P.R.N.

STATE HIGHWAY COMMISSION  
BRIDGE DIVISION

RELOCATED ROUTE 159  
OVER  
WEST BRANCH  
MATTAWAMKEAG RIVER  
IN THE TOWN OF  
ISLAND FALLS  
ARROOSTOOK COUNTY

ABUTMENT NO. 2 & APPROACH SLAB

SHEET 5 OF 10 AUGUSTA, MAINE AUGUST 1965

ISLAND FALLS (36)

NOTE  
1 For General Notes see Sheet 4.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS

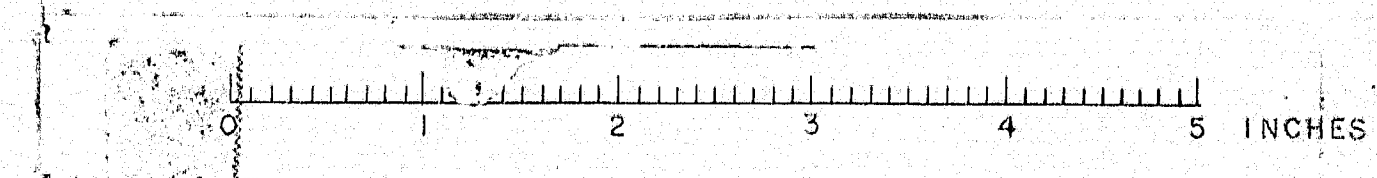
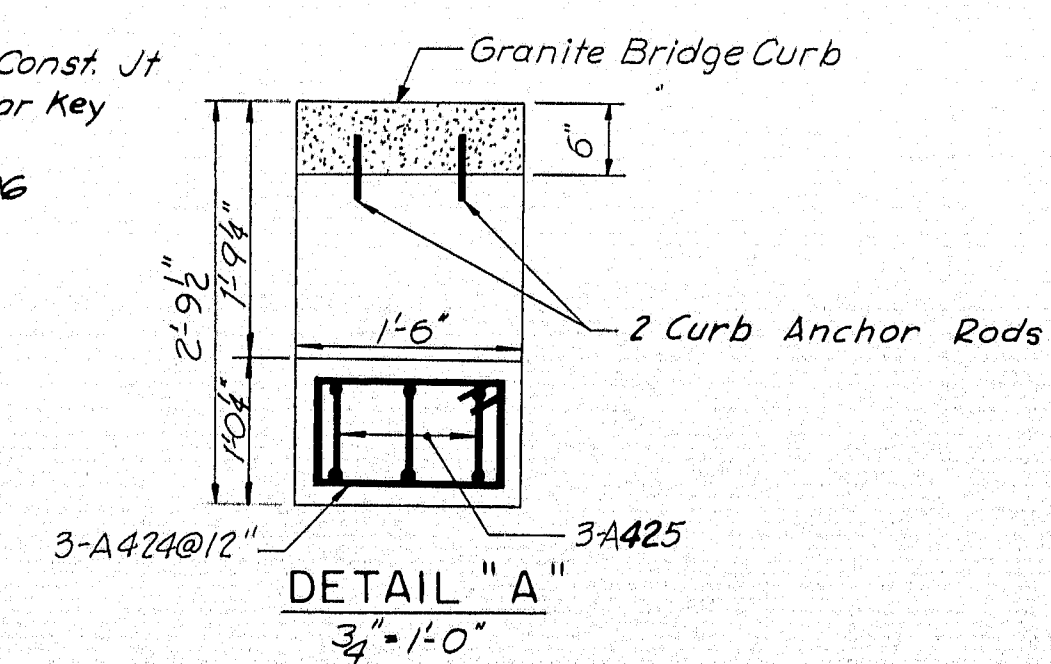
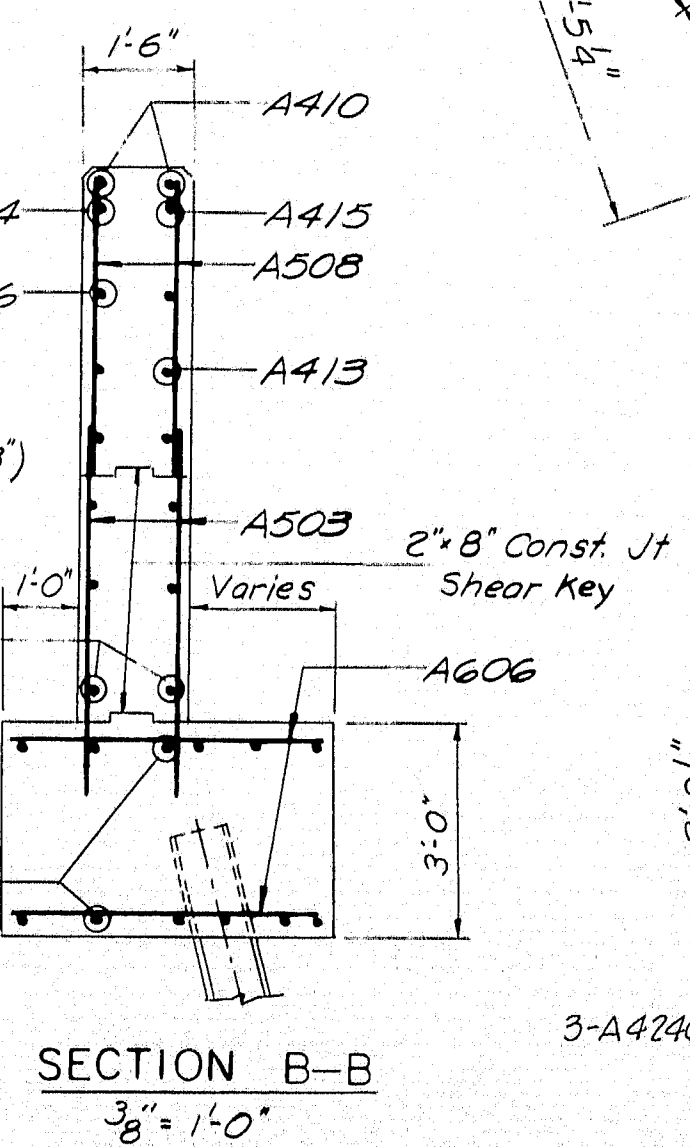
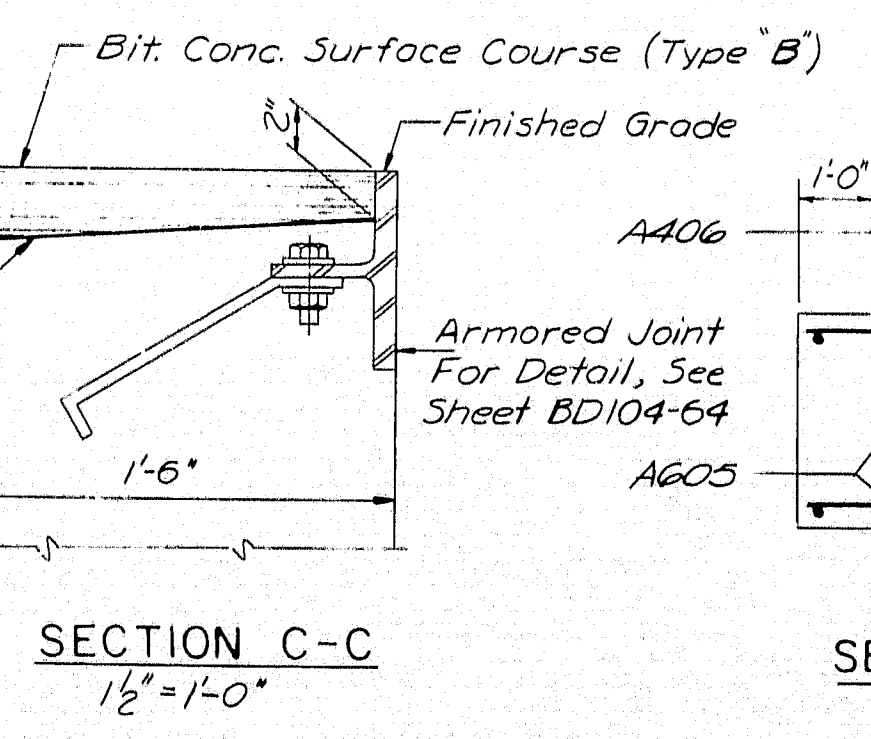
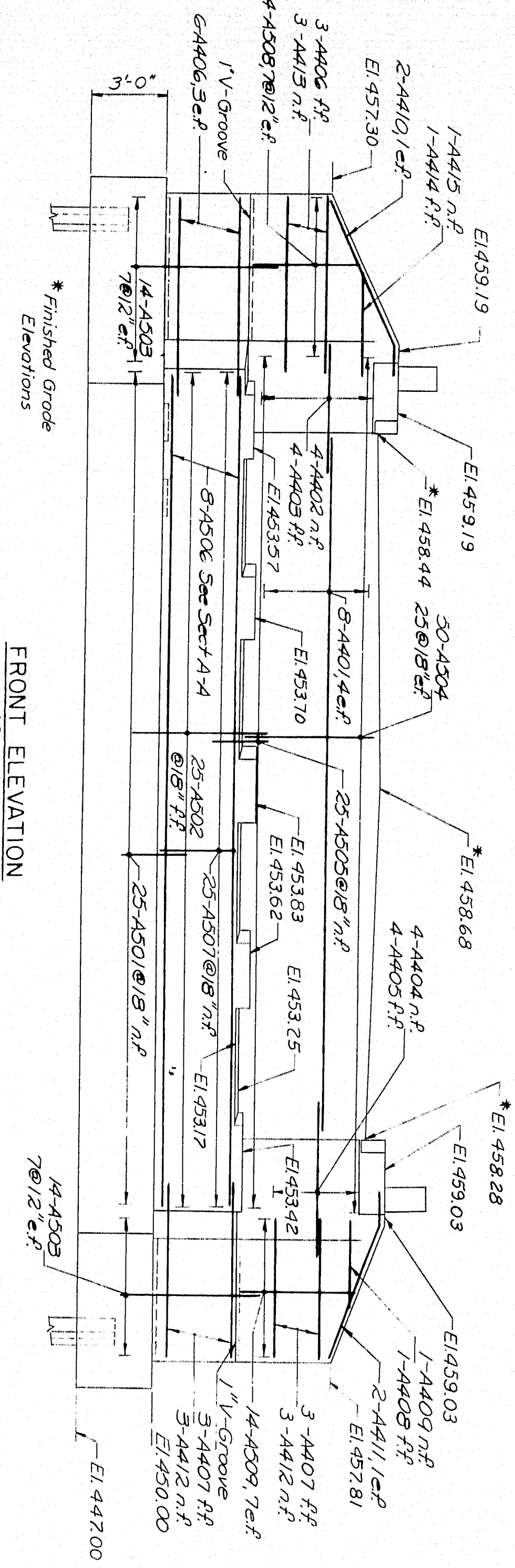
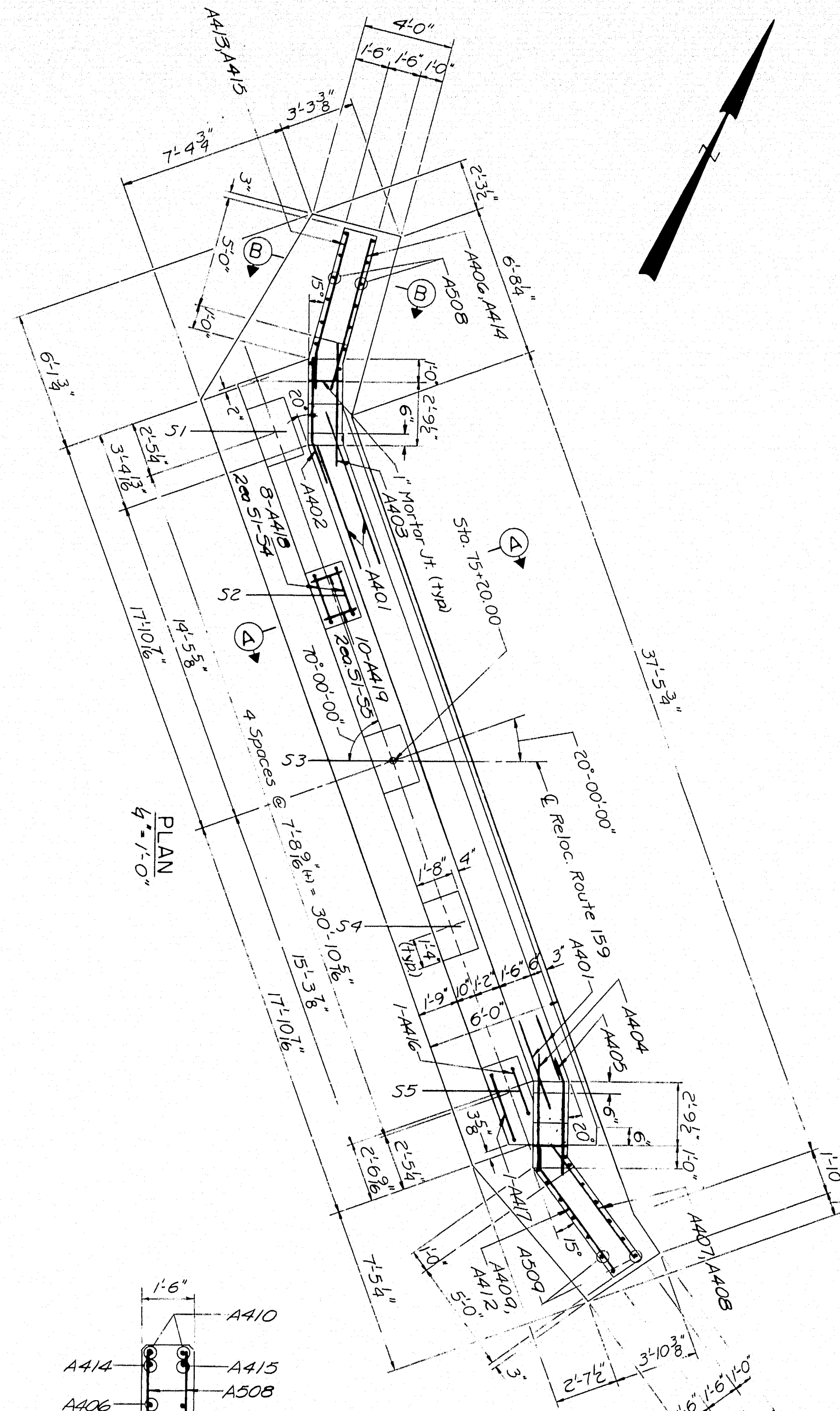
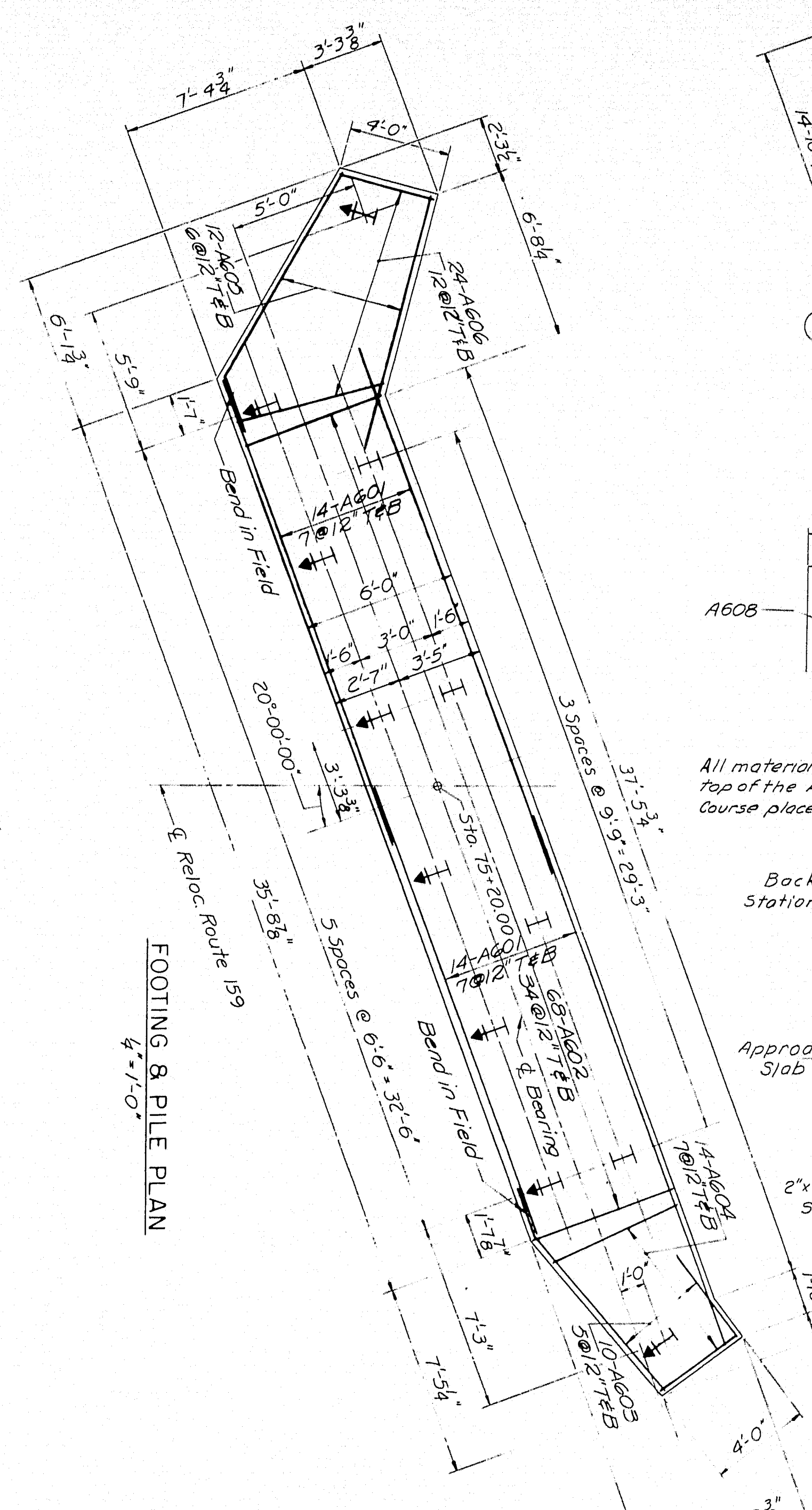
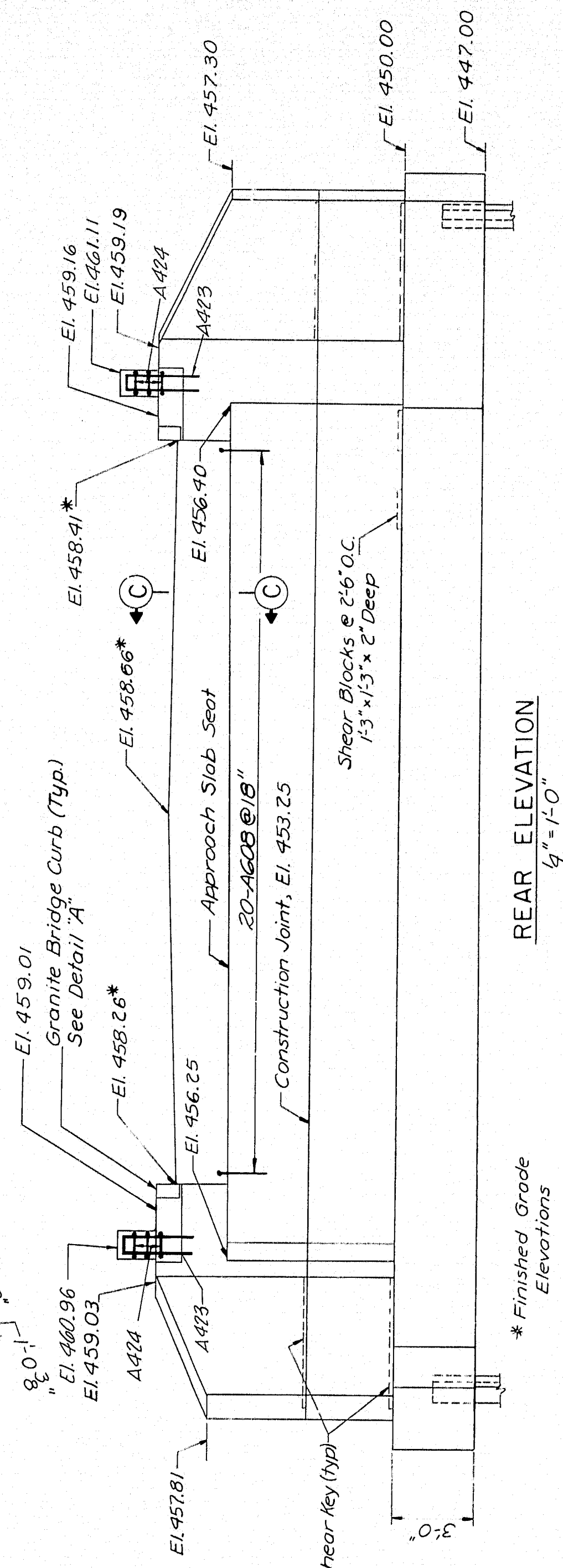
NEW YORK BOSTON KANSAS CITY

**PILE NOTES**

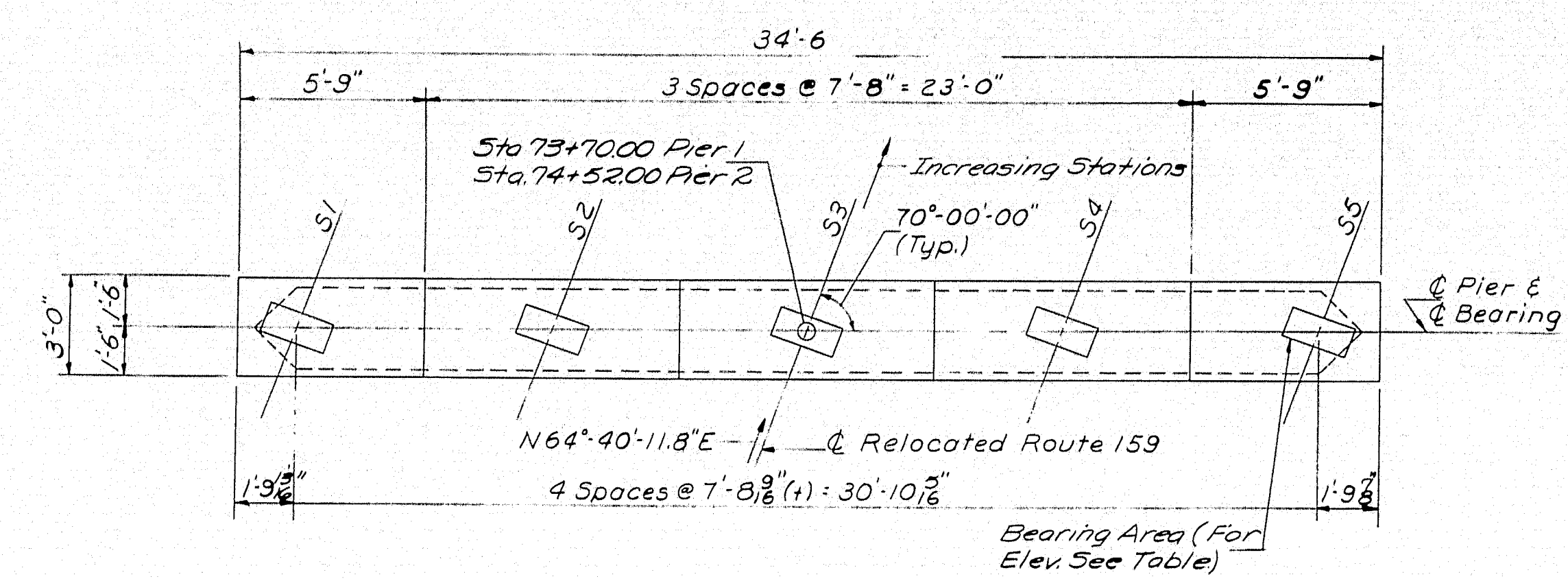
- Indicates Vertical Piles.
- Indicates Battered Piles, battered 3:12 in direction of arrow.
- Piles to be driven to ledge or practical refusal to develop end bearing.
- All piles are 10 BP42 with a capacity of 37 tons.
- Estimated pile length 21'

**GRANITE CURB NOTES**

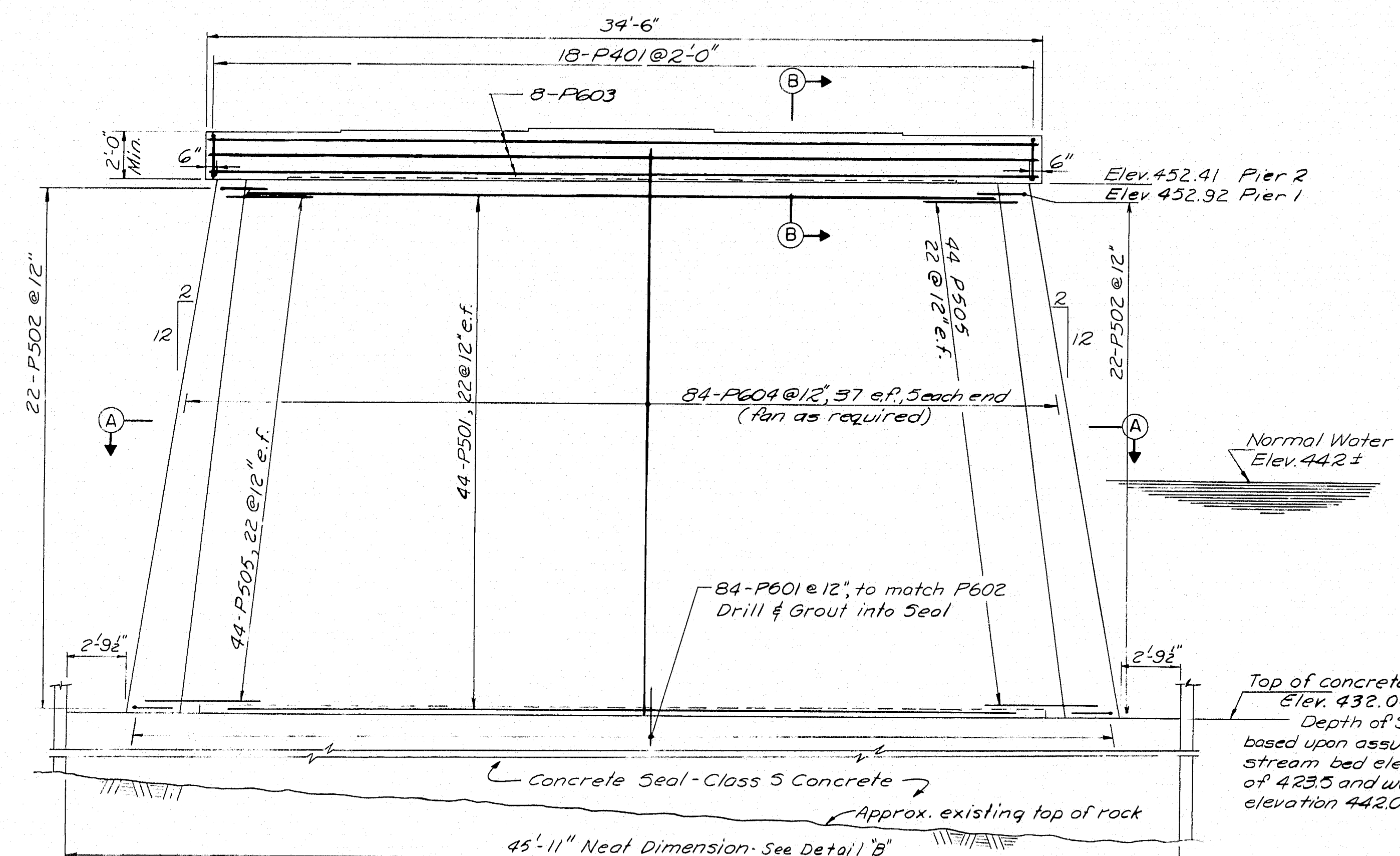
- Grout A607 bars into 1 1/4"  $\phi$  holes in stone prior to setting Stone on backwall. Drill 1 1/4"  $\phi$  holes in backwall to suit A607 bars. Payment for drilling for and grouting of A607 bars to be included in the price for Item 705-14, Reinforcing Steel, Placing.
- Granite blocks shall be placed in position after or at the same time as curb on bridge is positioned.



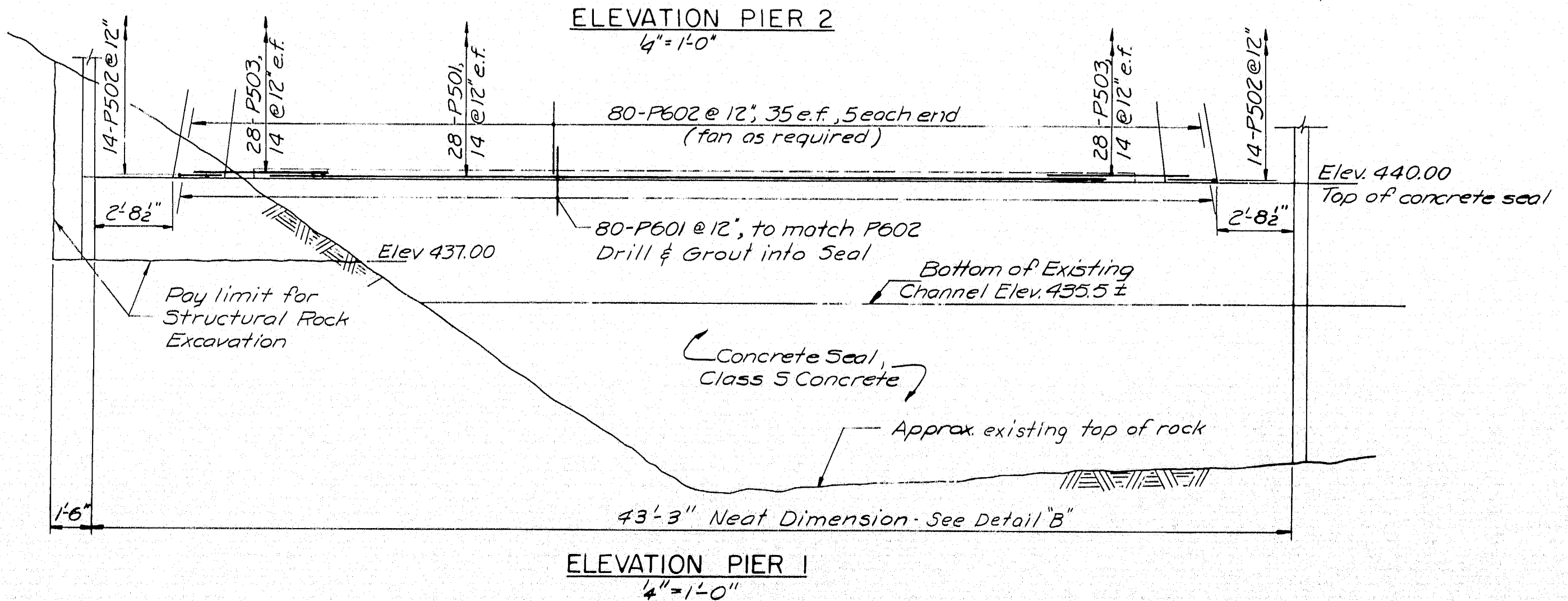




PLAN - PIER NO. 1 & PIER NO. 2  
1/4" = 1'-0"

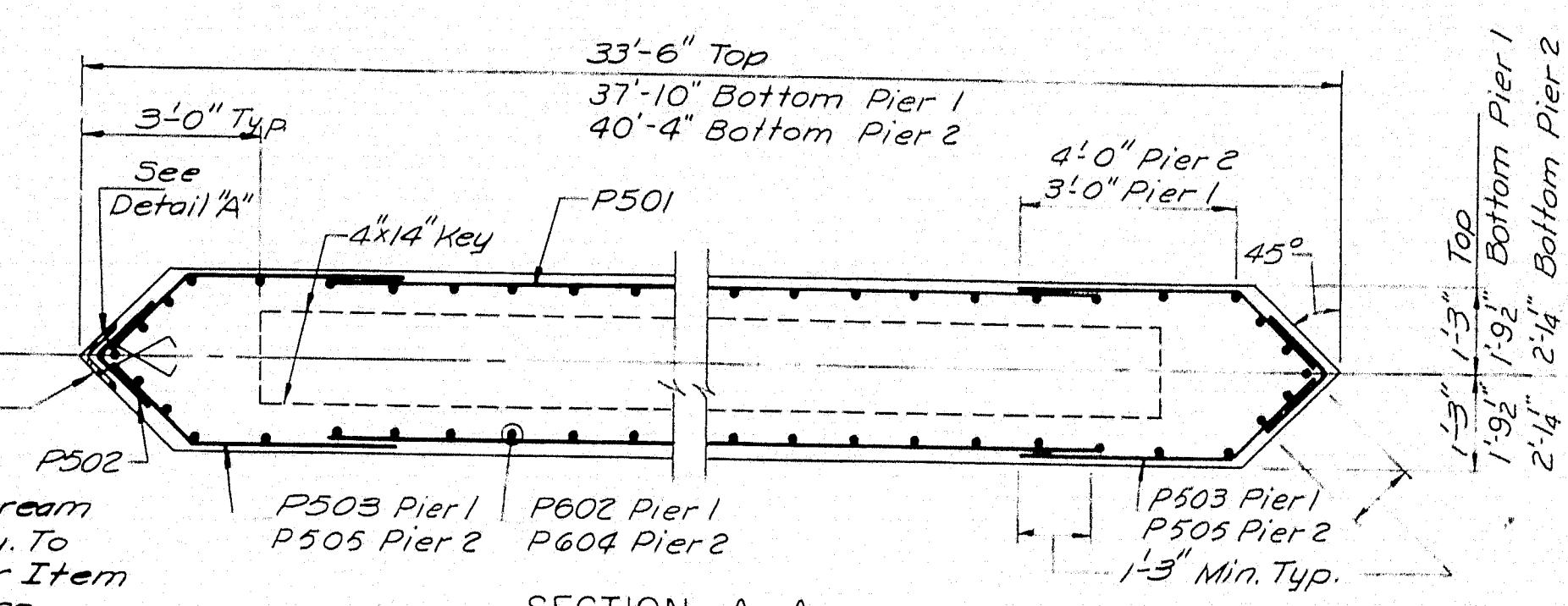


ELEVATION PIER 2  
1/4" = 1'-0"

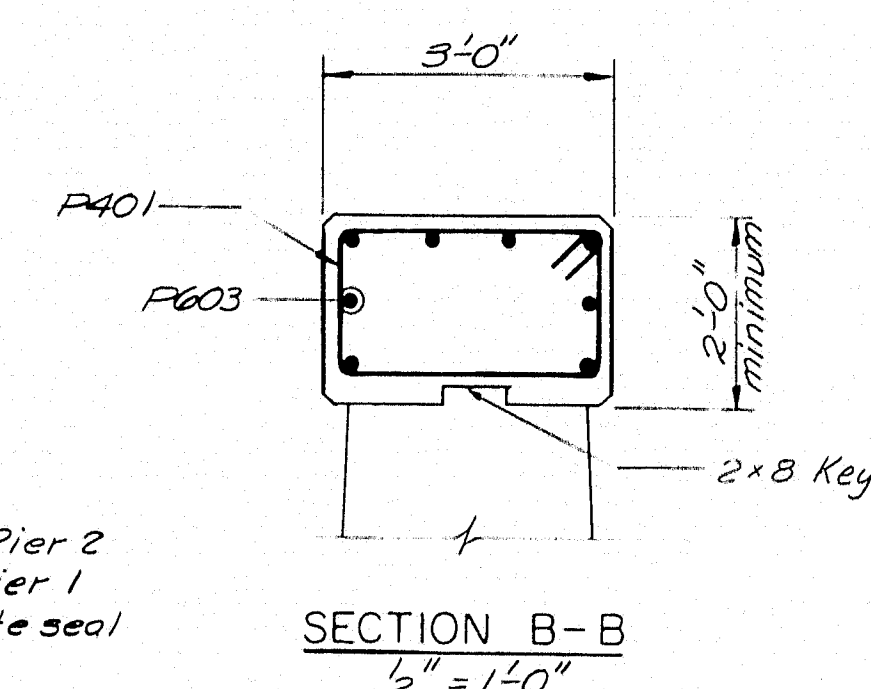


ELEVATION PIER 1  
1/4" = 1'-0"

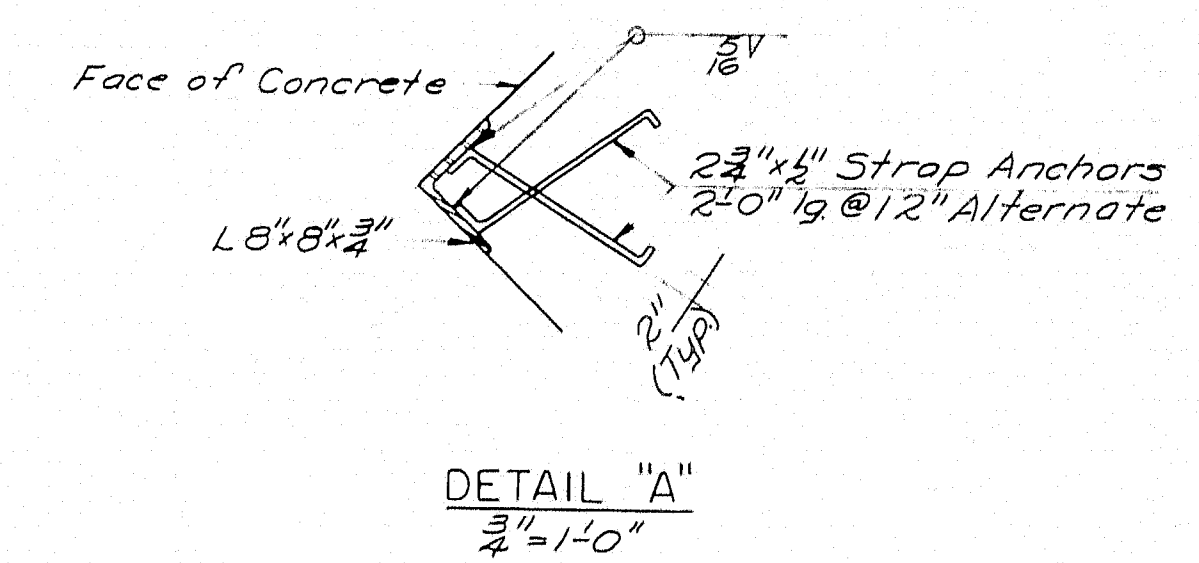
BEARING ELEVATIONS		
Beam	Pier 1	Pier 2
S1	455.01	454.54
S2	455.15	454.67
S3	455.29	454.81
S4	455.11	454.61
S5	454.92	454.41



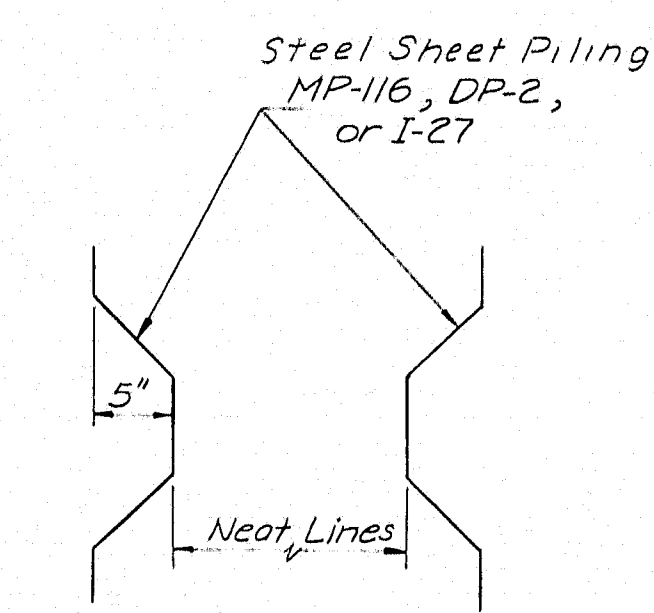
SECTION A-A  
3/8" = 1'-0"



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



DETAIL "A"  
3/4" = 1'-0"



DETAIL "B"  
No Scale

NOTES:

1. Reinforcing steel to have 2" minimum cover unless otherwise shown.
2. All exposed corners to have 1" chamfer.
3. Dress bearing areas 1" larger all around than masonry plates to exact elevations shown.
4. Place reinforcing to clear anchor bolts.
5. Maximum Footing Pressure:  
Group I Loading 25 Tons/S.F.  
Group III Loading 38 Tons/S.F.
6. All weathered or broken ledge shall be removed before any concrete is placed.
7. No payment will be made for concrete or rock excavation required by an overbreakage of ledge in excess of 6" downward.

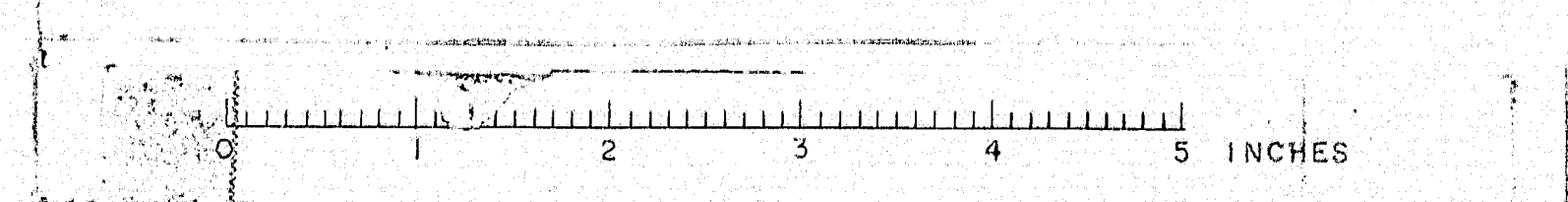
NOTE:

1. Concrete in seal will be paid for under Item 701-36 Portland Cement Concrete Piers (placed under water).
2. Seal dimensions are predicated on use of MP-116, DP-2, I-27 or equivalent Steel sheet piling with standard rolled corners. Pay dimensions for Seal concrete shall be neat dimension plus 10".
3. Payment for drilling for and grouting of P601 bars into seal will be considered incidental to Item 705-14, Reinforcing Steel Placing.

DESIGN - I.S. TRACE - CHECK - P.R.N.	DETAIL - R.D.F.	BRIDGE NO. SURVEY - PLOT -
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159 OVER WEST BRANCH MATTAWAMKEAG RIVER IN THE TOWN OF ISLAND FALLS AROOSTOOK COUNTY PIERS		
SHEET 6 OF 10 AUGUSTA, MAINE AUGUST 1965		

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NEW YORK BOSTON KANSAS CITY

M-2494B ISLAND FALLS (36)



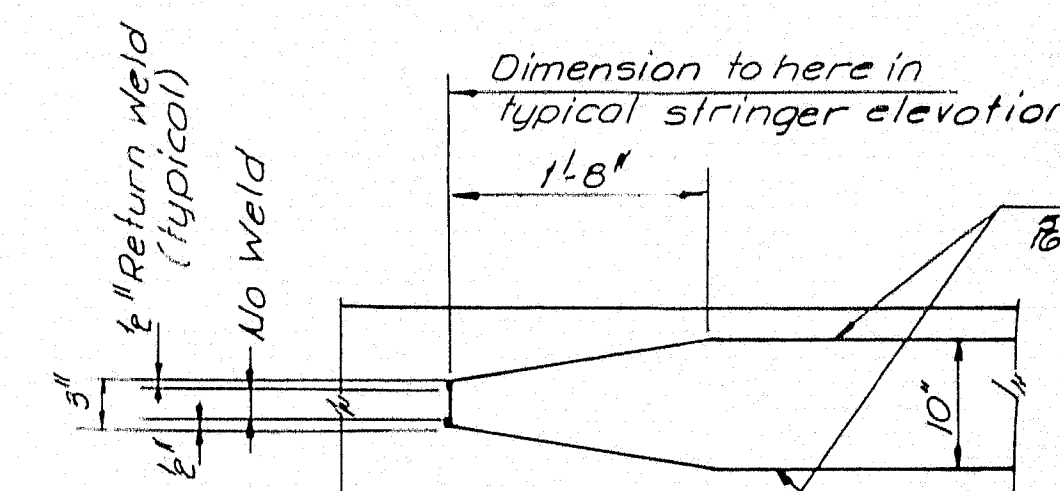


	2 Studs 5" x 3/8"	Spirals 5" x 3/8" #
a	19 @ 4' = 7' 11"	Double 16 @ 5' = 7' 4"
b	15 @ 5' = 6' 10"	Double 12 @ 7' = 7' 0"
c	12 @ 7' = 7' 0"	Single 19 @ 4' = 7' 11"
d	9 @ 8' = 6' 4"	Single 16 @ 5' = 7' 4"
e	9 @ 9' = 6' 9"	Single 15 @ 5' = 6' 10"
f	13 @ 6' = 7' 0"	Single 20 @ 4' = 6' 8"
g	15 @ 5' = 6' 10"	Double 12 @ 7' = 7' 0"
h	18 @ 4' = 6' 9"	Double 23 @ 5' = 10' 6"
i	9 @ 4' = 3' 0"	
j	19 @ 4' = 6' 4"	Double 16 @ 5' = 6' 8"
k	20 @ 5' = 8' 4"	Double 15 @ 6' = 8' 11"
l	17 @ 6' = 8' 6"	Single 25 @ 4' = 8' 4"
m	12 @ 8' = 8' 0"	Single 21 @ 5' = 8' 9"
x	10' 2 1/2"	9' 10 1/2"
y	9' 10"	10' 0"

\* Lap 3' (Typical)  
Total No. of Studs Required 3770  
SHEAR CONNECTOR SPACING

PEDESTALS  
EPC-2 10 Required  
EPC-5 5 Required  
FPC-3 5 Required

NOTE:  
Shear Studs to be placed parallel to piers.

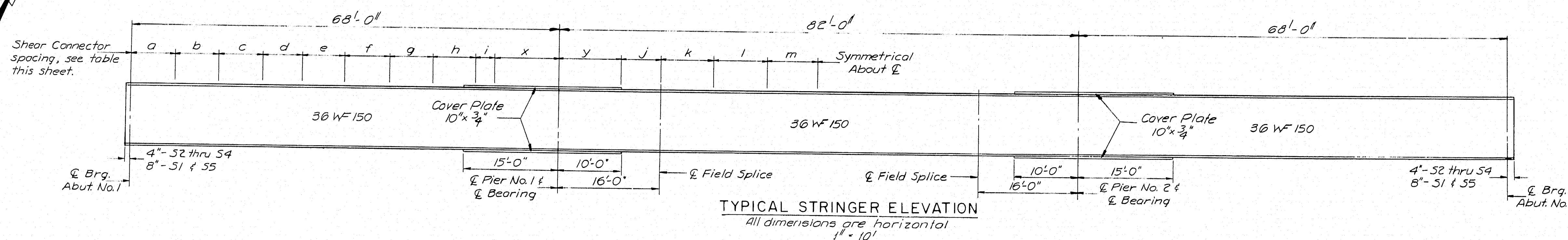
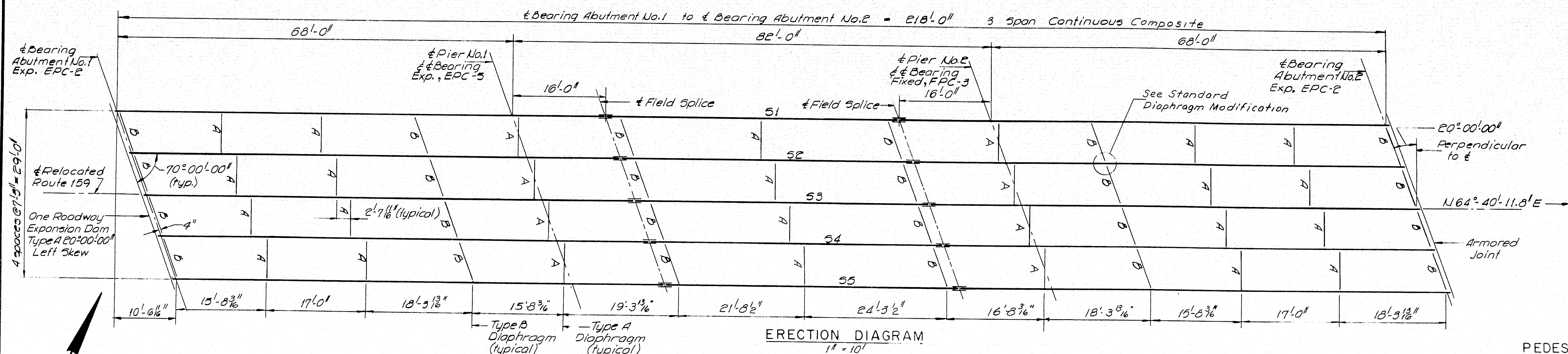


COVER PLATE DETAIL  
1" = 1'-0"

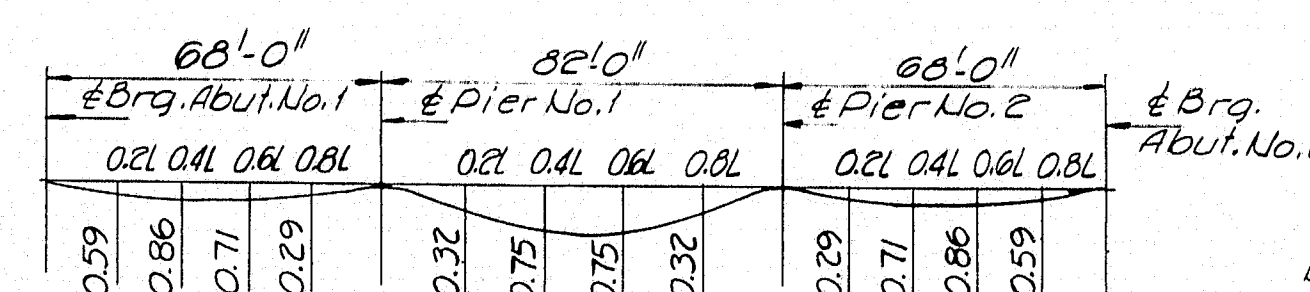
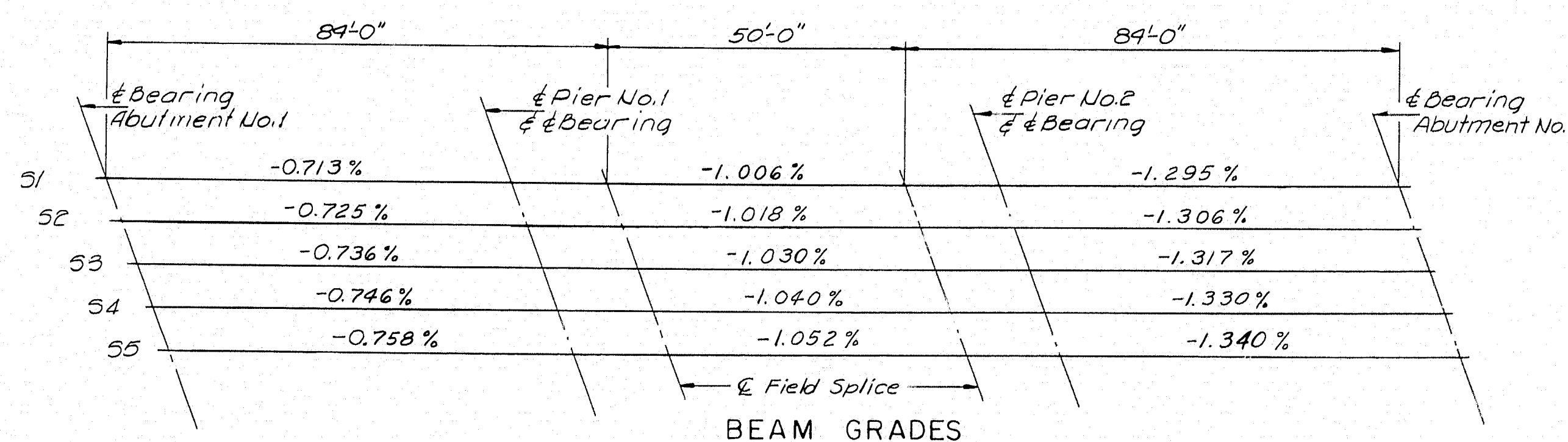
REFERENCE  
Splice-See Standard Details, BD 103-64.  
Armored Joints-See Standard Details, BD 104-64.  
Pedestals-See Standard Details, BD 101-64.  
Expansion Dams-See Standard Details, BD 105-64.  
Diaphragms-See Standard Details, BD 104-64 and Standard Diaphragm Modification This Sheet.  
Shear Connectors-See Standard Details BD 104-64.  
SPECIFICATIONS  
Fabrication and Erection: State of Maine Standard Specifications, Highways and Bridges, Revision of Jan. 1956 and Supplemental Specifications of February 1960.  
Design and Detail: AASHTO Standard Specification for Highway Bridges of 1961, and Interim Specifications 1961, 1962, 1963, and 1964.  
Materials: Except as otherwise noted on the Standard Details, all material shall conform to A.S.T.M. designation A36.

DESIGN - E.F.K. DETAIL - D.A.T. BRIDGE NO. 195-9(36)  
TRACE - P.R.N. SURVEY - PLOT -  
STATE HIGHWAY COMMISSION  
BRIDGE DIVISION  
RELOCATED ROUTE 159  
OVER  
WEST BRANCH  
MATTAWAMKEAG RIVER  
IN THE TOWN OF  
ISLAND FALLS  
ARROOSTOOK COUNTY  
STRUCTURAL STEEL & BLOCKING  
SHEET 7 OF 10 AUGUSTA, MAINE AUGUST 1965

M-2494C ISLAND FALLS (36)

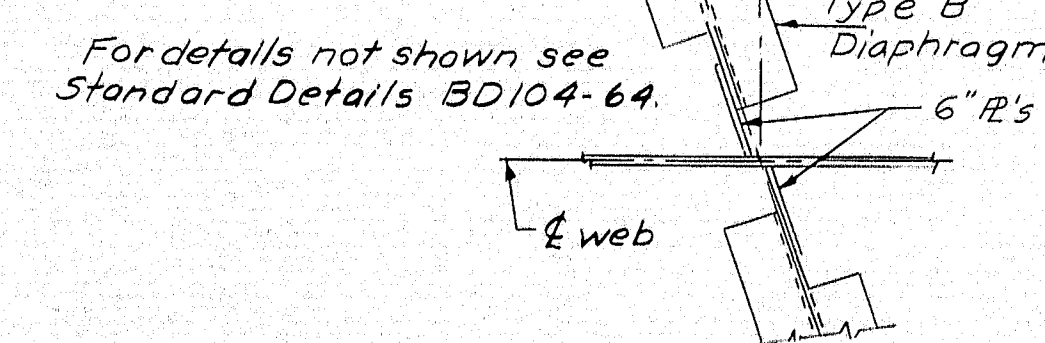


TYPICAL STRINGER ELEVATION  
All dimensions are horizontal  
1" = 10'

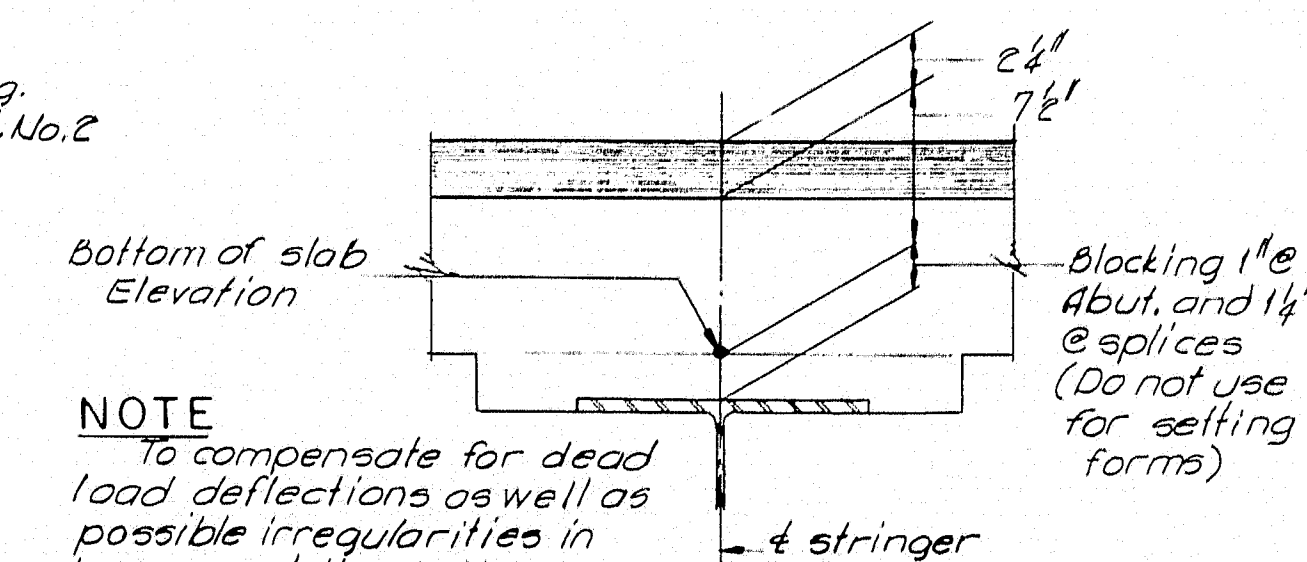


DEAD LOAD DEFLECTION DIAGRAM  
ALL DEFLECTIONS IN INCHES

NOTE  
No shop camber required.  
Natural mill camber to be placed up.



STANDARD DIAPHRAGM MODIFICATIONS  
1" = 1'-0"



NOTE  
To compensate for dead load deflections as well as possible irregularities in beams, set the bottom of slab elevations at the points indicated before any of the slab formwork is started. Bottom of slab grades for blocking shall be set after shear connectors are welded to the top flanges.

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NEW YORK BOSTON KANSAS CITY

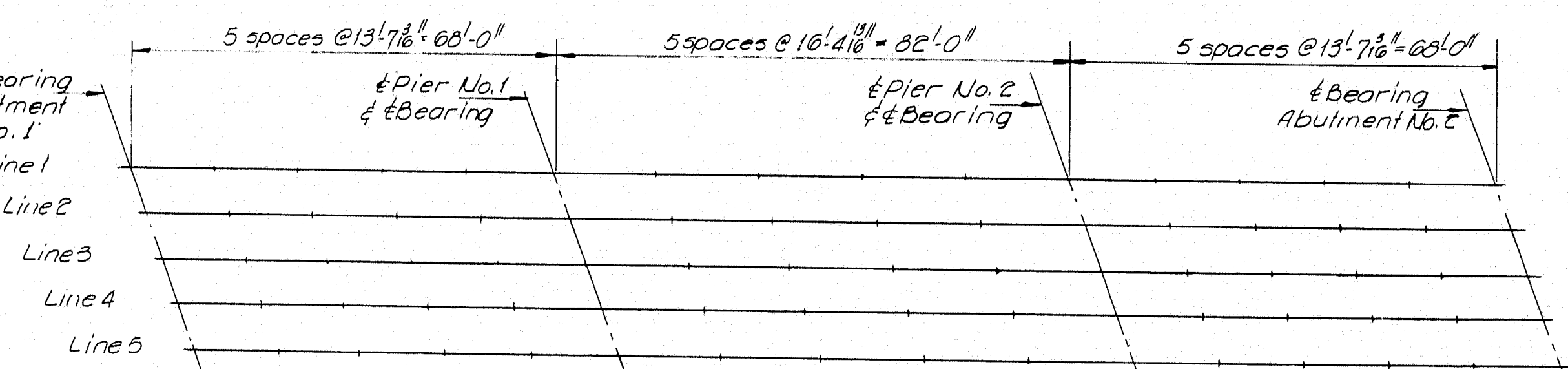
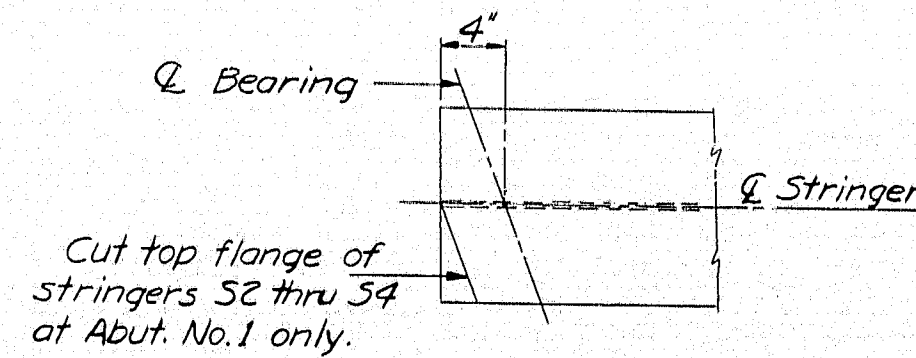
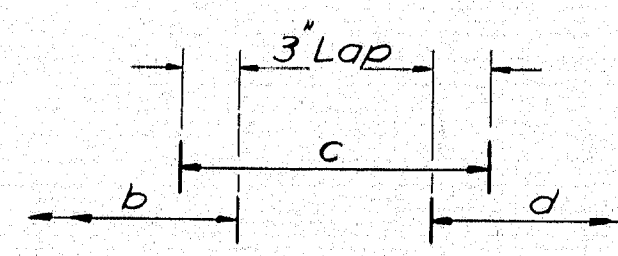


DIAGRAM OF BLOCKING POINTS

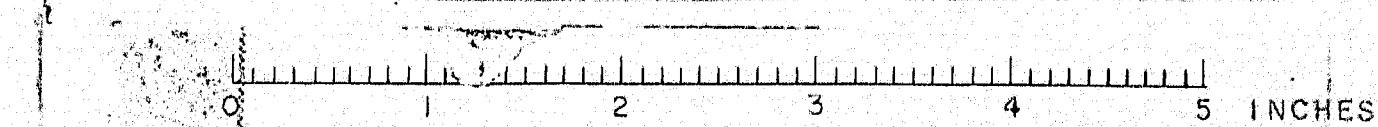
BOTTOM OF SLAB ELEVATION AT BLOCKING POINTS																
Line	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Line 1	459.82	459.79	459.72	459.62	459.49	459.36	459.24	459.12	458.95	458.75	458.54	458.39	458.25	458.08	457.87	457.63
Line 2	459.97	459.94	459.87	459.77	459.63	459.50	459.38	459.26	459.09	458.88	458.67	458.52	458.38	458.21	458.00	457.76
Line 3	460.12	460.09	460.02	459.91	459.78	459.65	459.52	459.40	459.23	459.02	458.80	458.66	458.51	458.34	458.13	457.89
Line 4	459.94	459.91	459.84	459.73	459.59	459.46	459.33	459.21	459.04	458.82	458.61	458.46	458.31	458.14	457.92	457.68
Line 5	459.76	459.73	459.65	459.54	459.41	459.27	459.14	459.01	458.84	458.63	458.41	458.26	458.11	457.94	457.72	457.48



END OF BEAM DETAIL  
1" = 1'-0"



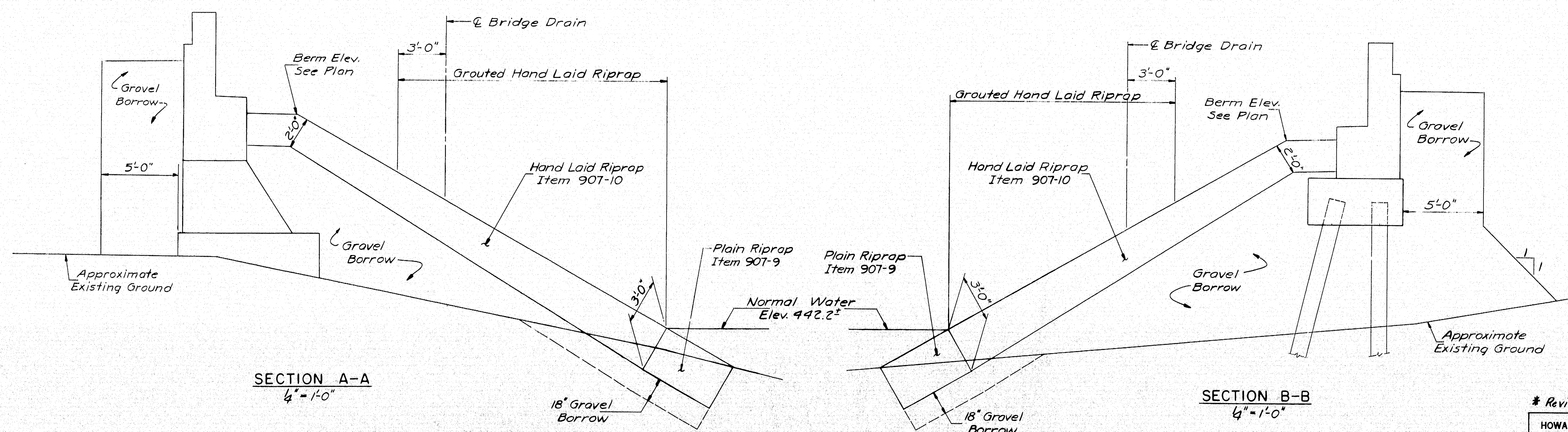
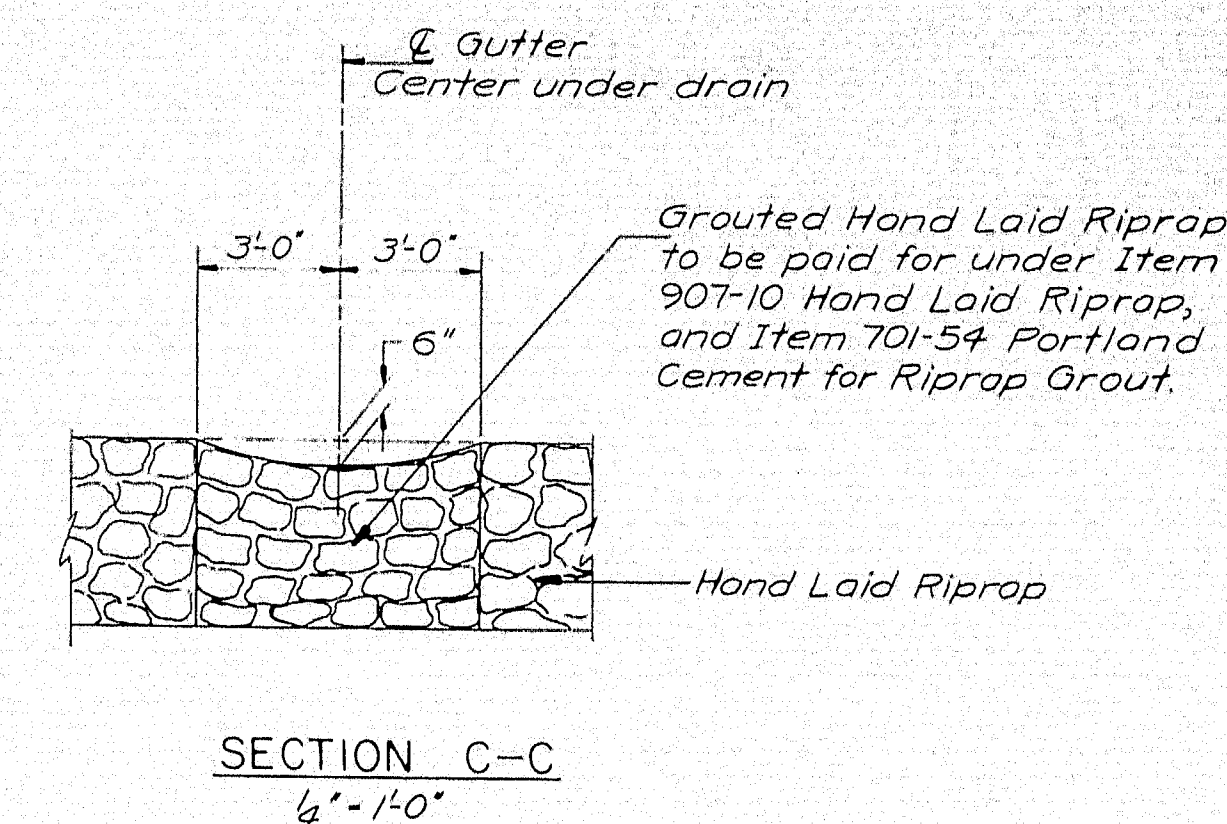
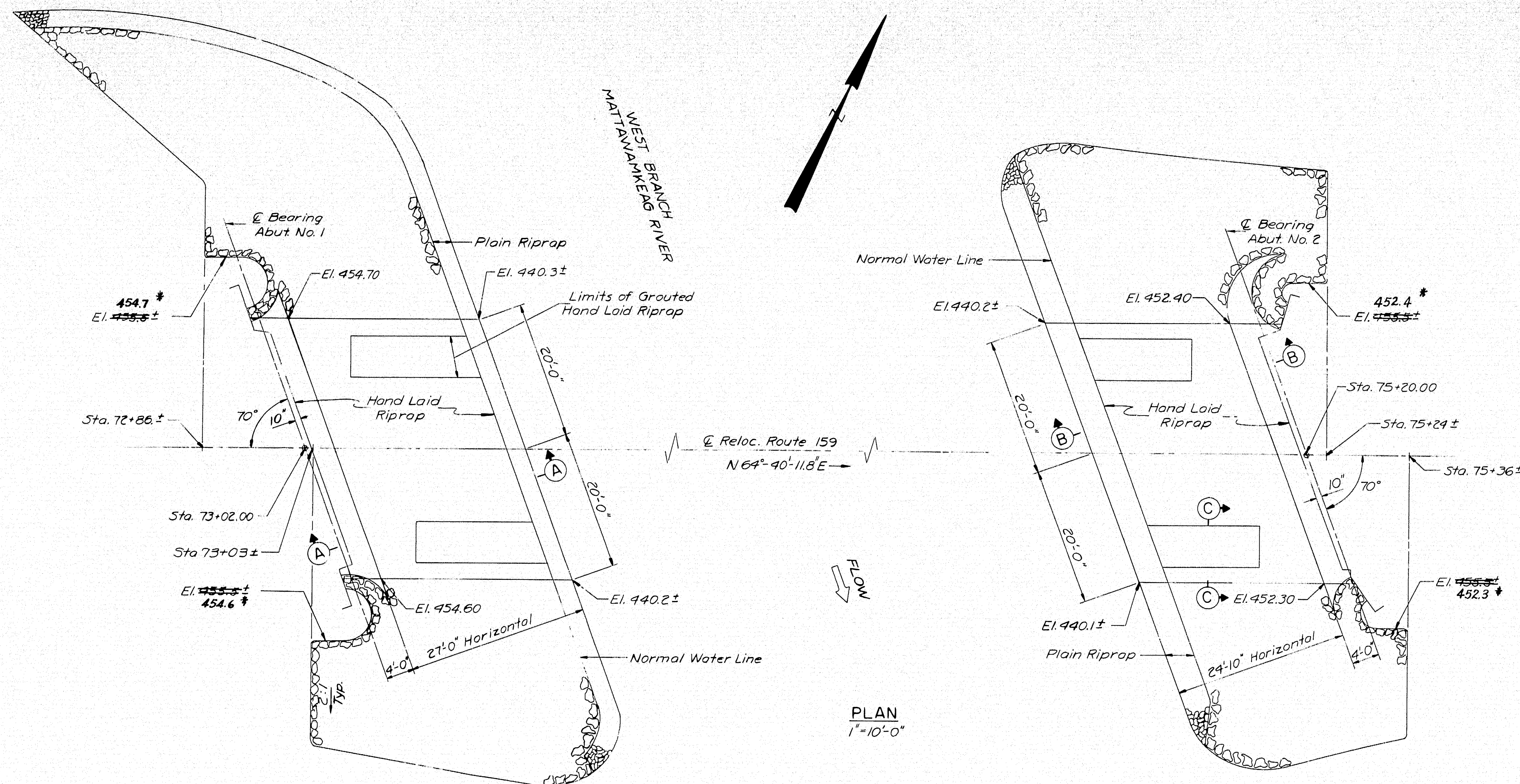
SPIRAL LAP DETAIL  
No Scale









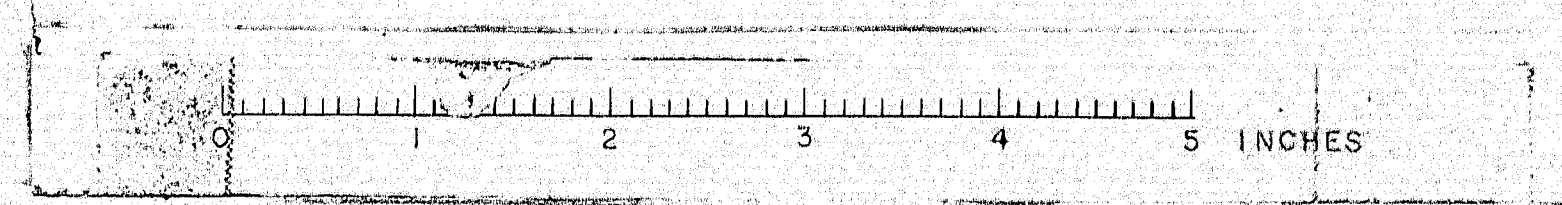


- NOTES:
1. Provide 18' of Gravel Borrow in excavation under Riprap.
  2. The 18' of Gravel Borrow under the Riprap may be reduced or omitted, if in the opinion of the Engineer the existing material is suitable.
  3. Payment for any excavation required for slope protection will be made under Item 204-14, Structural Earth Excavation, Piers.

DESIGN- TRACE- CHECK- P.R.N.	DETAIL R.R.S.	BRIDGE NO. SURVEY- PLOT-
STATE HIGHWAY COMMISSION BRIDGE DIVISION		
RELOCATED ROUTE 159 OVER WEST BRANCH MATTAWAMKEAG RIVER IN THE TOWN OF ISLAND FALLS AROOSTOOK COUNTY SLOPE PROTECTION		
SHEET 9 OF 10 AUGUSTA, MAINE AUGUST 1965		

\* Revised - 1/18/68 F.S. Foster  
HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
NEW YORK BOSTON KANSAS CITY

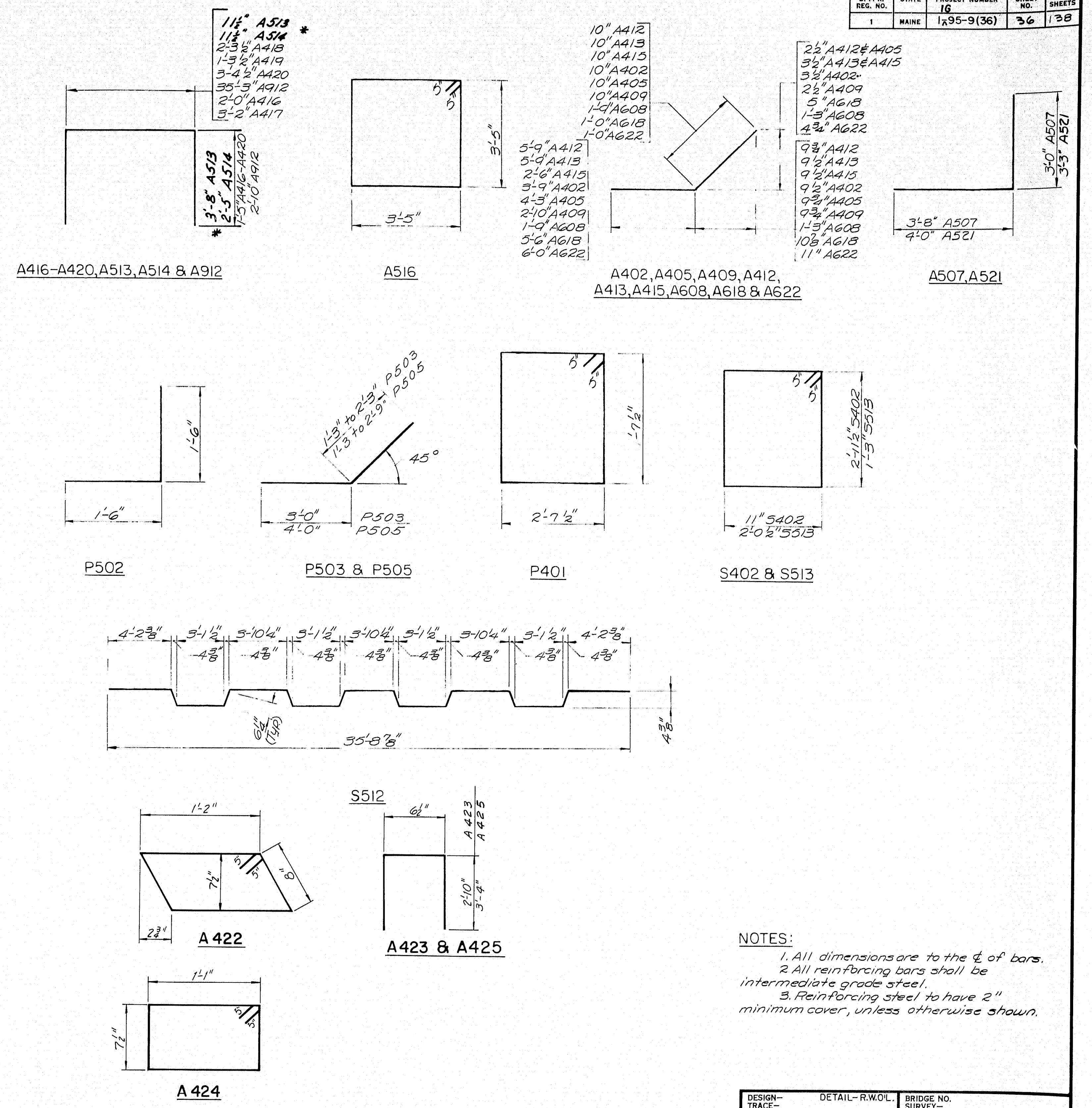
M-2494E ISLAND FALLS (36)





MARK	SIZE	NUMBER	LENGTH	INCR.	LOCATION
ABUTMENT 1					
STRAIGHT BARS					
A421	4	8	35'3"		Backwall
A511	5	30	2'6"		Footing
A512	5	9	6'0"		Footing
A513	5	4	35'3"		Stem
A517	5	8	6'8"		Wingwall
A518	5	10	6'9"		Wingwall
A519	5	50	2'10"		Dowels-Stem & Backwall
A520	5	50	4'9"		Backwall
A607	6	4	1'0"		Curb Dowels
A611	6	42	2'6"		Dowels
A612	6	14	8'2"		Support 1
A613	6	14	5'6"		Support 2
A614	6	14	6'6"		Support 3
A615	6	14	7'3"		Wingwall
A616	6	2	6'0"		"
A617	6	2	3'9"		"
A619	6	14	9'3"		"
A620	6	2	8'0"		"
A621	6	2	5'9"		Wingwall
A913	9	2	40'11"		Stem
A911	9	4	35'3"		Stem
BENT BARS					
A418	4	6	5'11"		Pads
A419	4	10	4'11"		"
A420	4	4	6'2"		Pads
A422	4	6	4'6"		Guard Rail End Post
A423	4	6	6'2"		Guard Rail End Post
A513	5	20	8'3 1/2"		Support Wall
A514	5	6	5'9 1/2"		Support Wall
A516	5	36	14'6"		Stem
A521	5	9	7'3"		Footing
A608	6	20	3'6"		Approach Slab Dowels
A618	6	2	6'6"		Wingwall
A622	6	2	7'0"		Wingwall
A912	9	4	40'11"		Stem
ABUTMENT 2					
STRAIGHT BARS					
A401	4	8	30'9"		Backwall
A403	4	4	5'3"		Wingwall & Backwall
A404	4	4	4'10"		Wingwall & Backwall
A406	4	9	6'9"		Wingwall
A407	4	6	6'6"		"
A408	4	1	3'6"		Wingwall
A410	4	2	8'0"		Wingwall-Bend in Field
A411	4	2	6'9"		Wingwall-Bend in Field
A414	4	1	3'4"		Wingwall
A501	5	25	2'6"		Dowels
A502	5	25	6'2"		Dowels-Stem
A503	5	28	5'9"		Dowels-Stem
A504	5	30	4'8"		Backwall
A505	5	25	3'0"		Stem
A506	5	8	35'3"		Stem
A508	5	14	3'11"		Wingwall
A509	5	14	4'5"		Wingwall
A601	6	28	19'3"		Footing
A602	6	68	5'6"		"
A603	6	10	4'0"		"
A604	6	14	10'0"		"
A605	6	12	9'6"		"
A606	6	24	5'6"		"
A607	6	24	6'0"		"

MARK	SIZE	NUMBER	LENGTH	INCR.	LOCATION
ABUTMENT 2 (CON'T)					
BENT BARS					
A402	4	4	4'7"		Wingwall & Backwall
A405	4	4	5'1"		Wingwall & Backwall
A409	4	1	5'8"		Wingwall
A412	4	6	6'7"		"
A413	4	3	6'7"		"
A415	4	1	3'4"		Wingwall
A416	4	1	4'10"		Pad
A417	4	1	6'0"		"
A418	4	8	5'1 1/2"		"
A419	4	10	4'1 1/2"		Pad
A424	4	6	4'3"		Guard Rail End Post
A425	4	6	7'2 1/2"		Guard Rail End Post
A507	5	25	6'8"		Stem
A608	6	20	3'6"		Approach Slab Dowels
APPROACH SLABS					
STRAIGHT BARS					
A5401	4	44	29'5"		Approach Slab
A5601	6	224	14'6"		Approach Slab
PIER 1					
STRAIGHT BARS					
P501	5	28	31'0"		Shaft
P601	6	80	4'0"		Dowels
P602	6	80	14'6"		Shaft
P603	6	8	34'2"		Cap
BENT BARS					
P401	4	18	9'4"		Cap
P502	5	28	3'0"		Shaft
P503	5	56	4'3"		Shaft
SUPERSTRUCTURE					
STRAIGHT BARS					
S401	4	40	1'8"		End Post
S501	5	478	35'4"		Slab Transverse
S502	5	148	26'1"		Slab Longitudinal
S503	5	14	26'8"		Slab Longitudinal
S504	5	3	17'10"		Safety Walk
S505	5	39	16'8"		Safety Walk
S506	5	72	29'0"		Slab Longitudinal
S507	5	162	34'8"		Slab Longitudinal
S508	5	18	17'8"		Safety Walk
S509	5	18	15'0"		Safety Walk
S510	5	162	23'5"		Slab Longitudinal
S511	5	162	26'5"		Slab Longitudinal
BENT BARS					
S402	4	16	8'7"		End Post
S512	5	238	36'7 1/2"		Slab Truss Rod
S513	5	480	7'5"		Safety Walk
PIER 2					
STRAIGHT BARS					
P501	5	44	31'0"		Shaft
P601	6	84	2'6"		Dowels
P603	6	8	34'2"		Cap
P604	6	84	22'0"		Shaft
BENT BARS					
P401	4	18	9'4"		Cap
P502	5	44	3'0"		Shaft
P505	5	88	5'3"		Shaft
PIER 3					
STRAIGHT BARS					
P501	5	44	31'0"		Shaft
P601	6	84	2'6"		Dowels
P603	6	8	34'2"		Cap
P604	6	84	22'0"		Shaft
BENT BARS					
P401	4	18	9'4"		Cap
P502	5	44	3'0"		Shaft
P505	5	88	5'3"		Shaft



NOTES:  
 1. All dimensions are to the center of bars.  
 2. All reinforcing bars shall be intermediate grade steel.  
 3. Reinforcing steel to have 2" minimum cover, unless otherwise shown.

\* Revised March 22, 1967

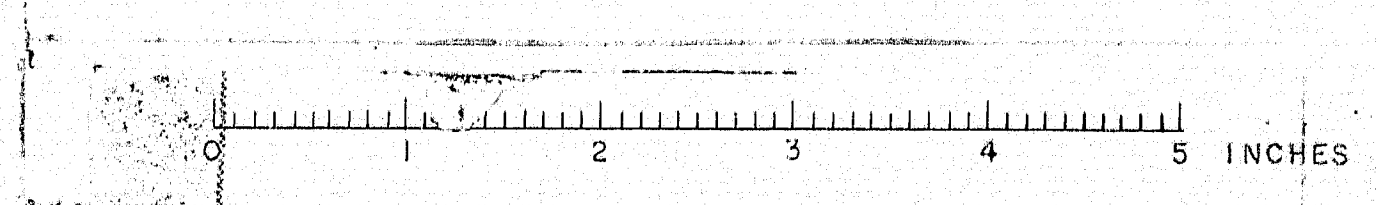
HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
 CONSULTING ENGINEERS

NEW YORK BOSTON KANSAS CITY

DESIGN-TRACE-CHECK-PRN.  
 DETAIL-R.W.O.L.  
 BRIDGE NO. SURVEY-PILOT-  
 STATE HIGHWAY COMMISSION  
 BRIDGE DIVISION  
 RELOCATED ROUTE 159  
 OVER  
 WEST BRANCH  
 MATTAWAMKEAG RIVER  
 IN THE TOWN OF  
 ISLAND FALLS  
 AROOSTOOK COUNTY  
 REINFORCING STEEL

SHEET 10 OF 10 AUGUSTA, MAINE AUGUST 1965

M-2495F ISLAND FALLS (36)









# GENERAL NOTES

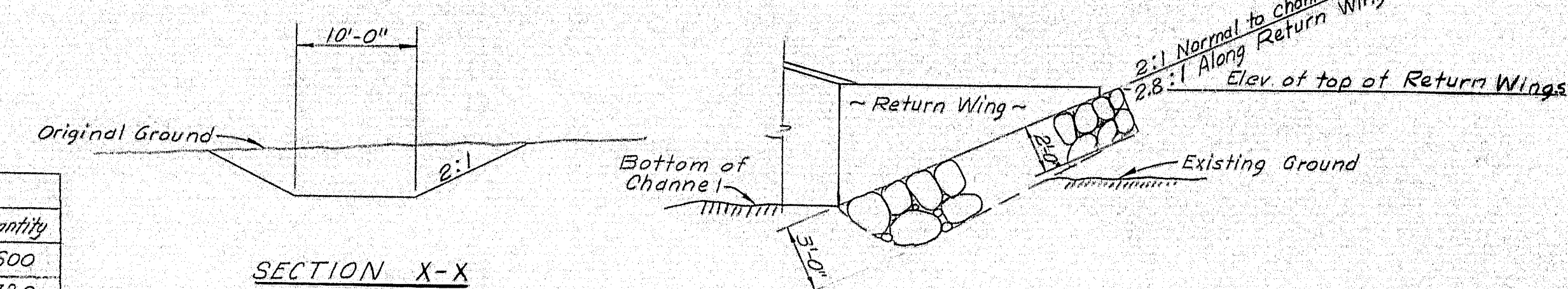
- ①----Payment for Excavation for Bottom Slab and Gravel Borrow under Item 206.06, Structural Earth Excavation-Drainage and Minor Structures.
- ②----Payment for Channel Excavation will be made under Item 206.12, Structural Earth Excavation - Channel.
- ③----Payment for Gravel Borrow will be made under Item 203.26, Gravel Borrow

## INDEX OF SHEETS

- Sh. 1----Survey  
Sh. 2----Foundation Survey  
Sh. 3----Plan  
Sh. 4----Sections  
Sh. 5----Reinforcing Steel

## ESTIMATE OF QUANTITIES

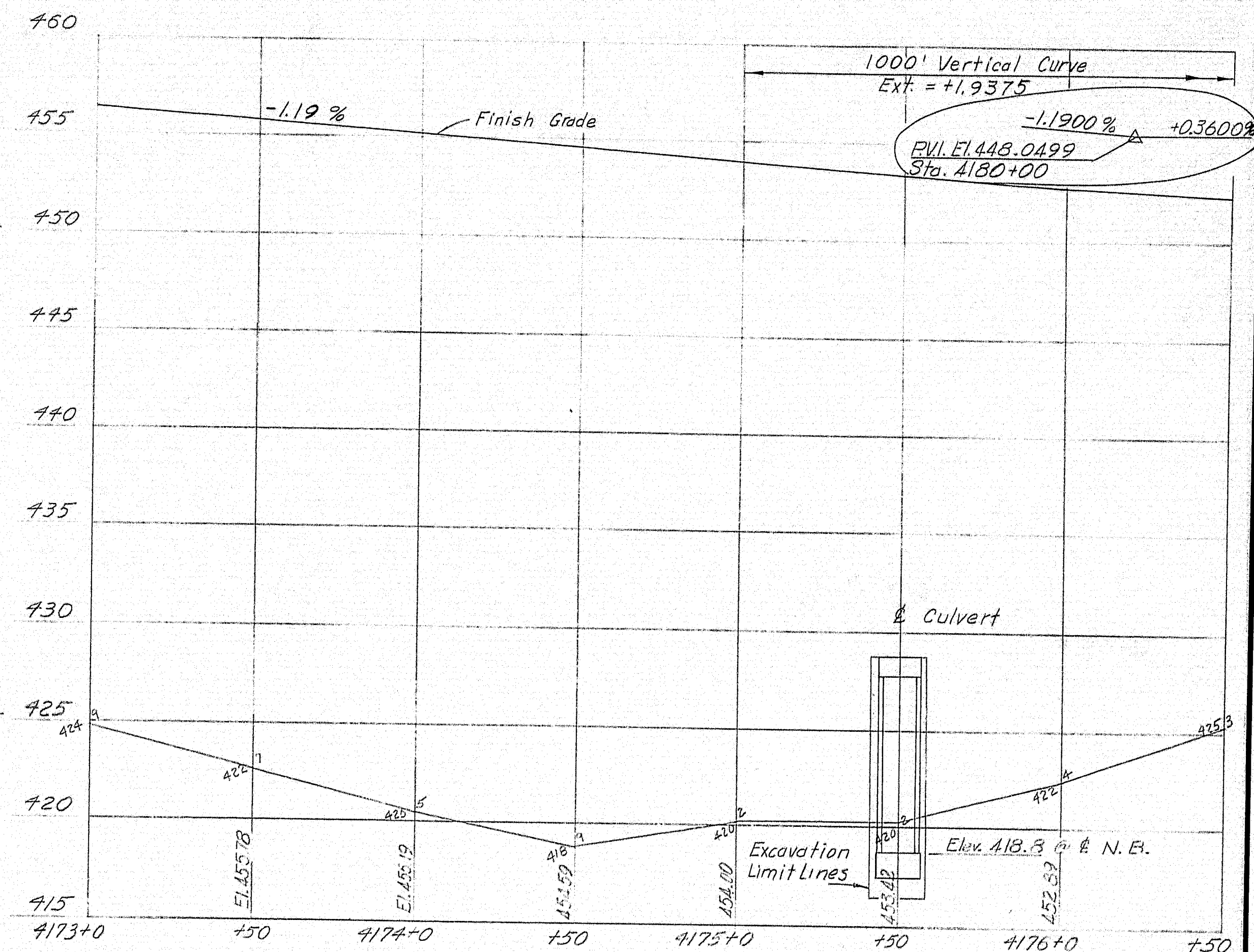
Description	Unit	Quantity
Gravel Borrow	Cu. Yds	600
Struct. Earth Excav. - Drainage & Minor Structures	Cu. Yds.	730
Struct. Earth Excav. - Channel	Cu. Yds.	500
Structural Concrete, Box Culverts	Lump Sum	
Reinforcing Steel, Fab. and Delivered	Lbs.	72,875
Reinforcing Steel, Placing	Lbs.	72,875
Cofferdams	Lump Sum	
Hand Laid Riprap	Cu. Yds.	25



SECTION X-X

CHANNEL EXCAVATION

HAND LAID RIPRAP



PROFILE  
1"=30' Horiz. 5' Vert.

NOTE: For General Plan, Interstate Cross Section, and Estimated Concrete Quantities see Sheet 4

## SPECIFICATIONS

Design: AASHTO Standard Specifications for Highways and Bridges 1961, with Interim Specs. 1961, 1962, 1963, 1964,  
Contract: State of Maine, State Highway Commission, Standard Specifications for Highways and Bridges, Revision of June 1965.

## LIVE LOADING

HS 20-44 Modified for Interstate

## ALLOWABLE STRESSES

Concrete:  $f_c = 1200$  psi  $n = 10$   
Reinforcing Steel, Intermediate Grade:  $f_s = 20,000$  psi

## CONCRETE CLASSIFICATION

All concrete shall be class A

## FOUNDATION DATA

Maximum Soil Pressure = 1.8 tons per Sq. Ft.

## HYDRAULIC DATA

Drainage Area.....2.8 sq. miles  
Flow.....649 cfs.

PLAN  
1"=30'

B.M. #370 Sta. 4176+00 100' Lx. 12" R/R  
Elev. 433.81

DESIGN - E. Barnard TRACE - CDH CHECK - CDH	BRIDGE NO. 2-7-66 SURVEY - GARCELON PLOT - V. SMITH
STATE HIGHWAY COMMISSION BRIDGE DIVISION	
INTERSTATE 95 OVER	
ROGAN BROOK	
IN THE TOWNSHIP	
T2R6 W.E.L.S.	
PENOBSCOT COUNTY	
SURVEY	
SHEET 1 OF 5	AUGUSTA, MAINE OCT. 1965

M-2496

