

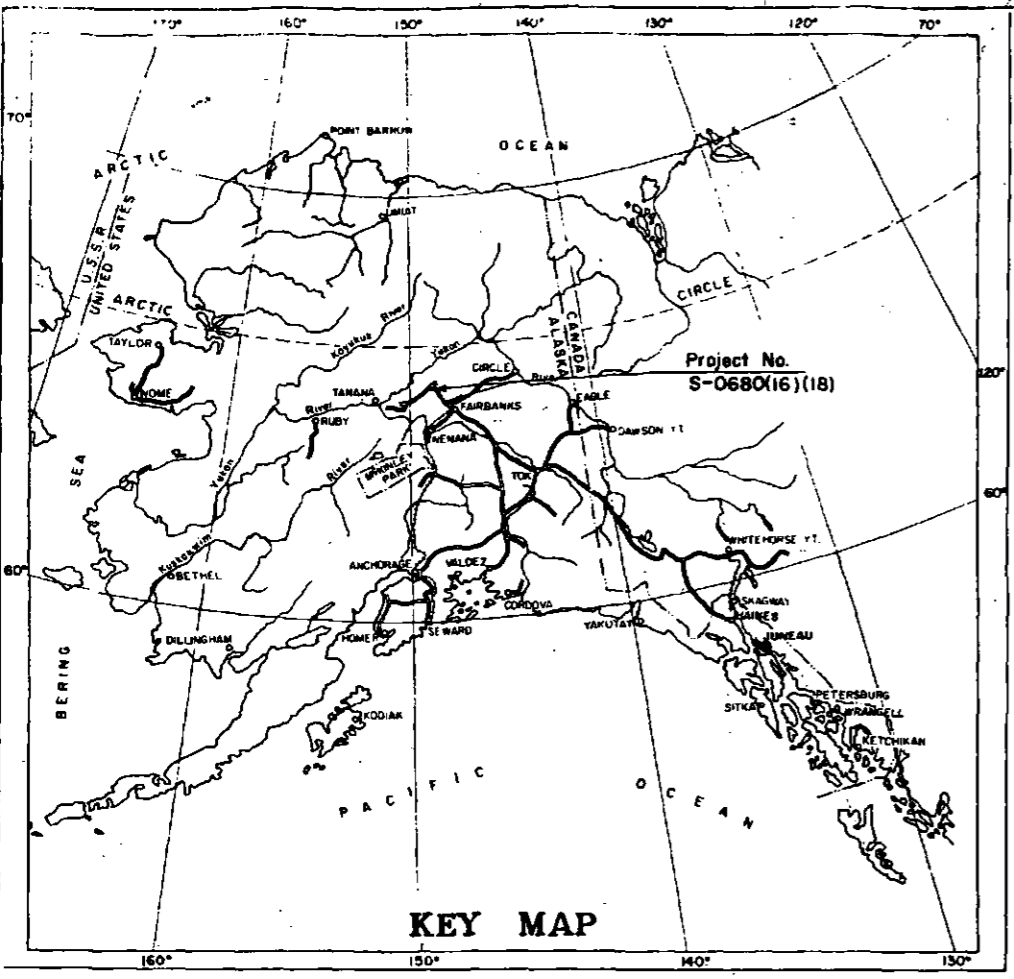
STATE OF ALASKA
DEPARTMENT OF HIGHWAYS

PLAN AND PROFILE
PROPOSED HIGHWAY PROJECT
NO. S-0680(16)(18)
ELLIOTT HIGHWAY
CHATANIKA RIVER &
WEST FORK TOLOVANA RIVER
BRIDGES & APPROACHES
AS-BUILT PLANS

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE
2	TYPICAL SECTION & DETAILS
3	SUMMARY SHEET
4	ESTIMATE OF QUANTITIES
5	STANDARD SIGN DETAILS
6	MATERIALS SOURCE
7-10	PLAN & PROFILE
11-18	BRIDGE NO. 325
19-26	BRIDGE NO. 836

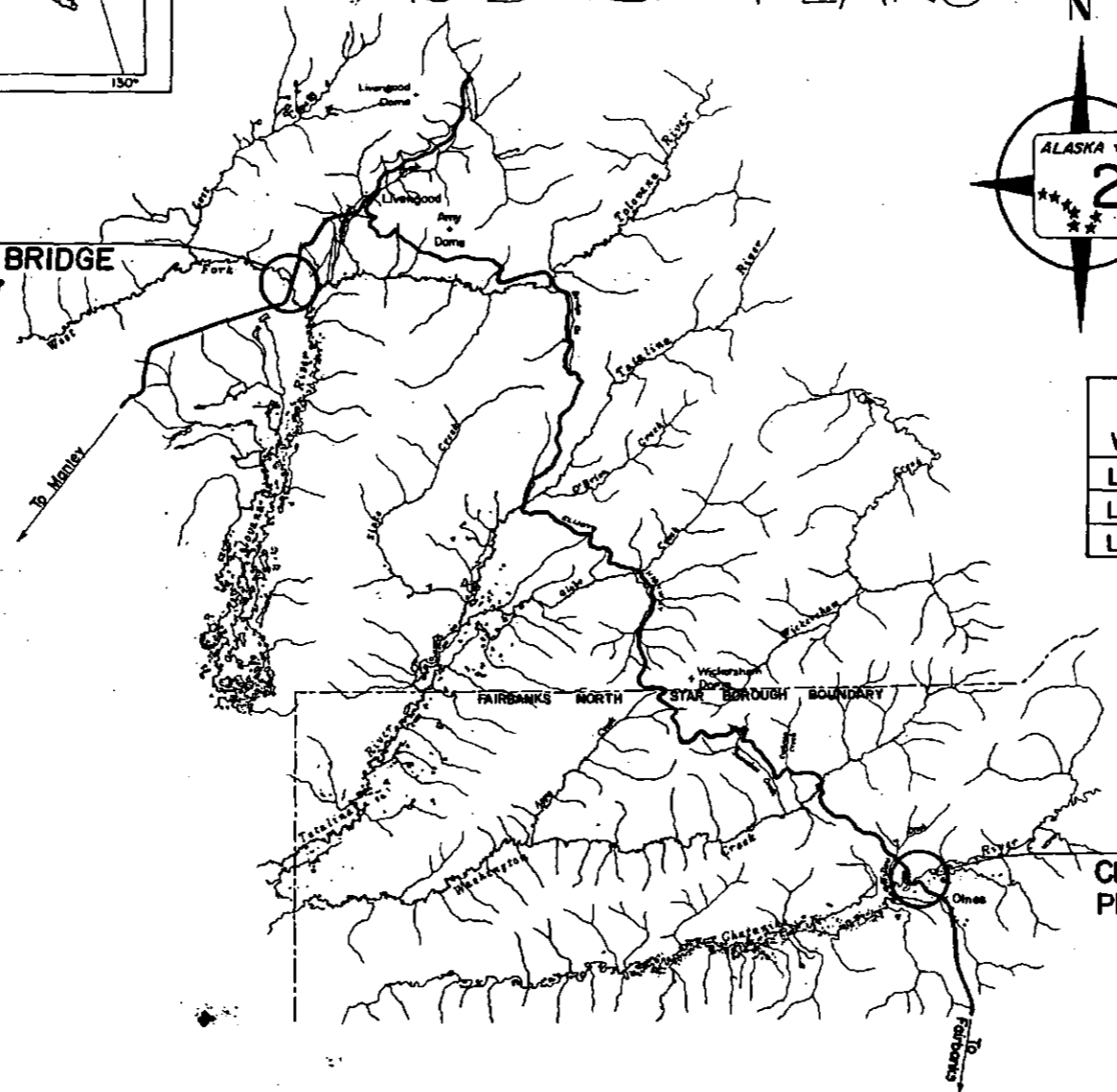
THE FOLLOWING STANDARD DRAWINGS APPLY TO THIS PROJECT: A-1, D-1a, M-1, M-3, R-1, R-3, R-5, R-6, R-8, T-1, T-2, T-9, T-15, T-16 (2 Sheets), T-18, T-19, T-20.



S-0680(16)(18) CHATANIKA RIVER & WEST FORK TOLOVANA RIVER BRIDGES & APPROACHES DRAWER # 3

PROJECT PART II
WEST FORK TOLOVANA RIVER BRIDGE
PROJECT NO. S-0680(16) MILE 77

Contractor: Ghemm Co., Inc.
Project Engineer: R. Platzke
Work Began: Oct 1, 1970
Work Completed: June 22, 1972



PROJECT SUMMARY

	PART I	PART II	PROJECT TOTAL
WIDTH OF SUBGRADE	34'	28'	
LENGTH OF GRADING	9,115.40' = 1.726 MI.	299.37' = 0.057 MI.	9,414.77' = 1.783 MI.
LENGTH OF BRIDGE	249.04' = 0.047 MI.	200.63' = 0.038 MI.	449.67' = 0.085 MI.
LENGTH OF PROJECT	9,364.44' = 1.773 MI.	500.00' = 0.095 MI.	9,864.44' = 1.868 MI.
		699.54' = 0.132 MI.	9814.94' = 1.859 MI.
		200.46' = 0.038 MI.	449.50' = 0.085 MI.
		900.00' = 0.170 MI.	10,264.44' = 1.944 MI.

DESIGN DESIGNATION

- ADT (1969) = 60
- ADT (1989) = 180
- DHV (20%) = 36
- D = 35 - 65 %
- T = 10 %
- V = 40 MPH

PROJECT PART I
CHATANIKA RIVER BRIDGE
PROJECT NO. S-0680(18) MILE 73

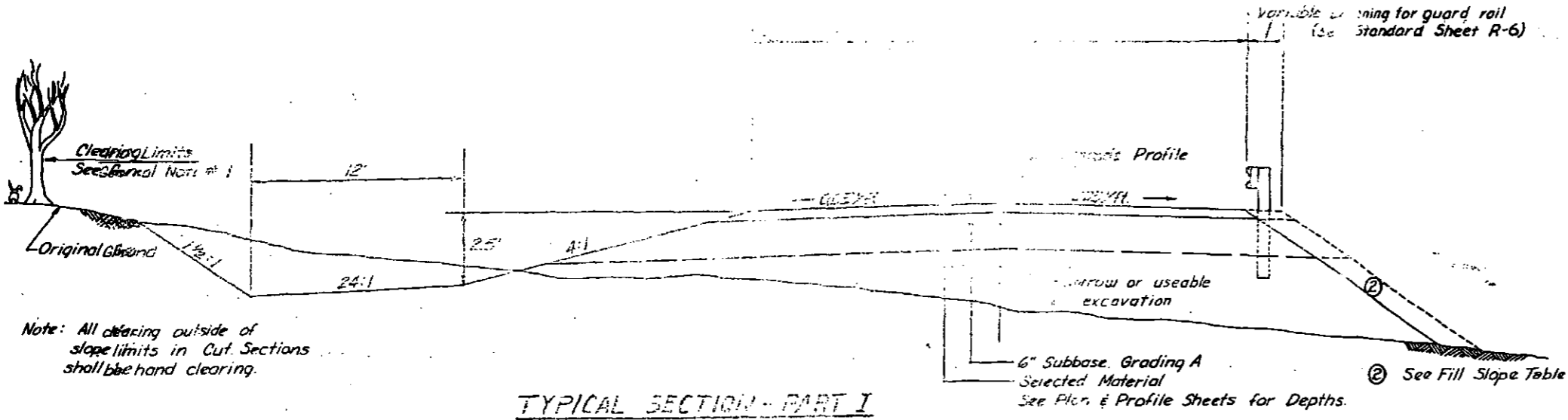
STATE OF ALASKA
DEPARTMENT OF HIGHWAYS
APPROVED: *[Signature]* Date: 5/19/70
DISTRICT ENGINEER
[Signature] Date: 7/29/70
COMMISSIONER OF HIGHWAYS

FILL SLOPE TABLE*	
HEIGHT	SLOPE
0-5'	4:1
5-15'	3:1
Over 15'	2:1

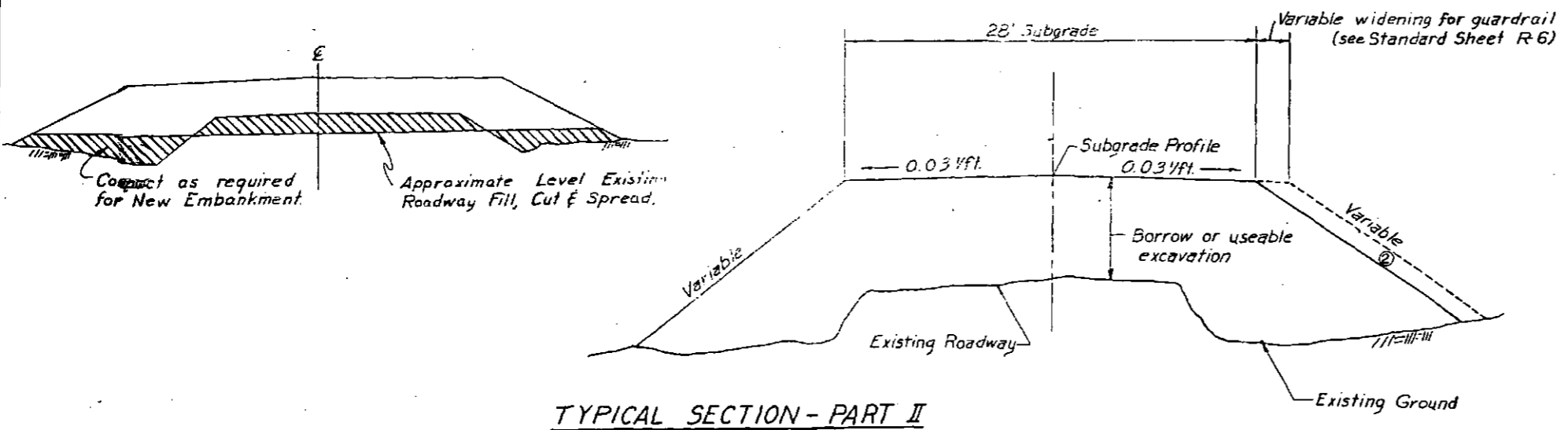
*1 1/2:1 where guard rail is warranted

GENERAL NOTES

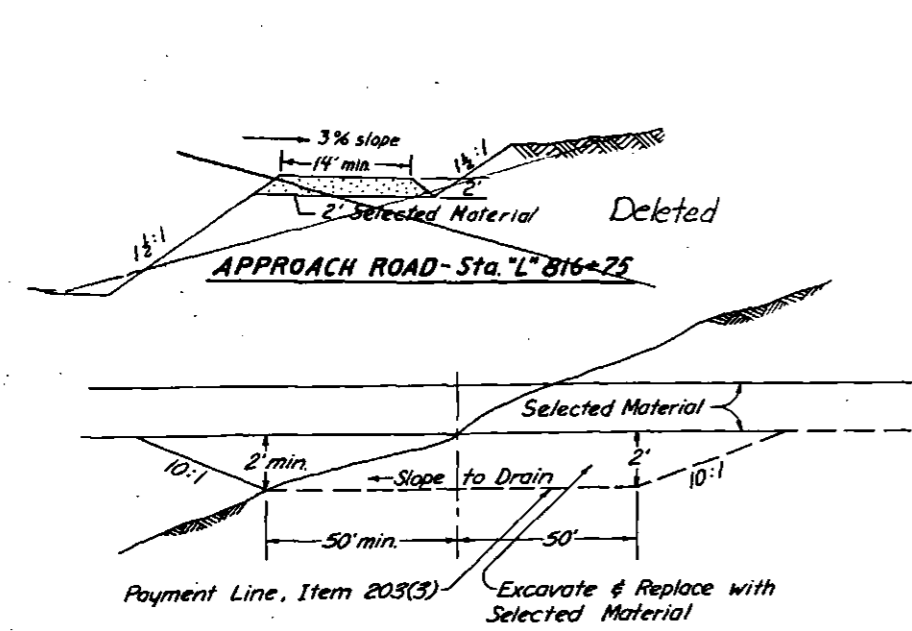
1. Clearing & Grubbing & Hand Clearing limits shall be a neat orderly line as established by the engineer approximately fifteen feet outside of the slope limits.
2. Grades and alignment shown on these plans are subject to minor revisions.
3. All waste and/or surplus material encountered on this project will be disposed of as stipulated in the Standard Specifications, as modified, and Section 203.09 of the Special Provisions.
4. The approach roads will be filled 6:1 on the approaching side of traffic and 3:1 on the other.
5. Existing ditches and original ground at the toe of fill slope, except in hand cleared areas shall be graded to insure adequate drainage as directed by the engineer. No direct payment will be made for this work.
6. Excavation and backfill for Riprap toe trench will be considered incidental to the furnishing and placement of the Riprap.
7. Curve data for this project is based on a one degree curve with a radius of 5729.58'.
8. At the contractors option, either corrugated galvanized metal pipe or corrugated aluminum pipe may be furnished for pay item no. 603(26), Pipe Conduit.
9. There is no payment for haul or overhaul on this project.
10. Riprap complying with the Special Provisions may be processed from suitable unclassified excavation.



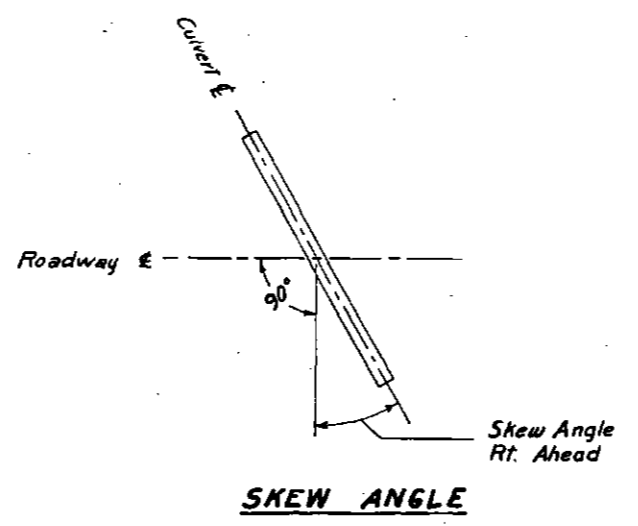
TYPICAL SECTION - PART I



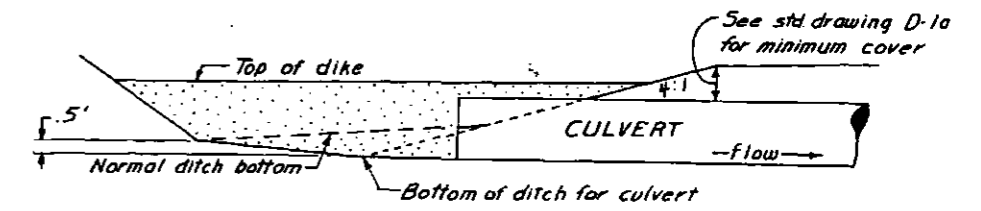
TYPICAL SECTION - PART II



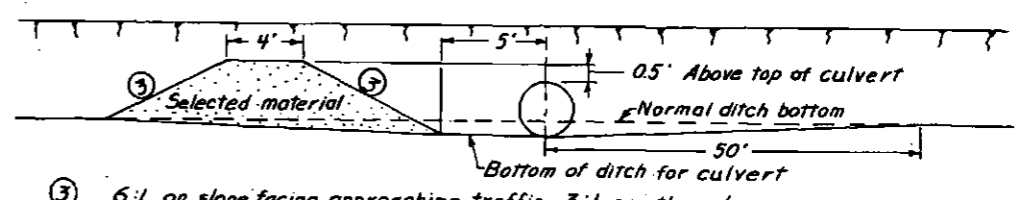
CUT & FILL LONGITUDINAL TRANSITION



SKEW ANGLE



CULVERT CROSS SECTION



DITCH DIKE CROSS SECTION

③ 6:1 on slope facing approaching traffic, 3:1 on other slope.

SUMMARY

DRAINAGE SUMMARY

STATION	DIA.	LENGTH 18"	LENGTH 24"	LENGTH 36"	STRUCTURAL EXC. (1)	CULVERT IN POSTS	SELECT MAT.	CULVERT REMOVAL	REMARKS
L ⁷²² +36	36"			72.66'	59	2		64'	Type B Installation
L ⁷³³ +00	24"		76'72"		50	2			Type B Installation
L ⁷⁴⁴ +00	24"		86'		58	2			Type B Installation
L ⁷⁴⁶ +50	18"	86'							Approach Left
L ⁷⁵⁵ +00	18"	88'68"							Approach Right
L ⁷⁹⁵ +25	36"			96.90'	115	2	25CY		Skew 30° Rt. Ahd., Ditch Dike Rt.
L ⁷⁹⁵ +50	18"	48'34"							Approach Left
L ⁸⁰⁵ +00	24"		58'54"		25	2	25CY		Ditch Dike Left
L ⁸¹⁶ +75	18"	40'							Approach Right
L ⁸¹⁹ +80	18"	42'							Approach Right
PART I TOTAL		304'	220'	162'	307CY	10'	50CY	64'	

L⁷²⁵+00
L⁷⁹⁶+15
L⁷⁹⁶+12

① Incidental to Other Items of Work Appearing in the Bid Schedule
All Pipe is Helically Corrugated Steel

R/W MONUMENT SUMMARY

STATION	NO.	LEFT	RIGHT
L ⁷²⁰ +00.00	2	100'	100'
L ⁷³⁰ +00.00	2	100'	100'
L ⁷⁴⁰ +00.00	2	100'	100'
L ⁷⁵⁰ +00.00	2	100'	100'
L ⁷⁶⁰ +00.00	2	100'	100'
L ⁷⁷⁰ +00.00	2	100'	100'
L ⁷⁸⁰ +00.00	2	100'	100'
L ⁷⁸⁹ +57.82 RC	3	100'	100/150'
L ⁷⁹⁸ +00.00	2	100'	150'
L ⁸⁰⁶ +35.74 RT	3	100'	100'
L ⁸¹⁴ +09.10 RT	3	100'	150'
L ⁸²⁰ +00.00 POT	2	100'	100'
Part I TOTAL	24		

782~

APPROACH ROAD QUANTITIES

STATION	TYPE	WIDTH	RADIUS	EXC.	BORROW	SEL. MATL.	SUBBASE	REMARKS
L ⁷⁴⁶ +50	3	14'	25'	0	875	24'	47' 89"	
L ⁷⁵⁵ +00	3	20'	25'	0	766	27'	51' 37"	
L ⁷⁵⁵ +50	3	20'	25'	190	0	33'	46' 37"	
L ⁸¹⁶ +75	3	14'	15'	3,257	540	540	23'	Waste off Excavation Deleted
L ⁸¹⁹ +80	3	14'	25'	0	197	29'	23' 23"	
PART I TOTAL				3,547	2,378	653	186	

796+12

② Included in Quantities Shown on the Plan & Profile Sheets
④ Quantities Are Not Included in the Quantities Shown on the Plan & Profile Sheets

GUARD RAIL SUMMARY

STA. TO STA.	LENGTH	Lt./Rt.
L ⁷⁸⁸ +00	500	Lt./Rt.
L ⁷⁹⁰ +50		
L ⁷⁹³ +00	400	Lt./Rt.
L ⁷⁹⁵ +00		
L ⁸⁰⁶ +25	975	Rt.
L ⁸¹⁴ +36		
PART I TOTAL	2,975 L.F.	

ROADWAY OBLITERATION SUMMARY

STATION	Lt./Rt.	③ ④
L ⁷⁴⁶ +00	Lt.	794CY
L ⁷⁵¹ +00 751+80	Lt.	345CY 49
L ⁷⁵⁴ +00	Rt.	194CY
L ⁷⁹⁵ +00 795+50	Lt.	794CY 175
PART I TOTAL		927CY 224CY

③ To be paid for as Unclassified Excavation

GUARD RAIL SUMMARY

STA. TO STA.	LENGTH	Lt./Rt.
301+51 Bridge	75	Rt.
301+92 Bridge	50	Lt.
304+75 Bridge	50	Rt.
305+17 Bridge	75	Lt.
PART II TOTAL	250'	

ESTIMATE OF QUANTITIES

S H E E T N U M B E R

TEM NO.	ITEM	UNIT	S H E E T				N U M B E R					
			7	8	9	10	Part I Roadway Totals	Part II Roadway Totals	Contract Totals	Contr. Totals		
1	Furnishing and maintaining Engineer facilities	Lump Sum					All Req'd	All Req'd	All Req'd	All Req'd		
2A	Meals	Each					-0-	502	1060	1060		
2B	Lodging	Each					-0-	180	360	360		
III (1)	Temporary Erosion and Pollution Control	Cont. Sum					243334	-0-	All Req'd	243334		
III (1)	Mobilization	Lump Sum					All Req'd	All Req'd	All Req'd	All Req'd		
201(3)	Clearing and Grubbing	Acres			5.448	6.221	14,353	11,954	0,237	-0-	14,954	14,954
201(4)	Hand Clearing	Acres	2.400	6.281	2.645	1.143	6,384	12,469	-0-	-0-	12,469	6,384
202(1)	Removal of Structures and Obstructions	Lump Sum						All Req'd	All Req'd	All Req'd	All Req'd	
202(4)	Removal and Disposal of Culvert Pipe	Lin. Ft.	64				64	64	-0-	-0-	64	64
203(3)	Unclassified Excavation	Cu. Yd.			178,900		179,995	178,900	609		178,900	180,004
203(5)	Borrow	Cu. Yd.	31,859		20,728		31,677	31,781	5,781	3,000	54,781	43,458
207(1)	Class I Excavation for Structures	Cu. Yd.	21				39.8	50	113.2	-80	130	153.0
307(2)	Subbase Grading "A"	Cu. Yd.	1532		5,020		6,941	6,560	-0-		6,560	6,941
601(1)	Class "A" Concrete	Lump Sum					All Req'd	All Req'd	All Req'd	All Req'd	All Req'd	
602(1)	Reinforcing Steel	Lump Sum					All Req'd	All Req'd	All Req'd	All Req'd	All Req'd	
603(26E)	18" Pipe Conduit	Lin. Ft.		174		130	102	304	-0-		304	102
603(26G)	24" Pipe Conduit	Lin. Ft.		162		58	212	220	-0-		220	212
603(26I)	36" Pipe Conduit	Lin. Ft.	66			90	162	162	-0-		162	162
606(2)	Beam Type Guard Rail (Type II post)	Lin. Ft.			310	621.5	900	937.5	250	250	1,187.5	1,150
611(1)	Riprap, Class II	Cu. Yd.				750	918.6	950	1,775.8	1,600	2,950	2,695.4
613(1)	Right of Way Monuments	Each	4	4	4	4	24	24	-0-		24	24
613(2)	Culvert Marker Posts	Each	2	4		4	10	10	0		10	10
615(1)	Standard Signs	Each				2	2	2	2	2	4	4
615(4)	Hazard Markers	Each				4	4	4	4	4	8	8
630(3)	Structural Steel Piles, Furnished and Driven	Lin. Ft.					1053	861	827	605	1,456	1,880
633(1)	Structural Steel for Chatanika River Bridge, Furnished, Fabricated & Erected	Lump Sum					All Req'd	All Req'd			All Req'd	All Req'd
633(1a)	Structural Steel for West Fork Tolovana River Bridge, Furnished, Fabricated & Erected Plate Girder Alternate	Lump Sum						All Req'd	All Req'd		All Req'd	All Req'd
633(1b)	Structural Steel for West Fork Tolovana River Bridge, Furnished, Fabricated & Erected Wide Flange Beam Alt.	Lump Sum							All Req'd		All Req'd	All Req'd
634(1)	Metal Bridge Railing	Lin. Ft.					497	497	399	399	896	896

LEGEND SPACING

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	5-0680(16)(1B)	1970	5	26

5 INCH SERIES - C CAPITALS; INCH LOWER CASE (INCH LOOP HEIGHT)

Letter	C	H	A	T	A	N	I	K	A
Letter Width	2.73	2.73	3.12	2.50	3.12	2.73	0.70	2.73	3.12
Space Width	0.84	0.84	0.28	0.28	0.84	1.05	1.05	0.56	
Cumulative Width	2.73	3.57	6.30	7.14	10.26	10.54	13.04	13.32	16.44

5 INCH SERIES - C CAPITALS; INCH LOWER CASE (INCH LOOP HEIGHT)

Letter	W	E	S	T	F	O	R	K
Letter Width	3.75	2.50	2.73	2.50	2.50	2.89	2.73	2.73
Space Width	0.63	0.63	0.63	5.59	0.63	0.78	0.78	
Cumulative Width	3.75	4.38	6.88	7.51	10.24	10.87	13.37	18.96

5 INCH SERIES - C CAPITALS; INCH LOWER CASE (INCH LOOP HEIGHT)

Letter	T	O	L	O	V	A	N	A
Letter Width	2.50	2.89	2.50	2.89	3.05	3.12	2.73	3.12
Space Width	0.84	1.05	0.84	0.84	0.28	0.84	0.84	
Cumulative Width	2.50	3.34	6.23	7.28	9.78	10.62	13.51	14.35

5 INCH SERIES - C CAPITALS; INCH LOWER CASE (INCH LOOP HEIGHT)

Letter	R	I	V	E	R
Letter Width	2.73	0.70	3.05	2.50	2.73
Space Width	1.05	0.84	0.84	0.84	
Cumulative Width	2.73	3.78	4.48	5.32	8.37

INCH SERIES - CAPITALS; INCH LOWER CASE (INCH LOOP HEIGHT)

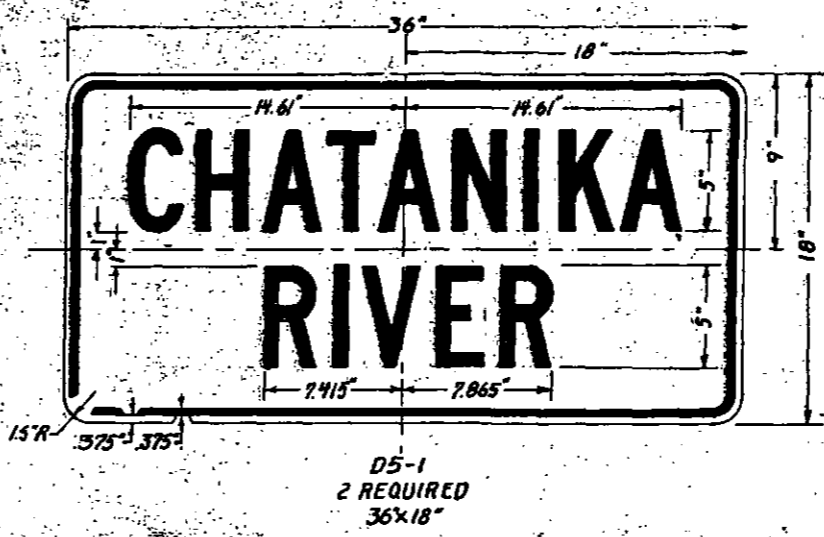
Letter									
Letter Width									
Space Width									
Cumulative Width									

INCH SERIES - CAPITALS; INCH LOWER CASE (INCH LOOP HEIGHT)

Letter									
Letter Width									
Space Width									
Cumulative Width									

INCH SERIES - CAPITALS; INCH LOWER CASE (INCH LOOP HEIGHT)

Letter									
Letter Width									
Space Width									
Cumulative Width									



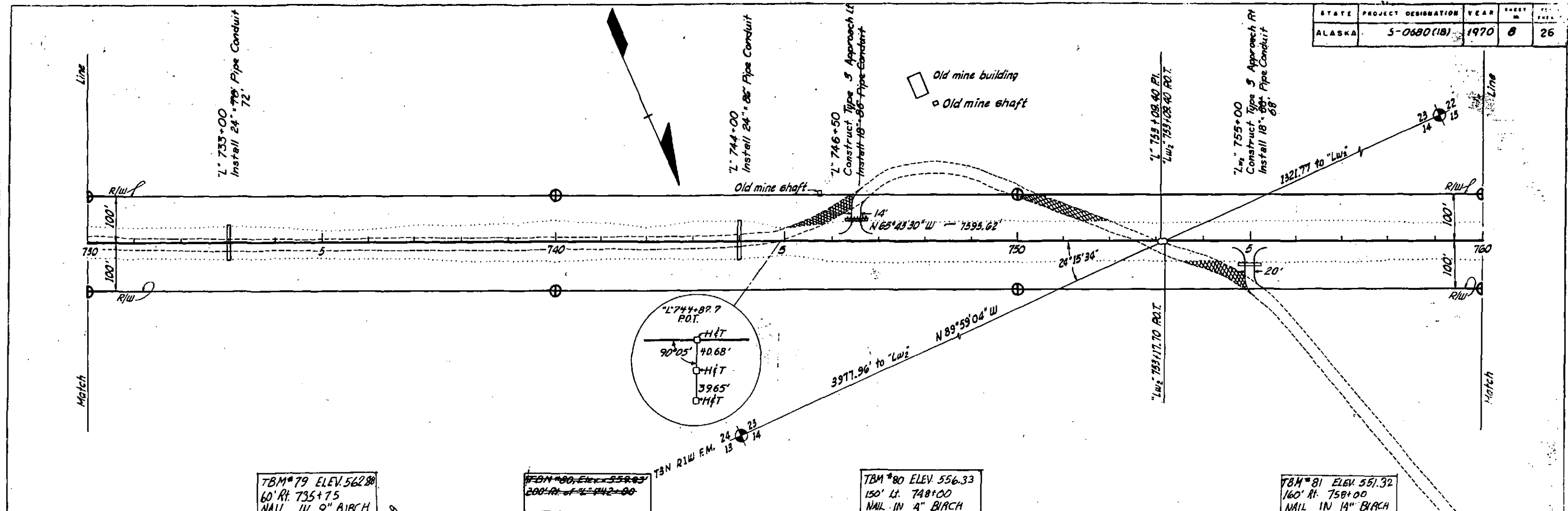
SIGNING NOTES

1. Sign dimensions and legends not shown on this sheet are standard and may be found in the, "Manual on Uniform Traffic Control Devices for Streets and Highways."
2. Reflective sheeting and backing material for sign plates shall conform to Section 615 of the Standard Specifications.
3. Letters shall conform to, "Standard Alphabets for Highway Signs." (BPR 1966 edition)
4. Legends on signs shown in detail drawings are for illustration only and are not drawn to scale.
5. Signs shall be white letters & borders on green background

Summary of Standard Signs & Hazard Markers

STATION	DIST.	TYPE	DESCRIPTION
	LT. RT.		
790+19	20	D5-1	CHATANIKA RIVER
790+49	18, 18	W14-7	3 Button Hazard Marker
793+02	20	D5-1	CHATANIKA RIVER
793+02	18, 18	W14-7	3 Button Hazard Marker
302+22	18	D5-1	WEST FORK TOLOVANA RIVER
302+22	15	W14-7	3 Button Hazard Marker
302+39	15	W14-7	3 Button Hazard Marker
304+27	15	W14-7	3 Button Hazard Marker
304+44	18	D5-1	WEST FORK TOLOVANA RIVER
304+44	15	W14-7	3 Button Hazard Marker

SPECIAL
STANDARD SIGN
DETAILS

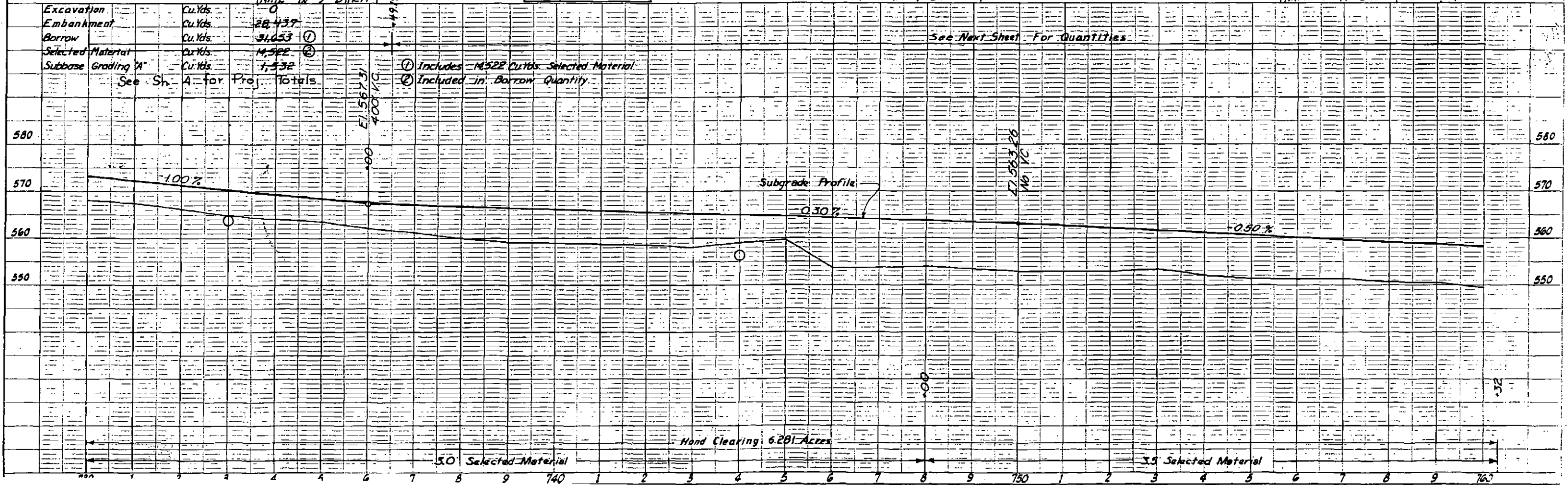


TBM #79 ELEV. 562.88
60' R/L 735+75
NAIL IN 9" BIRCH

TBM #80 ELEV. 558.03
200' R/L 742+00

TBM #80 ELEV. 556.33
150' R/L 748+00
NAIL IN 4" BIRCH

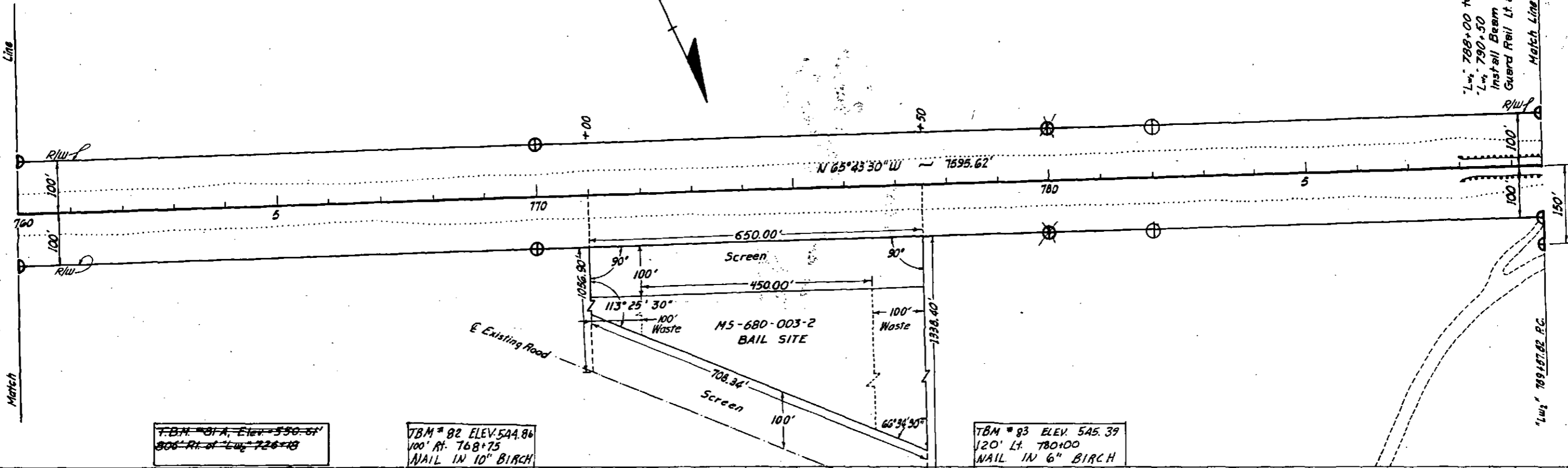
TBM #81 ELEV. 551.32
160' R/L 758+00
NAIL IN 14" BIRCH



PLAN
NOTE: ROADWAY TO BE CONSTRUCTED BY THE STATE OF ALASKA

PROFILE
CHECKED BY: [Signature]
DATE: [Date]

PLAN
 PROJECT NO. 1011
 SHEET NO. 9
 TOTAL SHEETS 26



L_W 788+00 to
 L_W 790+50
 Install Beam Type
 Guard Rail Lt. and Rt.
 Match Line

TBM # 81 A, Elev. 550.61
 806 Rt. of L_W 726+18

TBM # 82 ELEV. 544.86
 100' Rt. 768+75
 NAIL IN 10\" BIRCH

TBM # 83 ELEV. 545.39
 120' Lt. 780+00
 NAIL IN 6\" BIRCH

Excavation	Cu.Yds.	194,426	① ③
Embankment	Cu.Yds.	159,015	
Borrow	Cu.Yds.	77,700	
Selected Material	Cu.Yds.	29,295	②
Subbase Grading	Cu.Yds.	7,859	
See Sh. 4 For Proj. Totals			
① Includes 95,319 Cu.Yds. waste and 23,226 Cu.Yds. to be used as selected material. ② Selected material to be obtained from suitable unclassified excavation. ③ Riprap may be obtained from this area by selective excavation.			
560	Subgrade Profile		
550	0.50% 0.00% 2.14%		
540	Hand Clearing 2.645 Acres		
530	Clearing & Grubbing 6.206 Acres		
	3.0 Selected Material	1.5 Selected Material	3.0 Selected Material
			2.0 Selected Material

PROFILE
 PROJECT NO. 1011
 SHEET NO. 9
 TOTAL SHEETS 26

PLAN
 SURVEYED
 CHECKED
 DESIGNED
 DRAWN
 NOTE BOOK NO. OF THIS SHEET

TBM #A-1 ELEV. 561.47
 18' RT. ABUT. #1
 BRASS CAP IN CONCRETE

TBM #A-4 ELEV. 568.25
 18' LT. ABUT. #4
 BRASS CAP IN CONCRETE

HYDROLOGIC & HYDRAULIC SUMMARY

Drainage Area: 520 Sq. miles
 Design Flood Frequency: 50 Yrs.
 Design Discharge: 12,000 c.f.s.
 Design Highwater: Elev. 552'

TBM # 84B ELEV. 550.45
 230' LT. 793+00
 NAIL IN 20" COTTONWOOD

TBM # 86 ELEV. 548.48
 30' LT. OF LUG 796+00

TBM # 86 ELEV. 626.76
 145' RT. 796+00
 NAIL IN 5" BIRCH

TBM # 86 A ELEV. 548.48
 Spike in 10" Cottonwood Tree
 30' Left of L 796+00

TBM # 87 ELEV. 654.06
 165' RT. 799+75
 NAIL IN 5" BIRCH

TBM # 87 ELEV. 583.77
 Spike in 6" Birch Tree
 19.5' Left of L 799+75

TBM # 88 ELEV. 617.00
 50' Right of L 811+23

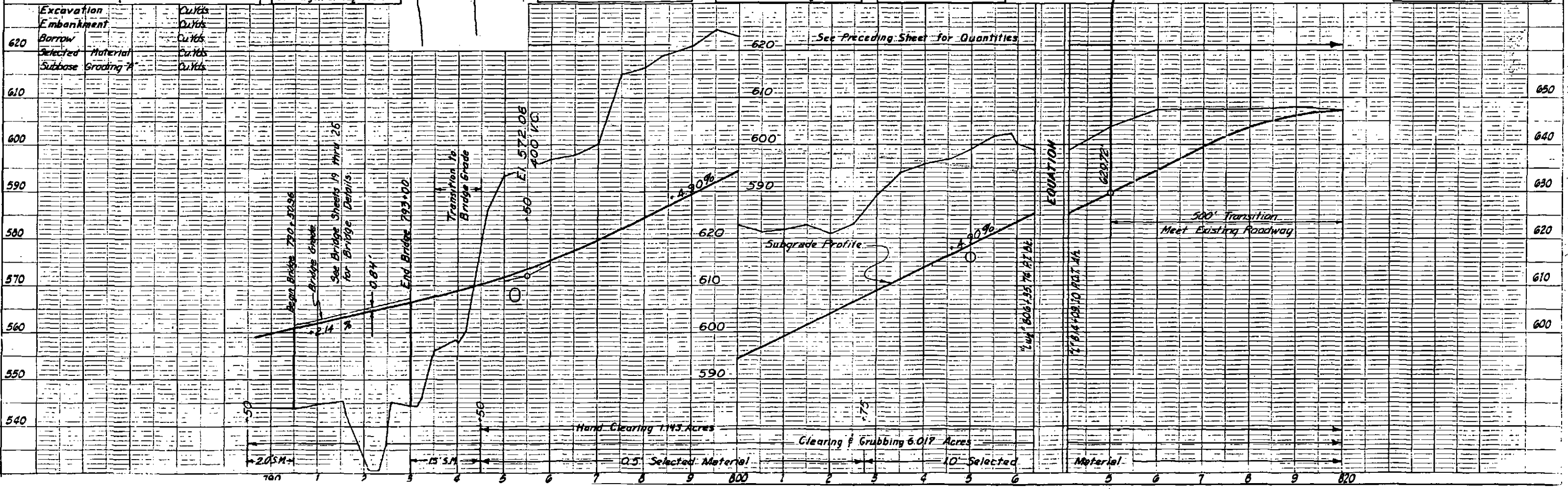
TBM # 89 ELEV. 648.35
 50' RT. 820+00
 NAIL IN 4" BIRCH

TBM # 89 ELEV. 617.00
 Spike in 6" Birch Tree
 19.5' Left of L 811+23

Curve Data
 Δ = 67°07'
 D = 4°R
 T = 950.18'
 L = 1677.92'
 R = 1432.39'
 S = 0.04'/ft.

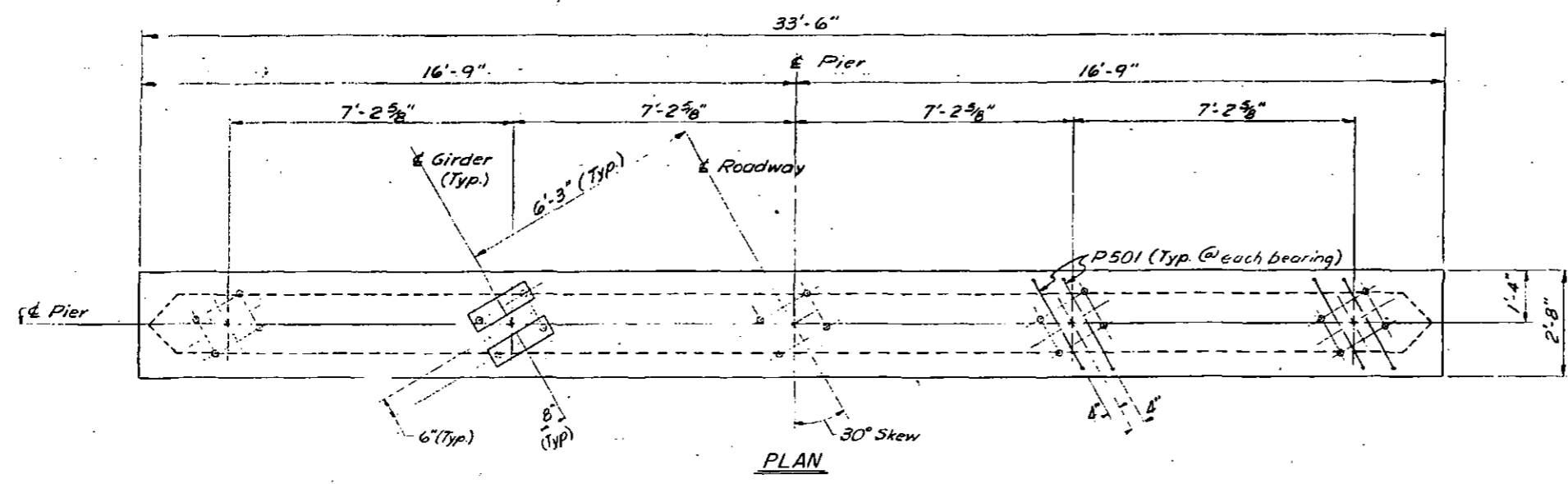
Removal of Existing Bridge will be paid for under Item 202(1)

END OF PROJECT PART I
 "L" 815+00.00 P.O.T.

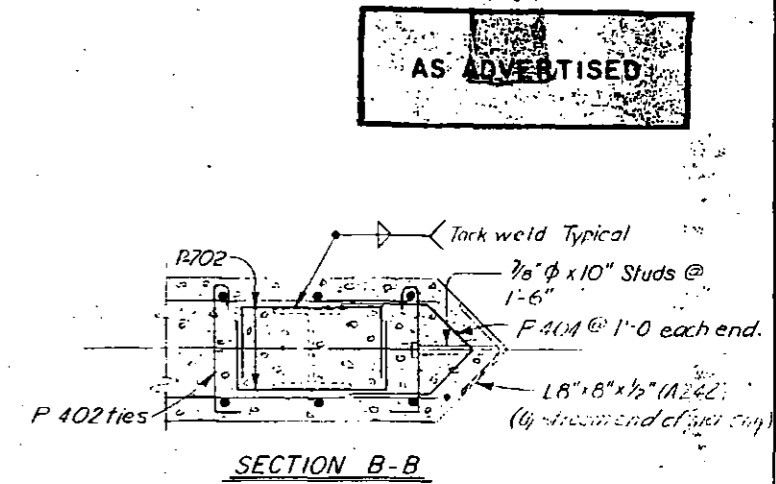
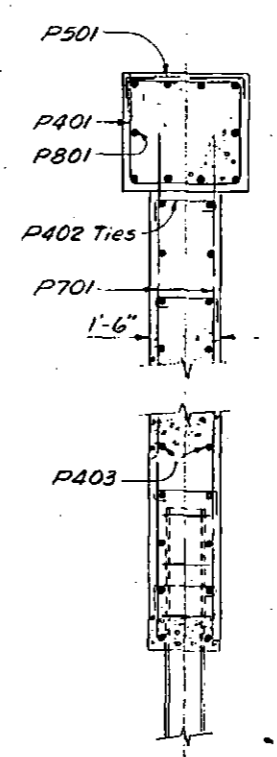
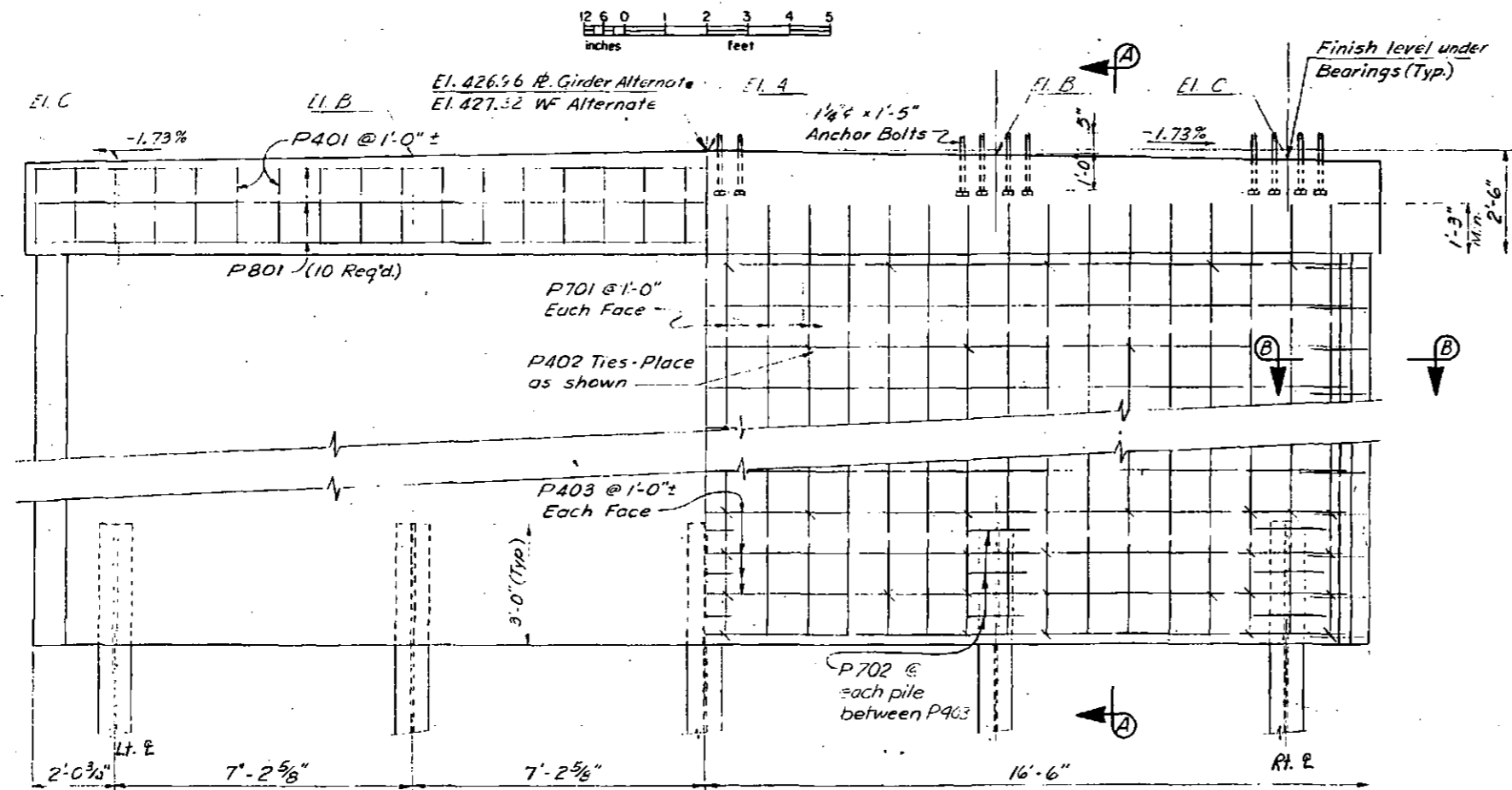


PROFILE
 SURVEYED
 CHECKED
 DESIGNED
 DRAWN
 NOTE BOOK NO. OF THIS SHEET

STATE	PROJECT DESIGNATION	YEAR	SHEET NO	TOTAL SHEETS
ALASKA	S-0680 (16)	1970	14	26



REINFORCING SCHEDULE - ONE PIER					
Mark	Size	No.	Length	Type	Bending Diagrams
P401	4	34	9'-8"	Bent	
P402	4	96	2'-3"	Bent	
P403	4	28	3'-6"	Bent	
P404	4	28	3'-5"	Bent	
P501	5	10	3'-8"	Bent	
P701	7	64	14'-10"	Bent	
P702	7	30	3'-0"	Bent	
P801	8	10	33'-0"	Bent	



AS ADVERTISED

PILE TIP ELEVATIONS	369.4	373.9	380.8	376.6	376.6	PIER #2
	373.9	374.2	374.7	368.2	379.7	PIER #3
			ELEVATION			

REINFORCING TOP OF CONCRETE BRGS.	A	B	C	D
426.84	426.84	426.71	424.45	
427.60	427.60	427.60	424.82	

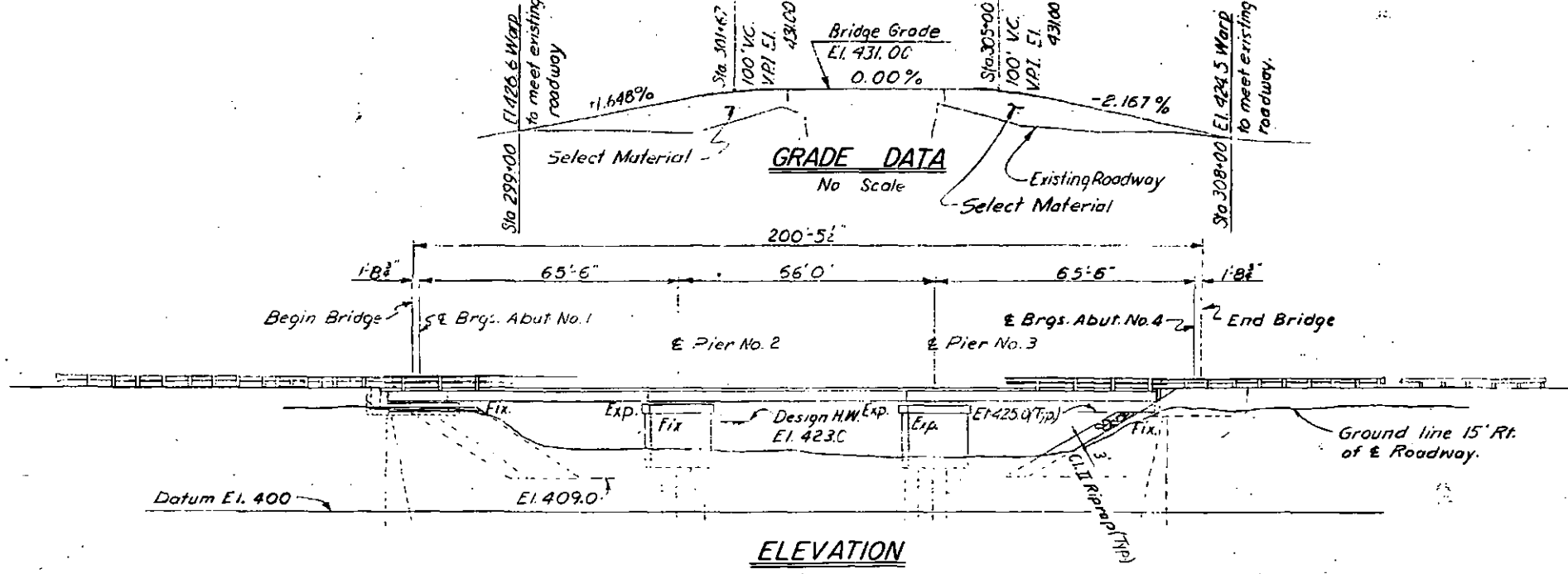
Designed By: DEM Date: 3-70
 Checked By: JAC Date: 3-70
 Drawn By: JAC Date: 3-70
 Checked By: JAC Date: 3-70
 Traced By: JAC Date: 3-70

WEST FORK TOLOVANA RIVER BRIDGE
 Route No. S-680
 PIERS

State of Alaska
DEPARTMENT OF HIGHWAYS
 Juneau, Alaska

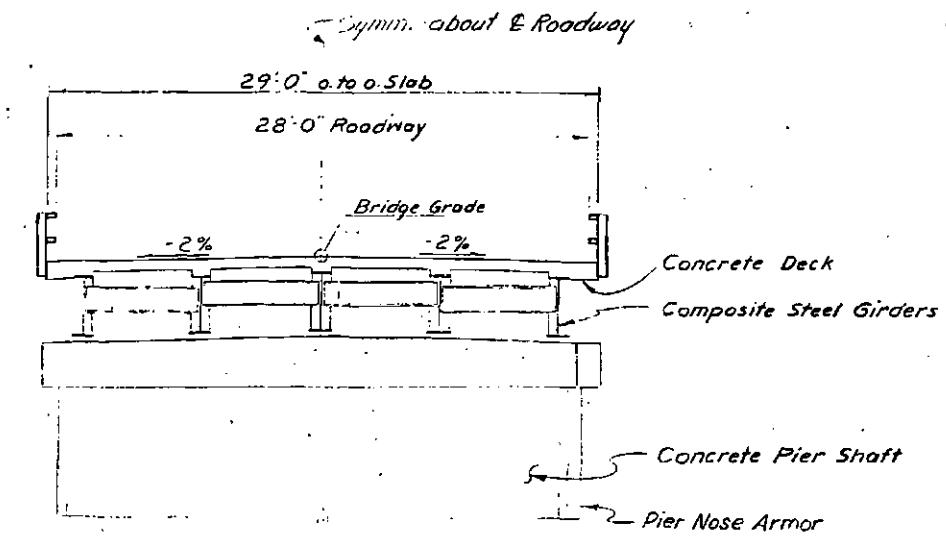
Date: 6/16/70
 Approved: [Signature]
 BRIDGE NO. 325
 DWNG. NO. 2289

STATE	PROJECT DESIGNATION	YEAR	MONTH	TOTAL SHEETS
ALASKA	S-0680 (16)	1970	11	26

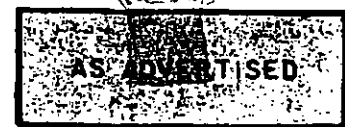


PILE TIP ELEVATIONS		
Location	Desirable	Estimated
Abutments	390	390
Piers	390	390

SEE Pages 13 & 14 For Actual Elev.



TYPICAL SECTION



GENERAL NOTES

Specifications:
 Design: AASHTO Standard Specifications for Highway Bridges, 1969 Edition, with latest interim specifications.
 Construction: State of Alaska Standard Specifications for Highway Construction, July, 1965, and the Special Provisions.

Live Load: HS20-44

Unit Stresses:
 Reinforced Concrete: $F_c = 1,200$ psi, $F_s = 20,000$ psi, $n=10$
 Structural Steel: Bending stress in extreme fiber.
 Type of Steel Allowable Stress
 A-36 20,000 psi
 A-572 Grade 50 27,000 psi

Concrete: All concrete shall be Class "A."

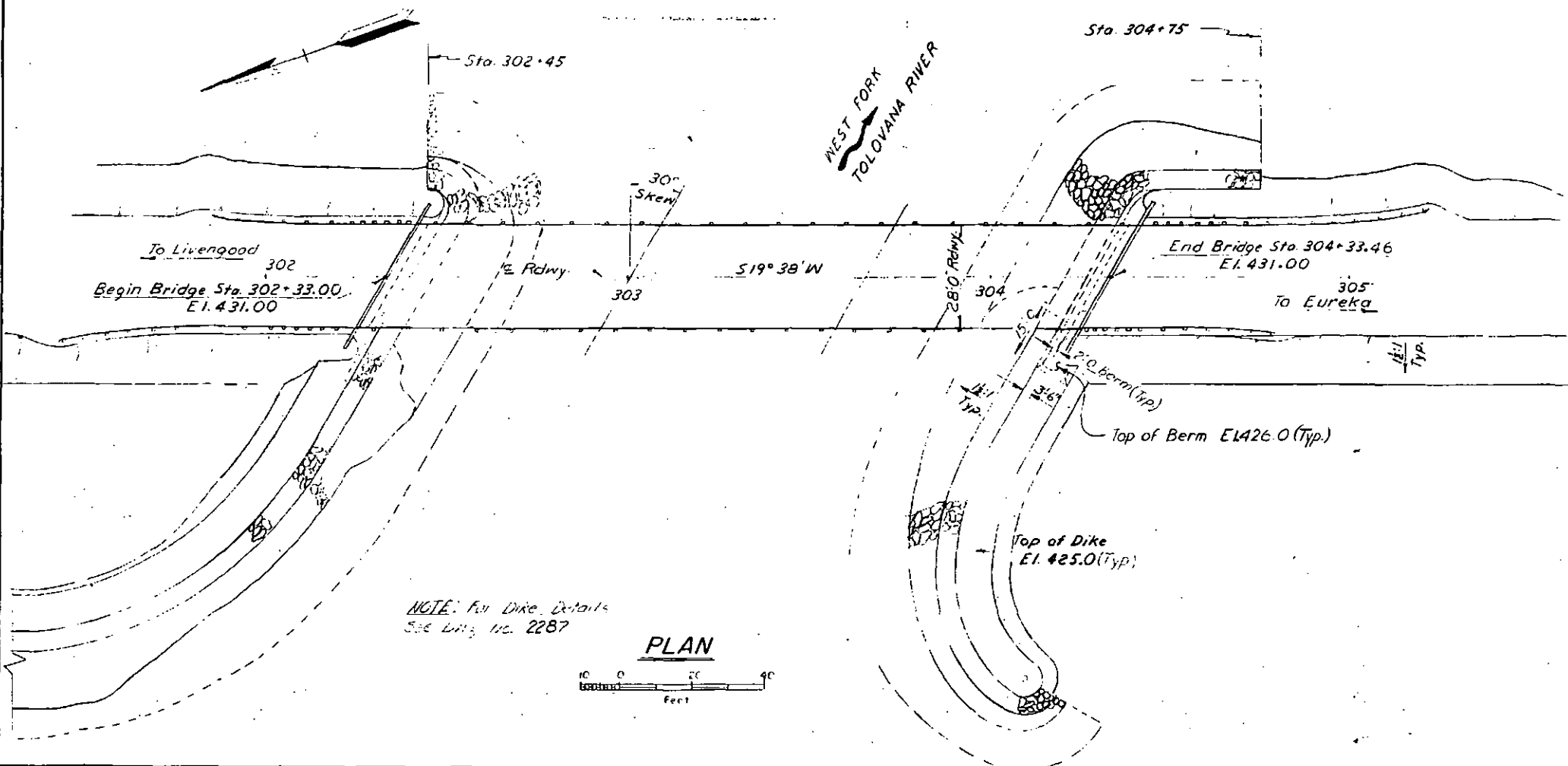
Reinforcing Steel: All reinforcing steel shall be intermediate grade.

Structural Steel: All structural steel shall be A-36 unless otherwise shown on the plans or noted in the specifications. All A-572 steel shall be Grade 50. Field connections shall be made with 7/8" diameter high strength bolts conforming to ASTM A-325, except as otherwise shown.

Piles: Type: 10 BP57
 Design Load: Abutments: 35 Tons
 Piers: 45 Tons

DRAWING INDEX	
TITLE	DWG. NO
General Layout	2286
Site Plan	2287
Abutments	2288
Piers	2289
Slab	2290
Girders	2291
Bridge Railing	2292
Log of Test Borings	2293

The following standard drawings apply to this bridge:
 M-1
 R-5
 R-6



NOTE: For Dike Details See DWG. No. 2287

PLAN

Designed By: M. J. ...
 Checked By: ...
 Drawn By: ...
 Traced By: ...

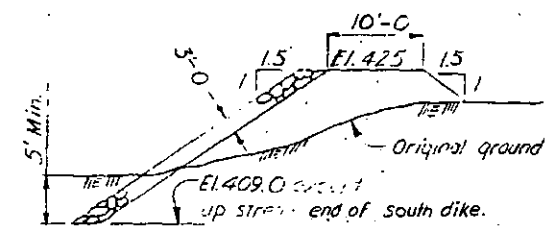
WEST FORK TOLOVANA RIVER BRIDGE
 Route No. S-680
GENERAL LAYOUT

State of Alaska
DEPARTMENT OF HIGHWAYS
 Juneau, Alaska

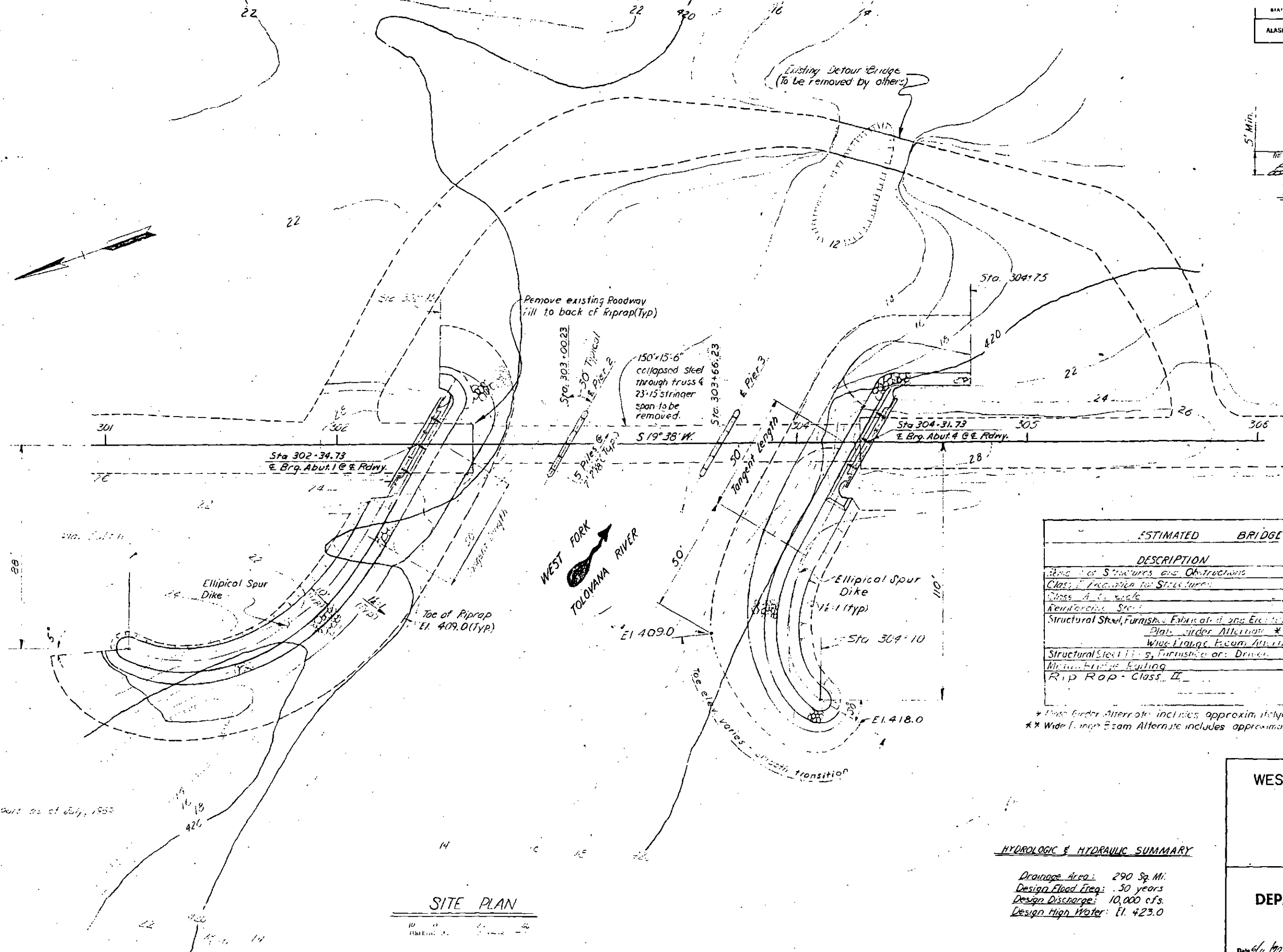
Date: 11/1/70
 Approved: [Signature]

BRIDGE NO. 325
 DWNG. NO. 2286

STATE	PROJECT DESIGNATION	YEAR	NO.	SHEET
ALASKA	S-0680 (16)	1970	12	26



TYPICAL DIKE SECTION
No Scale



ESTIMATED BRIDGE QUANTITIES		
DESCRIPTION	UNIT	QUANTITY
		SUBSTR. SUPERS. TOTAL
Removal of Structures and Obstructions	L.S.	- - All
Class II Foundation for Structures	C.Y.	80 - 80
Class A Riprap	C.Y.	54.0 129.3 223.3
Reinforcing Steel	Lb.	11,920 37,480 49,400
Structural Steel, Fabrication and Erection		
Plate girder Alternate *	Lb.	760 111,430 112,190
Wide Flange Beam Alternate **	Lb.	760 133,430 134,190
Structural Steel I-beams, Furnished or Driven	L.F.	605 - 605
Minimum Bridge Footing	L.F.	- 399 399
Riprap - Class II	CY	1600 - 1600

* Plate Girder Alternate includes approximately 82,010 lbs A-36 and 30,180 lbs A-572
 ** Wide Flange Beam Alternate includes approximately 17810 lbs A-36 and 16380 lbs A-572

WEST FORK TOLOVANA
ROUTE NO. S-680
SITE PLAN

HYDROLOGIC & HYDRAULIC SUMMARY

Drainage Area: 290 Sq. Mi.
 Design Flood Freq: 50 years
 Design Discharge: 10,000 cfs.
 Design High Water: El. 423.0

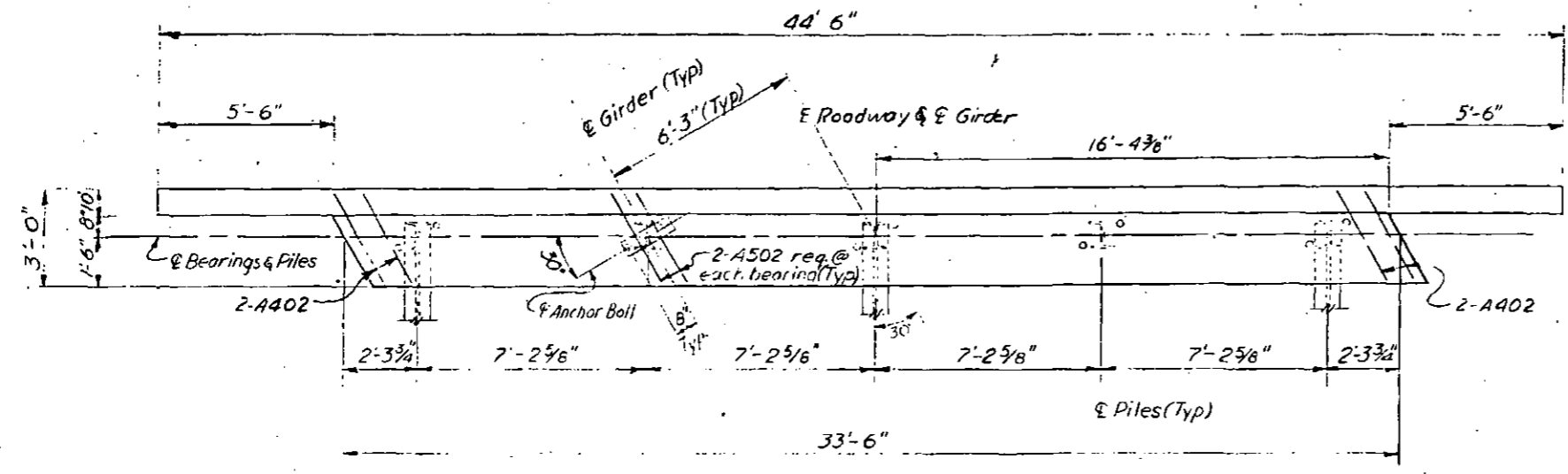
State of Alaska
 DEPARTMENT OF HIGHWAYS
 Juneau, Alaska

Date: 6/16/70
 Approved: [Signature]
 BRIDGE NO. 325
 DWG. NO. 2287

Designed by: [Signature]
 Checked by: [Signature]
 Drawn by: [Signature]
 Traced by: [Signature]

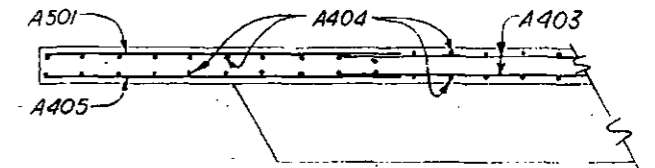
Indicates 1:4 batter on piling

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	S-0680 (16)	1970	13	26



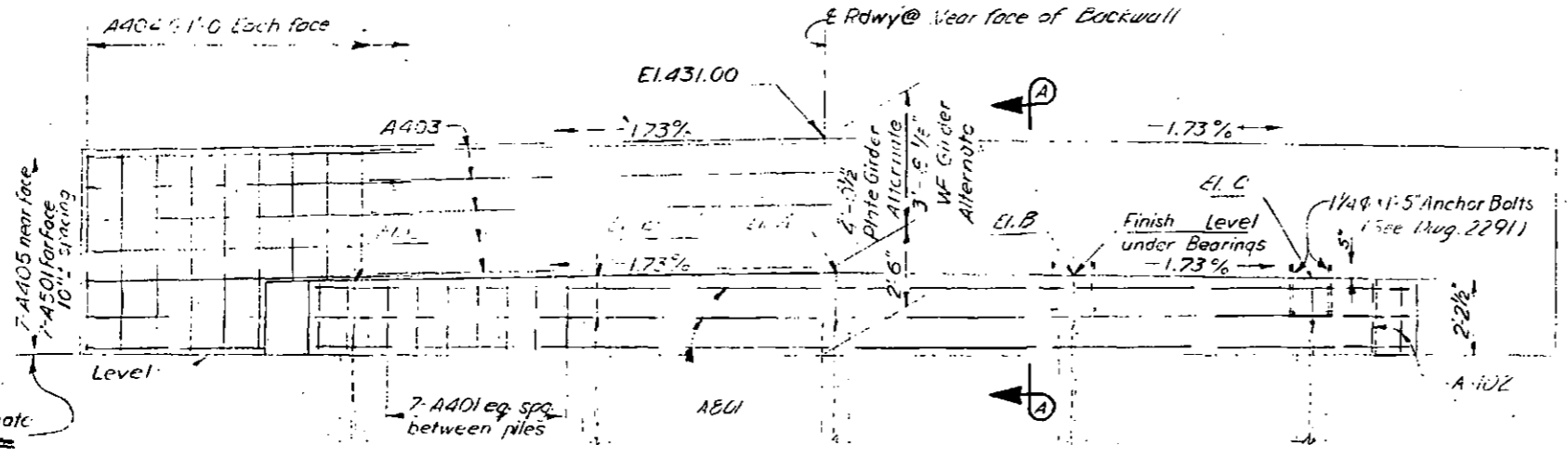
PLAN

REINFORCING STEEL ~ ONE ABUTMENT					BENDING DIAGRAMS	
MARK	SIZE	NO.	LENGTH	TYPE		
A401	4	28	10'-0"	Bent		
A402	4	4	10'-5"	Bent		
A403	4	10	28'-0"			
A404	4	90	5'-6"			
A405	4	14	10'-0"			
A501	5	14	10'-0"			
A502	5	10	4'-1"	Bent		
A801	8	10	33'-0"			

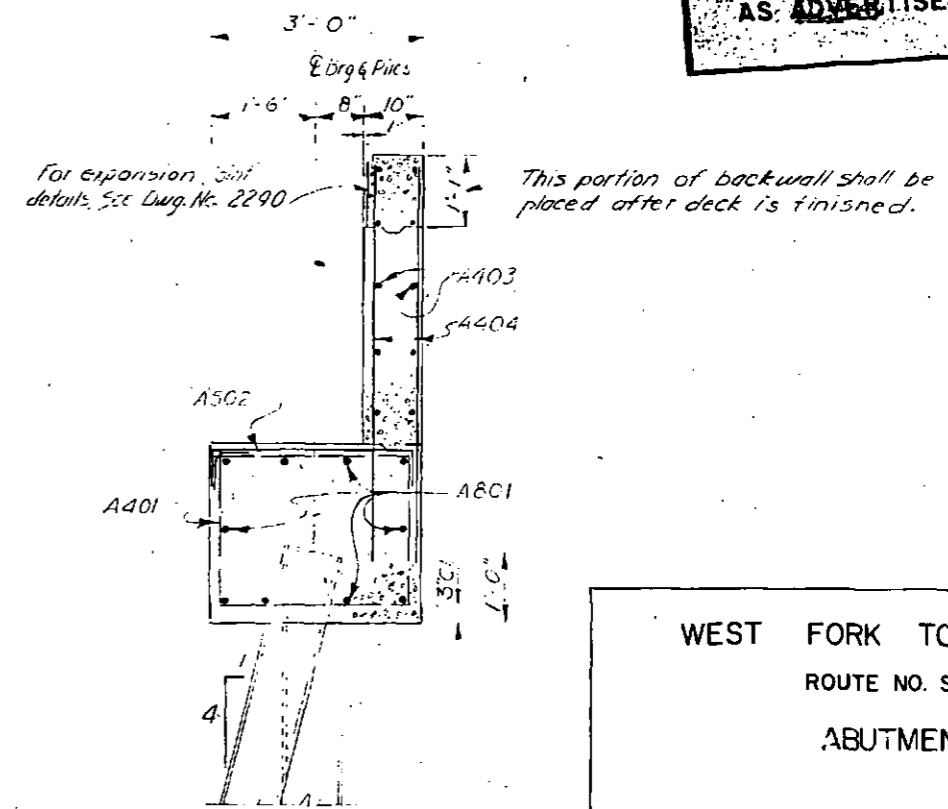


TYPICAL SECTION OF BACKWALL & WINGWALL
No Scale

AS ADVERTISED



ELEVATION



SECTION "A-A"

PILE TIP ELEVATIONS	ABUT. #1	388.5	376.7	376.3	377.4	376.5
	ABUT. #4	380.4	382.4	388.5	390.3	390.8

ELEVATION TOP OF CONCRETE @ BRGS.			
	A	B	C
R. Gdr. Alt	426.96	426.84	426.71
WF Girder Alt	427.28	427.20	427.07

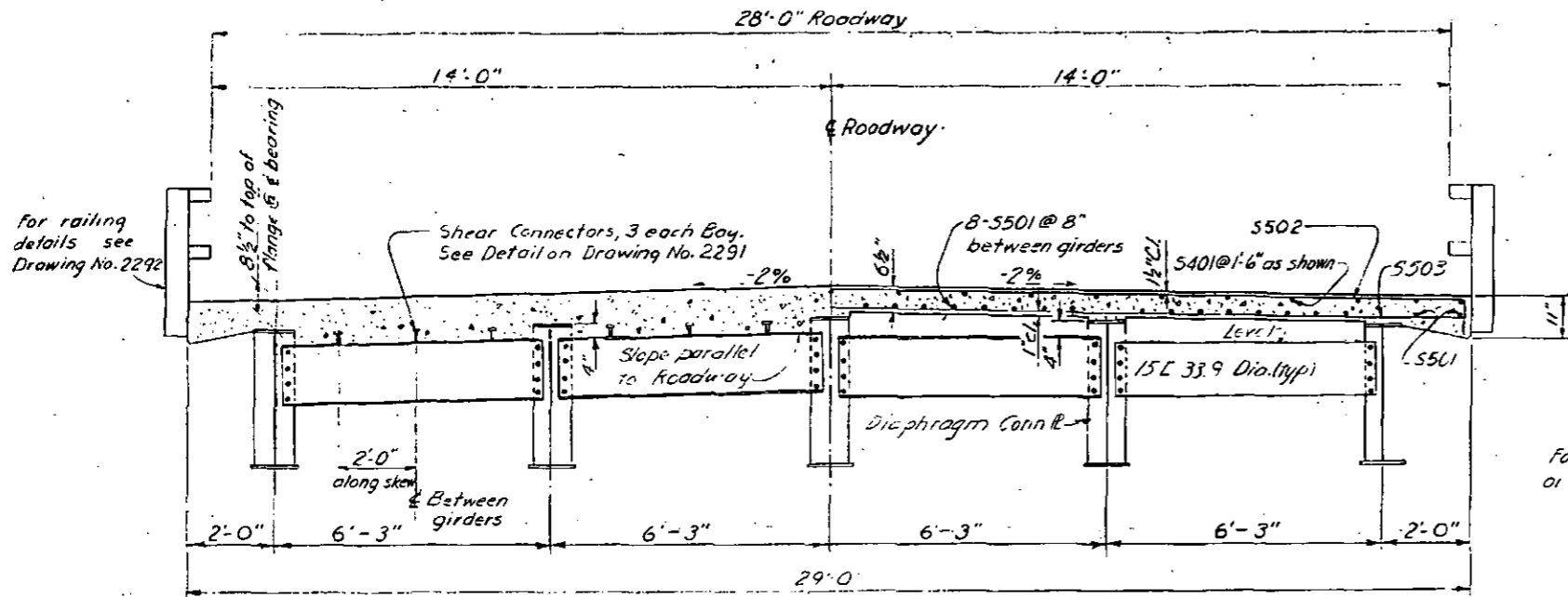
Designed By: J.C.
Checked By: J.C.
Drawn By: J.C.
Checked By: J.C.
Traced By: J.C.

WEST FORK TOLOVANA
ROUTE NO. S-680
ABUTMENTS

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date: 4/14/70
Approved: [Signature]

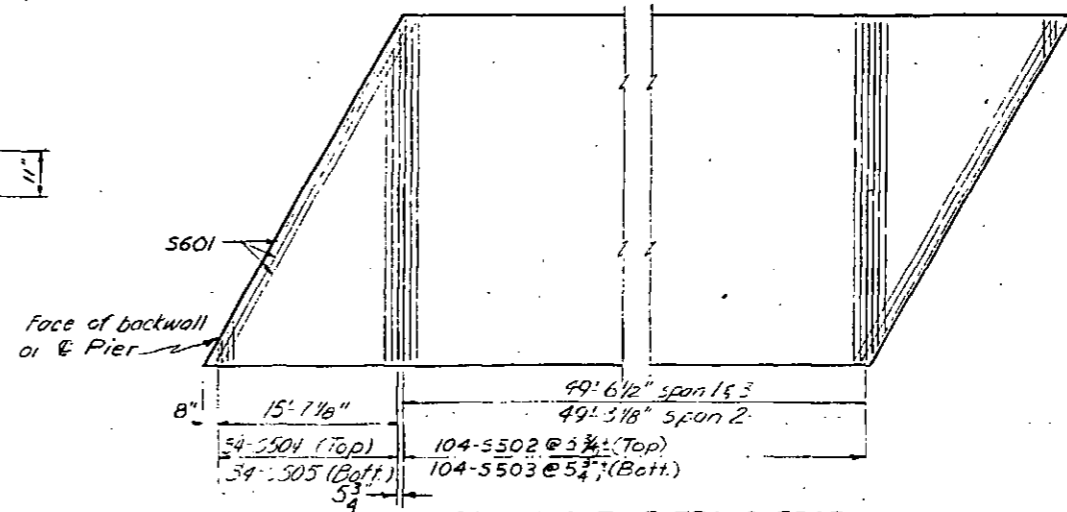
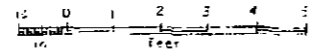
BRIDGE NO. 325
DWG. NO. 2288



NEAR SUPPORT

TYPICAL SECTION

NEAR THIRDPOINT



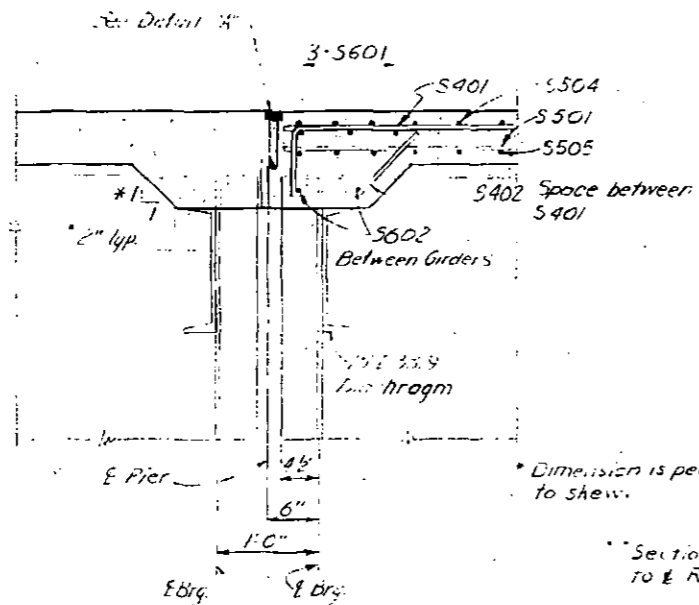
TYPICAL LAYOUT OF TRANSVERSE REINFORCING STEEL IN SLAB

(No Scale)

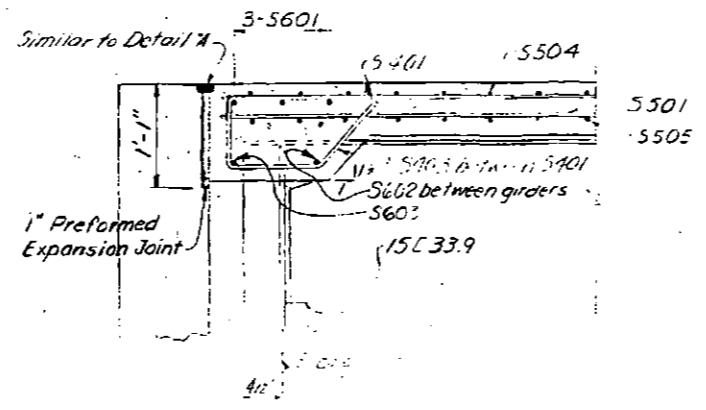
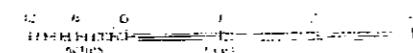
AS ADVERTISED

SLAB REINFORCING STEEL					BENDING DIAGRAMS	
Mark	SIZE	NO	LENGTH	TYPE		
(1) S401	1	63	67'-0"	---	10" 27'-3"	3'-0"
S402	1	64	5'-4"	Bent	Cut	9"
S403	4	32	5'-7"	Bent		10 1/2"
(1) S501	5	108	67'-3"	---	27'-10" 10"	3'-0"
S502	5	312	30'-0"	Bent	26'-8"	1'-0"
S503	5	312	28'-8"	---	S505	S402
S504	5	102	30'-0"	Bent		
S505	5	102	28'-8"	---	10" 27'-10"	3'-0"
					Cut	10 1/2"
S601	1	18	33'-1"	---	27'-10" 10"	1'-0"
S602	1	40	6'-11"	---	26'-8"	S403
S603	6	2	28'-9"	---	S504	
					28'-8"	
					S502	

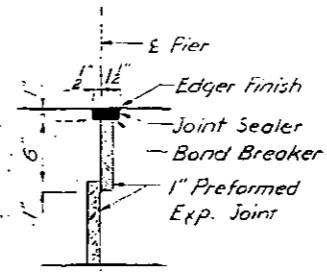
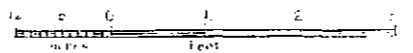
Note: (1) includes allowance for one splice.



LONGITUDINAL SECTION OVER PIER



LONGITUDINAL SECTION AT ABUTMENT



DETAIL "A"

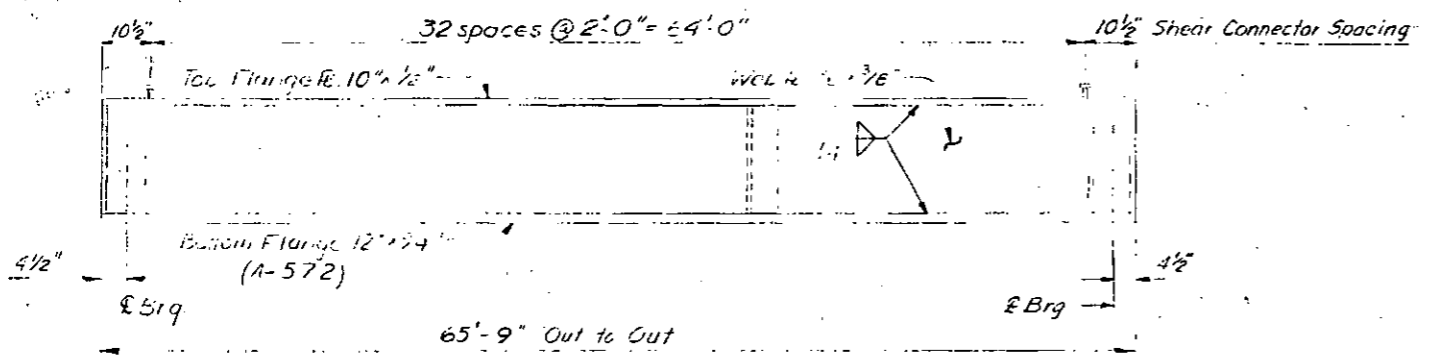
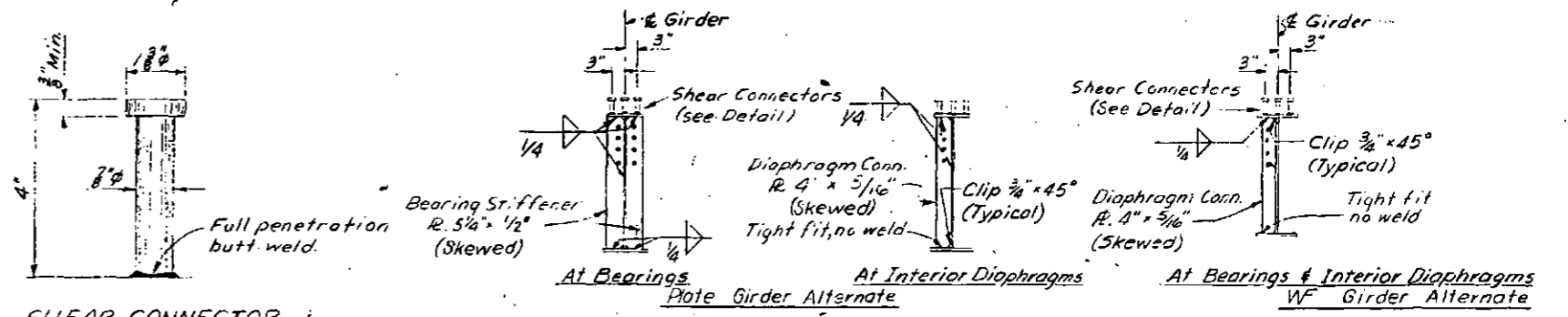
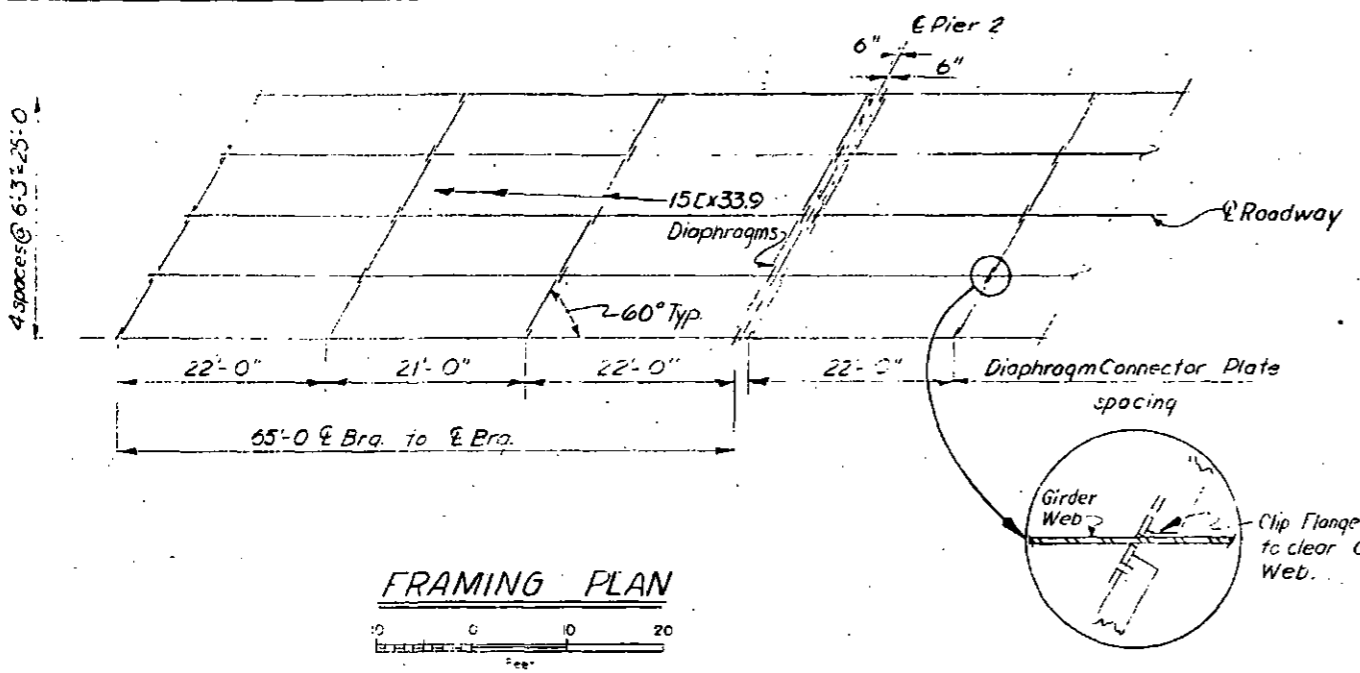
(No Scale)

WEST FORK TOLOVANA
ROUTE NO. S-680
SLAB

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

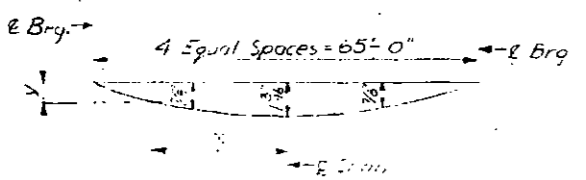
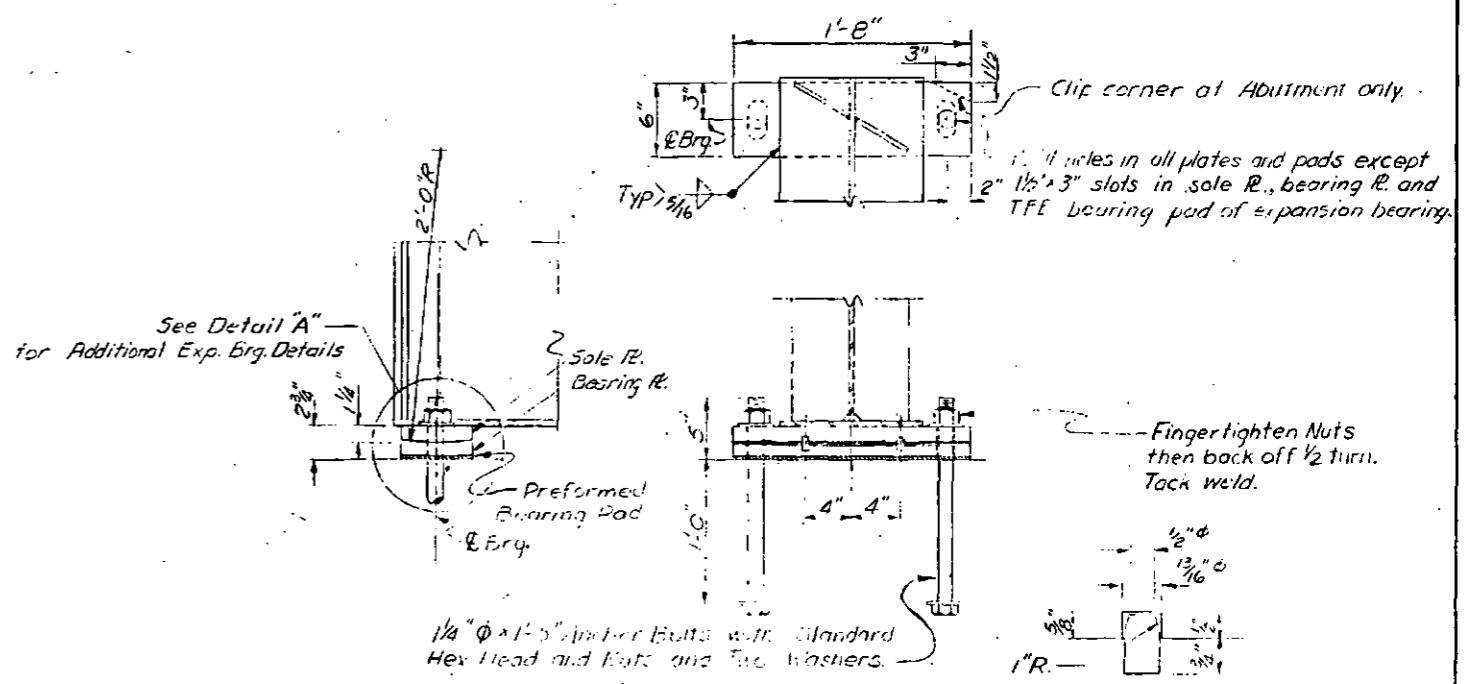
Date 4/14/70
Approved [Signature]
BRIDGE NO. 325
DWNG. NO. 2290

Designed By: [Signature]
Checked By: [Signature]
Drawn By: [Signature]
Traced By: [Signature]



* Plate Girder Alternate shown. WF alternate similar. All steel is A36 unless otherwise noted. Wide Flange Alternate - 33WF113, A572 steel.

NOTE: Exterior girder shown. Interior girders shall have diaphragm connector plate on both sides.

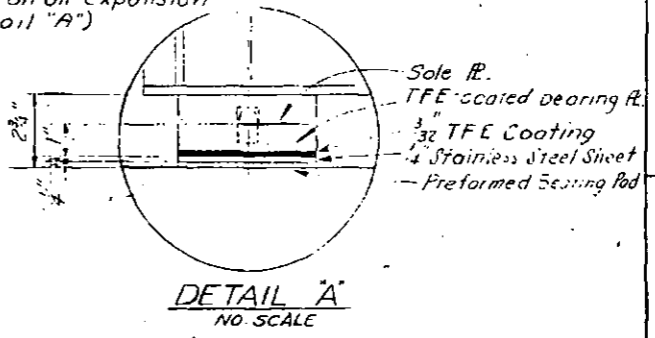


Deck screws shall be set above theoretical grade to compensate for deflections shown.

For points other than those shown:
 $y = 1.18 - 0.012x^2$, where x is in feet, y is in inches.

Show camber for total dead load deflection shall be 1/2" at E span (parabolic).

Note: 1 1/4" thick bearing pl. with 1/2" preformed bearing pad on all fixed bearings. 1" thick TFE coated bearing pl. with one 1/4" stainless steel sheet and 4" preformed bearing pad on all expansion bearings. (See Detail "A")



AS ADVERTISED

WEST FORK TOLOVANA RIVER BRIDGE
Route No. S-680
GIRDERS

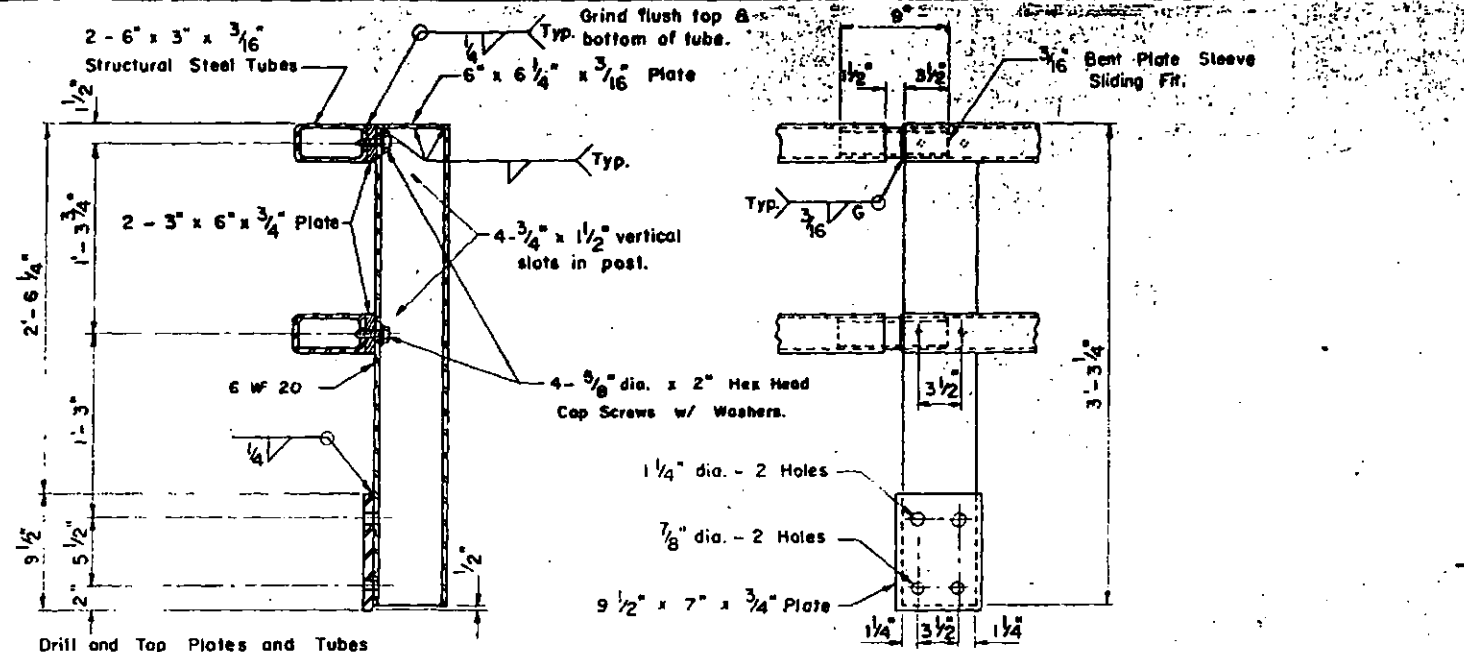
State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date: 4/16/70
Approved: [Signature]

BRIDGE NO. 325
DWNG. NO. 2291

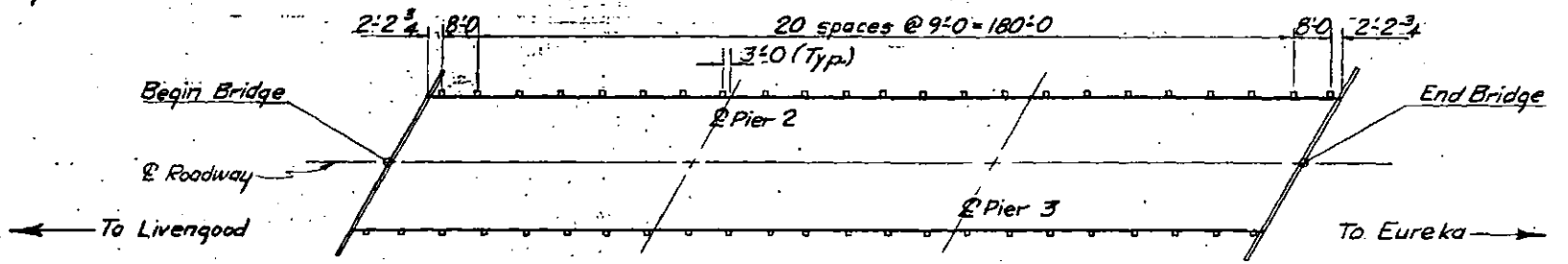
Designed By: [Signature]
Checked By: [Signature]
Drawn By: [Signature]
Traced By: [Signature]

STATE	PROJECT IDENTIFICATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	S-0680 (16)	1970	17	26

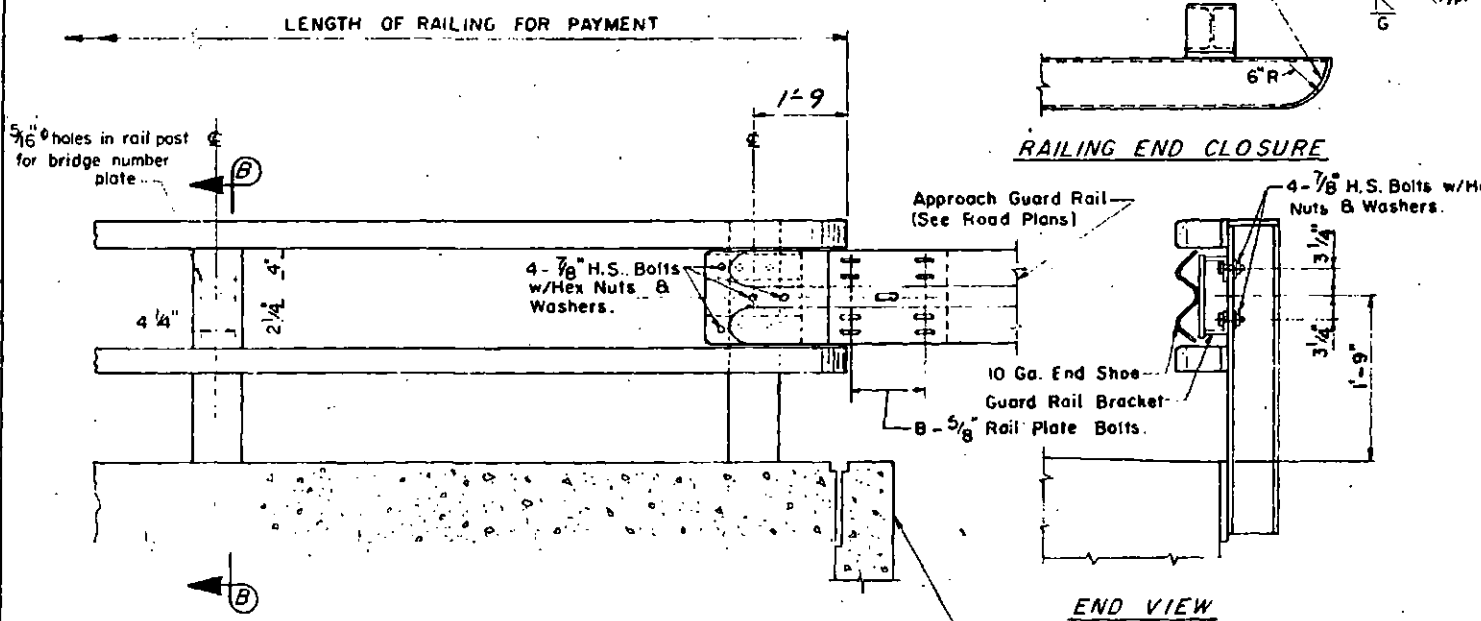


SECTION B-B EXPANSION JOINT

STEEL RAIL AND POST



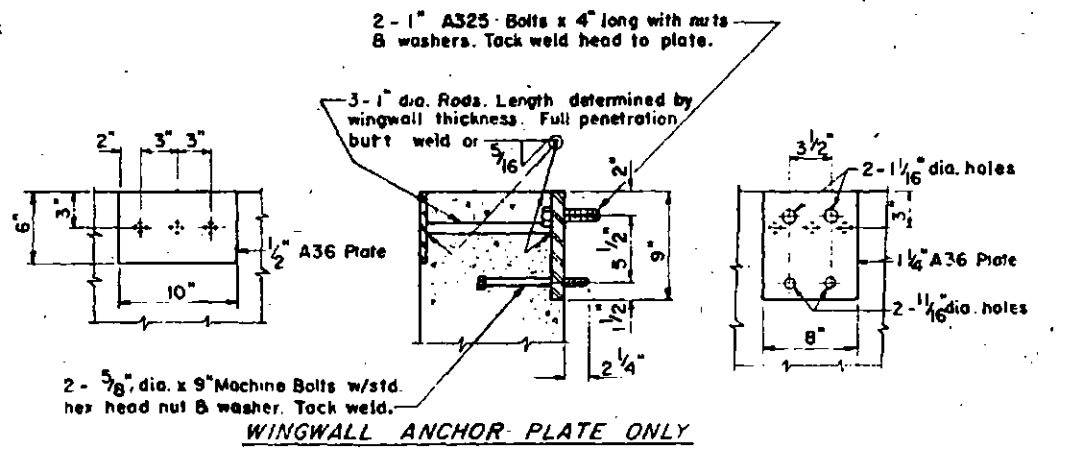
RAILING LAYOUT



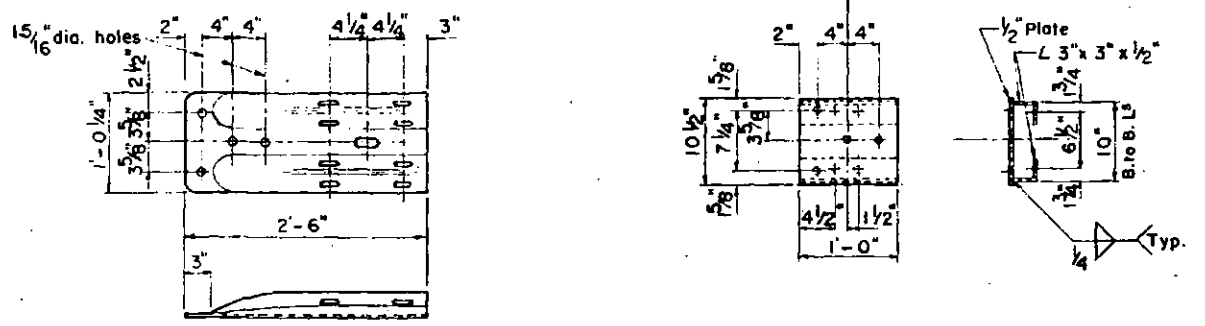
RAILING END CLOSURE

ELEVATION

END VIEW

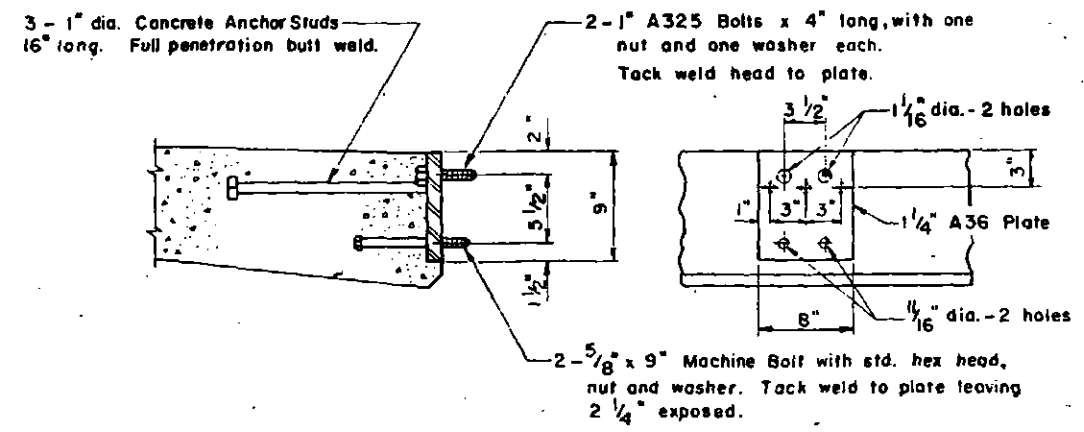


WINGWALL ANCHOR PLATE ONLY



END POST APPROACH GUARD RAIL BRACKET

END SHOE



ANCHOR PLATE DETAILS

NOTES

- (1) All railing, posts, anchor assemblies and other steel components shall be galvanized after fabrication. Galvanized steel shims shall be furnished by the contractor as required.
- (2) Locate bridge number plate on right side of roadway at each end of bridge as shown.
- (3) Bridge number plate to be furnished by the state.
- (4) All Machine bolts and cap screws shall have locking nuts or lock washers.
- (5) Railing expansion joints must be provided in panels over the deck expansion joints and at 30'-0" maximum intervals throughout the bridge.
- (6) Guard rail shall be mounted on type II post in the upper hole with an overall height equal to type I mounting. (See Standard Drawing M-1)

WEST FORK TOLOVANA RIVER BRIDGE
Route No. S-680
BRIDGE RAILING

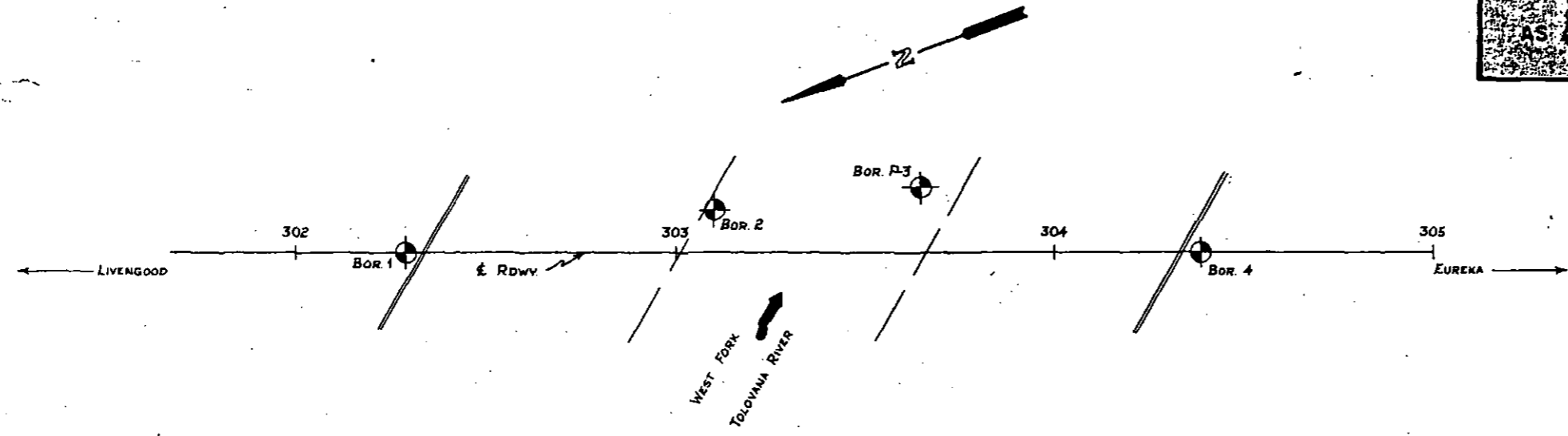
No Scale

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date 4/16/70
Approved [Signature]
BRIDGE NO. 325
DWG. NO. 2292

Designed By: [Signature]
Checked By: [Signature]
Drawn By: [Signature]
Checked By: [Signature]
Traced By: [Signature]

AS ADVERTISED



MATERIAL SYMBOLS

	Organics, Organic Silt		Clayey Silt
	Cobbles and Boulders		Sandy Silt
	Sandy Gravel		Gravelly Silt
	Gravelly Sand		Silty Clay
	Gravel		Silty Sand
	Sand		Silty Gravel
	Clay		
	Silt		

BORING SYMBOLS

	Plan of any boring		Rotary Boring
	Flush penetrometer		Auger boring
	Bull nose penetrometer		Diamond core boring
	Test pit		Probe

ROTARY BORING

Boring No. Location Date

Elev. 479'

depth

Graphic description of material

Frozen

Ground water surface

Consolidation test

Direct shear test

Triaxial compression test

Vane shear test

R-Split spoon sampler, 2.5" O.D. x 2.0" I.D.

ST-Shelby tube sampler, pushed.

Blow count/ft. using standard sampler

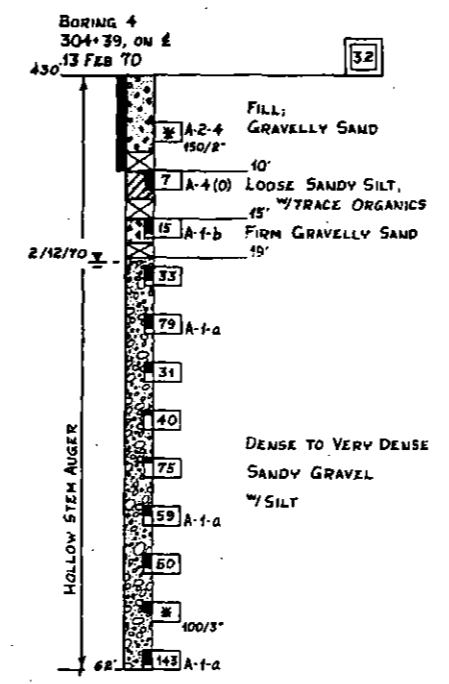
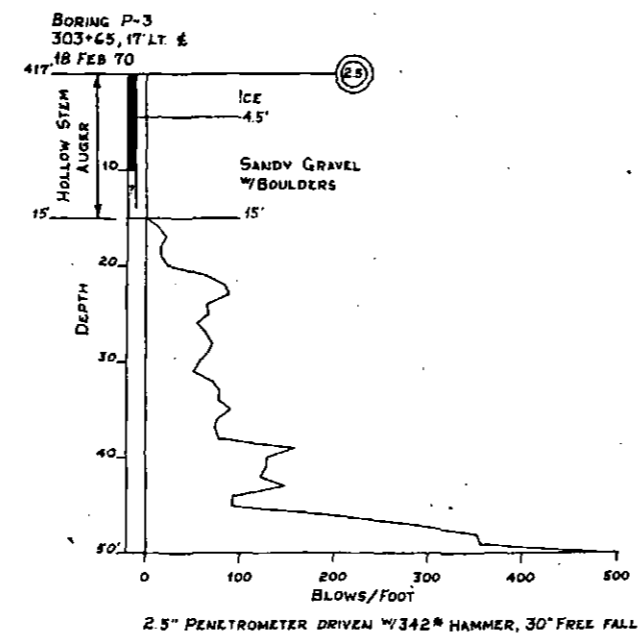
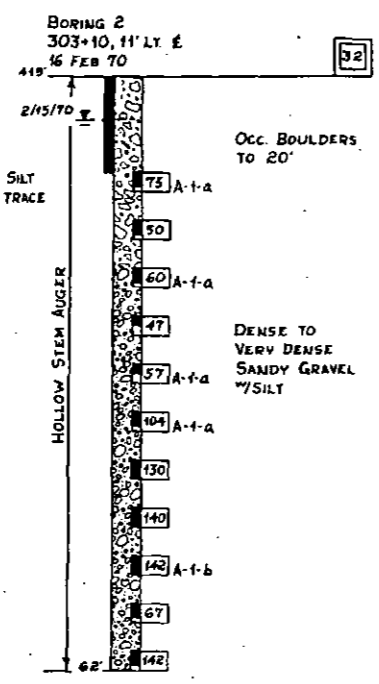
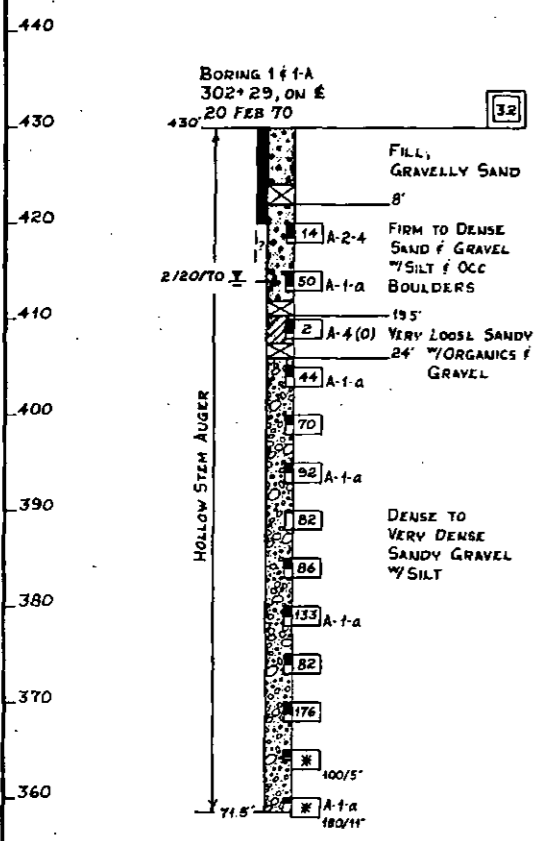
2.0" O.D. x 1.4" I.D., 140# hammer, 30" freefall.

Gradational material change

Strata change

Interval sampled 7" interval recovered blackened in

Unconfined compression test



PENETROMETER TEST

Number Location Date

Elev. 479'

depth

Graphic representation of driving rate

Blows/Foot Penetrometer

Hammer, 30" drop

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

According to Standard Penetration Test

GRANULAR		COHESIVE	
Blows/ft.	Rel. Density	Blows/ft.	Consistency
0 - 4	very loose	0 - 1	very soft
5 - 10	loose	2 - 4	soft
11 - 20	firm	5 - 8	firm
21 - 30	very firm	9 - 15	stiff
31 - 50	dense	15 - 30	very stiff
Over 50	very dense	Over 30	hard

LOG OF TEST BORINGS

West Fork Tolovanna River

State of Alaska

DEPARTMENT OF HIGHWAYS

Juneau, Alaska

Date 3/3/70

Approved *[Signature]*

Bridge no. 325

Drawing no. 2293

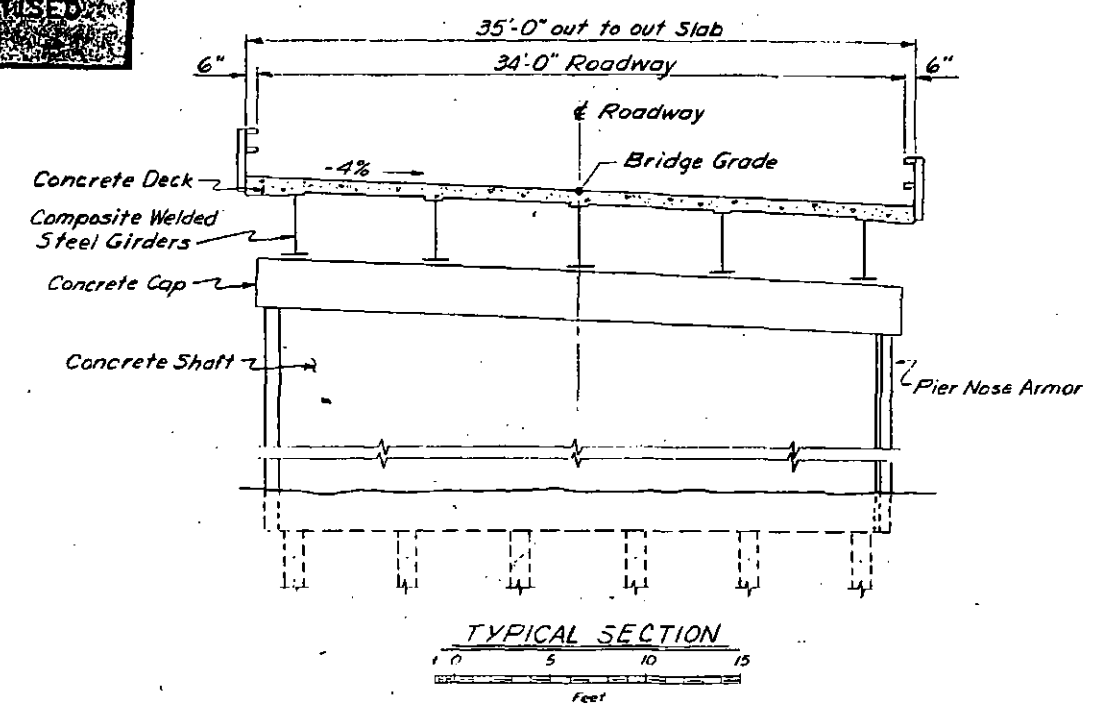
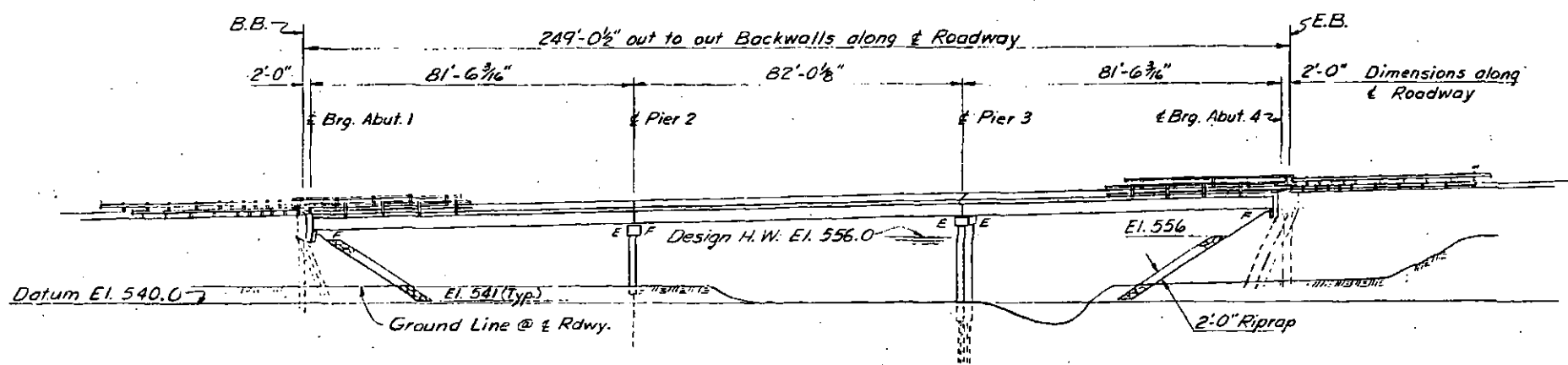
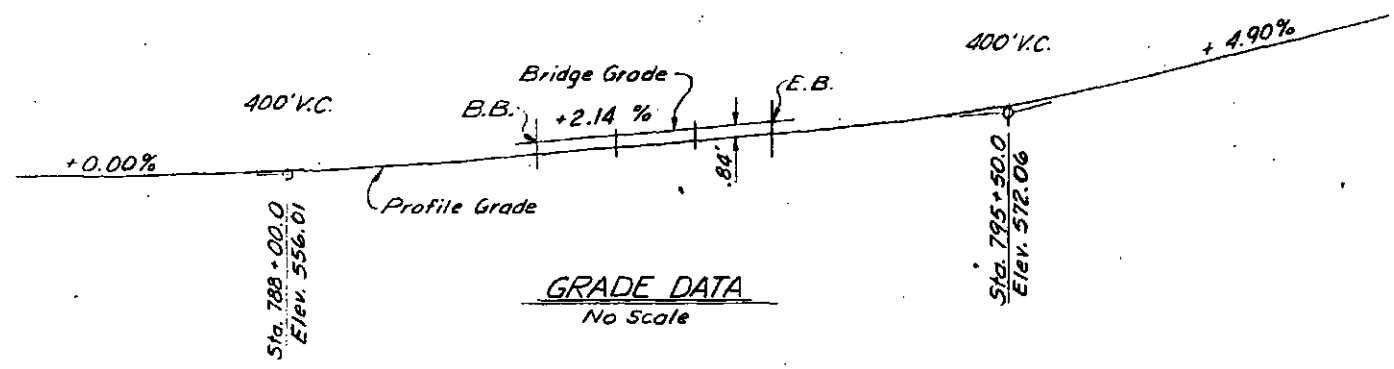
Designed By: _____

Checked By: _____

Drawn By: _____

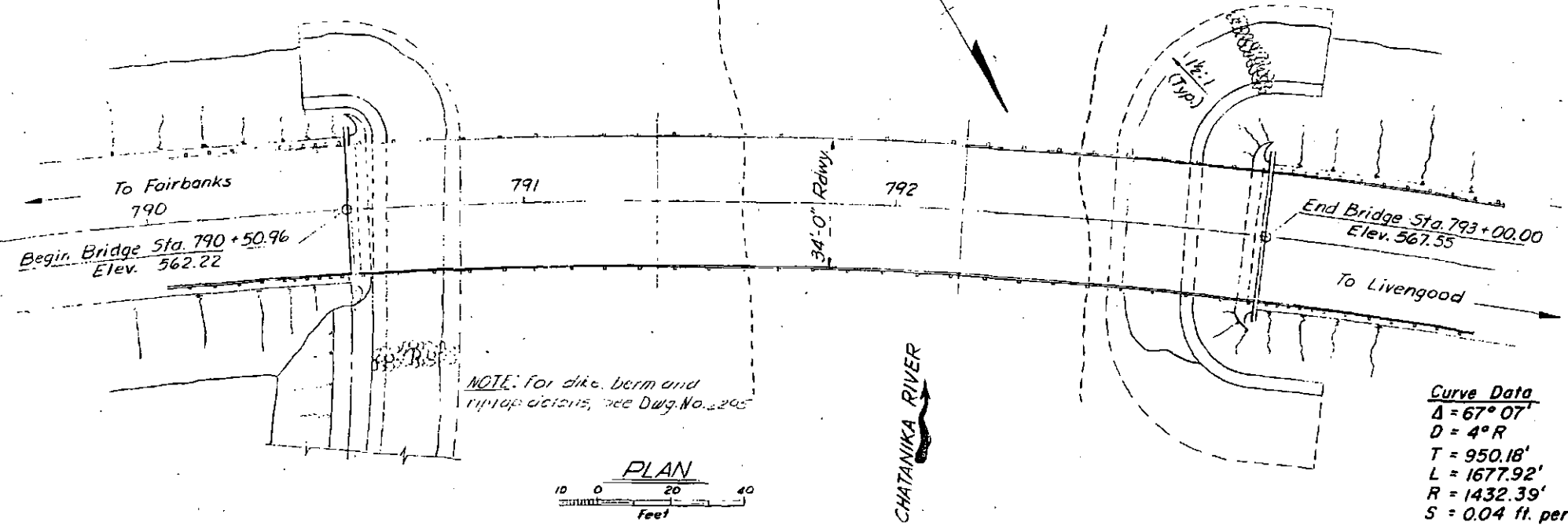
Checked By: _____

Force By: _____



Location	Pile Tip Elevations		ACTUAL TIP ELEVATIONS					
	Desirable	Estimated	Lt. &	ELEVATION				Rt. &
Abut. 1	520	503	500.4	501.1	502.0	500.8	502.3	
Pier 2	520	515	502.0	511.6	503.2	504.6	503.2	504.5
Pier 3	520	515	496.3	495.1	496.6	496.2	503.8	497.0
Abut. 4	520	518	515.0	514.9	516.1	515.3	508.9	

Piles shall be driven to practical refusal.



Curve Data
Δ = 67° 07'
D = 4° R
T = 950.18'
L = 1677.92'
R = 1432.39'
S = 0.04 ft. per ft.

GENERAL NOTES

Specifications:
Design: AASHTO Standard Specifications for Highway Bridges, 1969 Edition, with latest interim specifications.
Construction: State of Alaska Standard Specifications for Highway Construction, July, 1965, and the Special Provisions.

Live Load: HS20-44

Unit Stresses:
Reinforced Concrete: Fc = 1,200 psi, Fs = 20,000 psi, n = 10
Structural Steel: Bending stress in extreme fiber.

Type of Steel	Allowable Stress
A-36	20,000 psi
A-572 Grade 50	27,000 psi

Concrete: All concrete shall be Class "A."
Reinforcing Steel: All reinforcing steel shall be intermediate grade.
Structural Steel: All structural steel shall be A-36 unless otherwise shown on the plans or noted in the specifications. All A-572 steel shall be Grade 50. Field connections shall be made with 7/8" d high strength bolts conforming to ASTM A-325, except as otherwise shown.

Piles: Type: 10 BP57
Design Load: Abutments: 45 Tons
Piers: 60 Tons

DRAWING INDEX

TITLE	DWG. NO.
General Layout	2294
Site Plan	2295
Abutments	2296
Piers	2297
Slab	2298
Girders	2299
Bridge Railing	2300
Log of Test Borings	2301

The following standard drawings apply to this bridge:
M-1
R-5
R-6

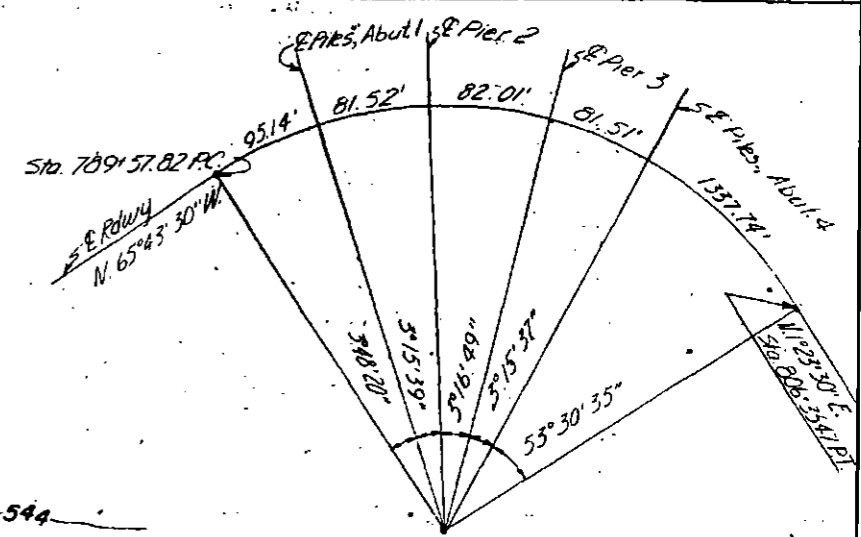
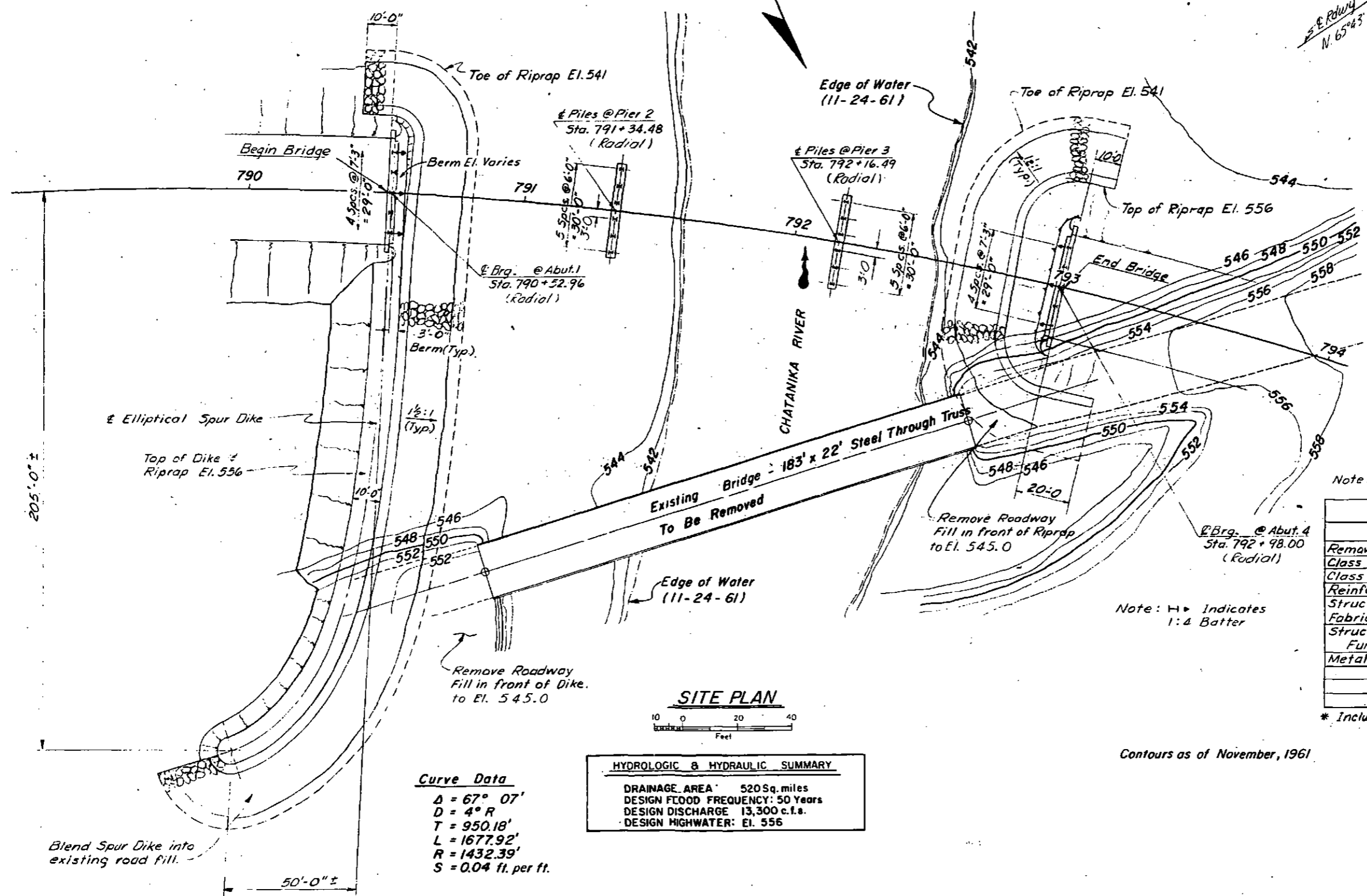
CHATANIKA RIVER BRIDGE
Route No. S-680
GENERAL LAYOUT

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

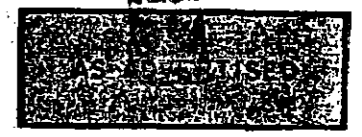
Date: 1/1/70
Approved: [Signature]

BRIDGE NO. 836
DWG. NO. 2294

Designed by: DN
Checked by: [Signature]
Drawn by: [Signature]
Checked by: [Signature]
Traced by: [Signature]



LAYOUT DIAGRAM
NO. SCALE

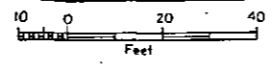


Note: See Road Plans for Riprap quantities

ESTIMATE OF QUANTITIES			
Item	Unit	Substr.	Super Total
Removal of Structures and Obstructions	L.S.		All Req'd
Class I Excavation for Structures	C.Y.	50	50
Class A Concrete	C.Y.	125.2	205.6
Reinforcing Steel	Lb.	20,300	56,600
Structural Steel - Furnished, Fabricated & Erected	Lb.	1060	192,480
Structural Steel Piles - Furnished & Driven	L.F.	861	861
Metal Bridge Railing	L.F.		497

* Includes Approx. 122,730 Lbs. A36 and 70,810 Lbs. A572

SITE PLAN



HYDROLOGIC & HYDRAULIC SUMMARY	
DRAINAGE AREA	520 Sq. miles
DESIGN FLOOD FREQUENCY	50 Years
DESIGN DISCHARGE	13,300 c.f.s.
DESIGN HIGHWATER	El. 556

Curve Data

Δ	$67^{\circ} 07'$
D	$4^{\circ} R$
T	$950.18'$
L	$1677.92'$
R	$1432.39'$
S	0.04 ft. per ft.

Contours as of November, 1961

Blend Spur Dike into existing road fill.

Designed By: _____ Date: _____
 Checked By: _____ Date: _____
 Drawn By: _____ Date: _____
 Traced By: _____ Date: _____

CHATANIKA RIVER BRIDGE

Route No. S-680

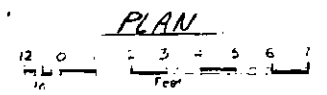
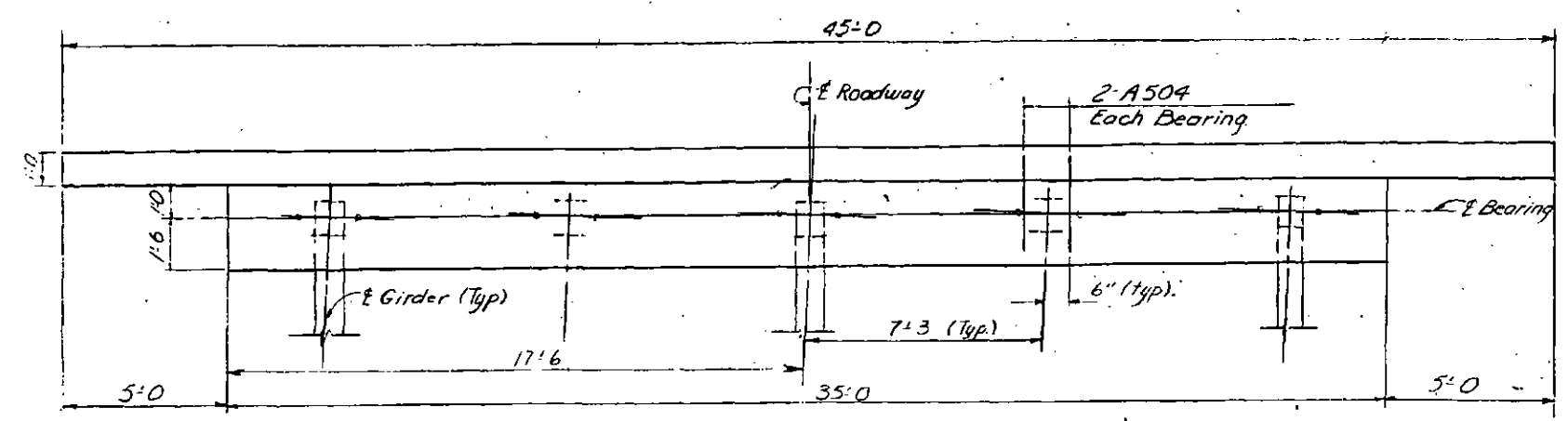
SITE PLAN

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date: 4/1/71
Approved: _____

BRIDGE NO. 836
DWG. NO. 2295

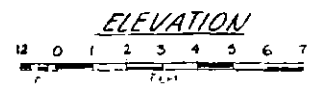
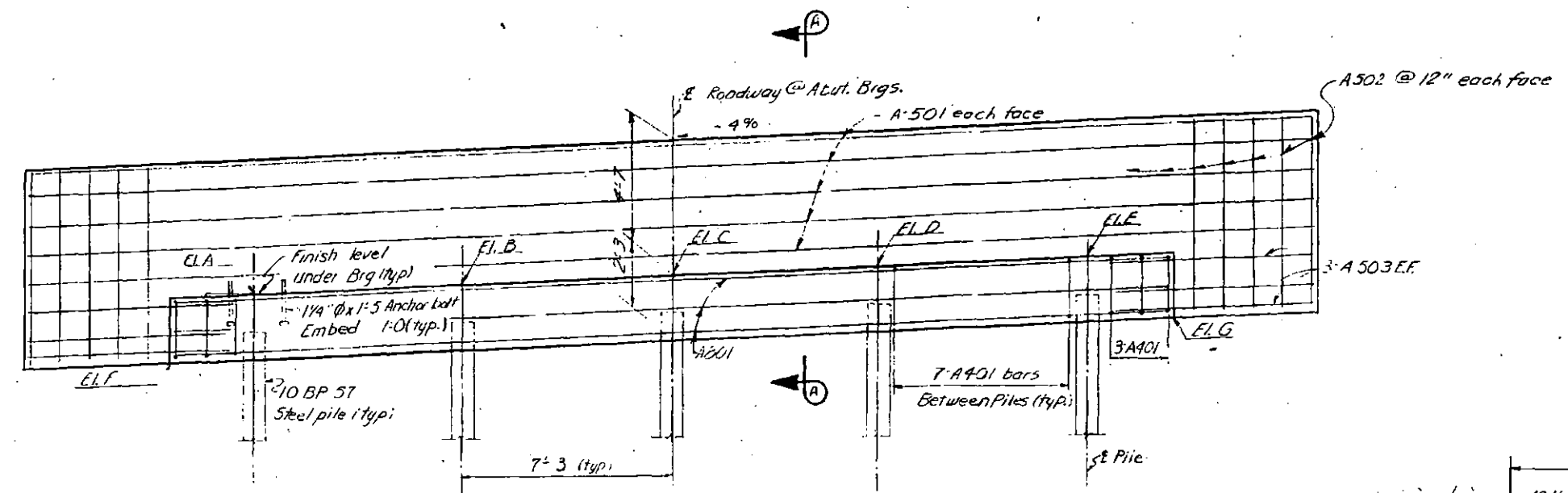
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	S-0680 (18)	1970	21	26



Abutment No. 1 shown. Girders and Anchor Bolts for Abutment No. 4 are opposite hand.

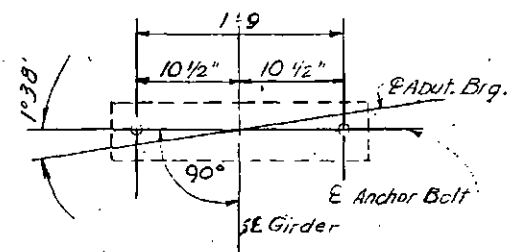
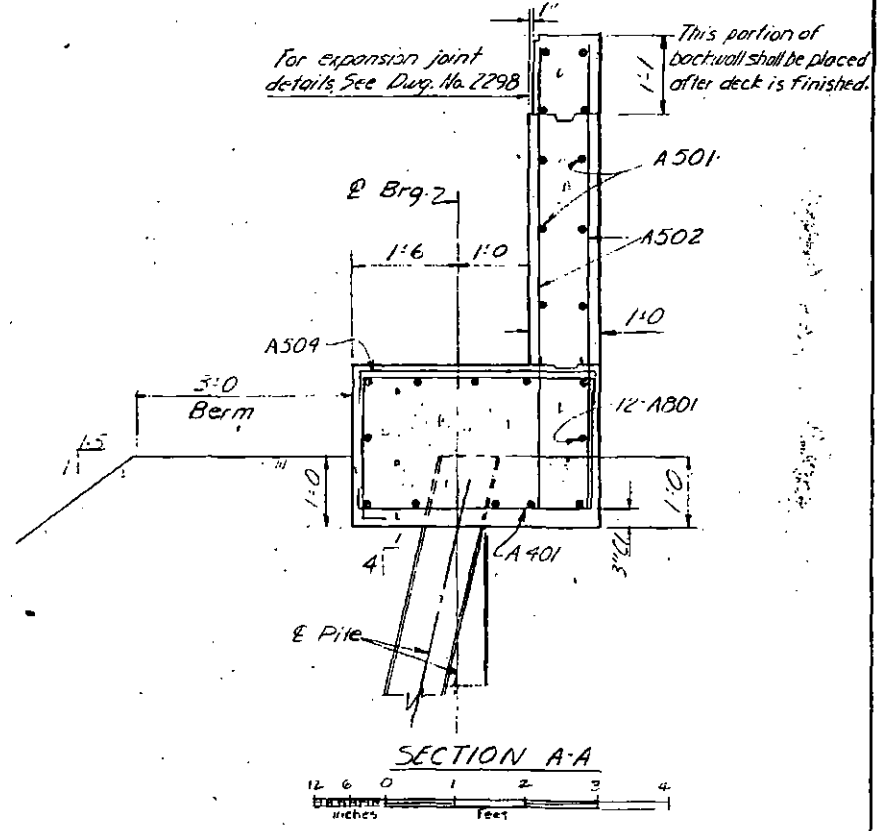
REINFORCING STEEL ~ 1 ABUTMENT					BENDING DIAGRAMS
MARK	SIZE	NO.	LENGTH	TYPE	
A401	4	34	10'-8"	Bent	
A501	5	10	44'-8"	—	
A502	5	92	6'-6"	—	
A503	5	12	8'-0"	—	
A504	5	10	4'-2"	Bent	
AB01	8	12	34'-8"	—	

* If this bar is spliced, splices shall not be made within 10 feet of the end of wingwall.



Abutment No. 1 shown. Super-elevation for Abutment 4 is opposite hand.

ELEVATION - TOP OF CONCRETE @ BEARINGS		
ELEVATION	ABUT. NO. 1	ABUT. NO. 4
A	557.10	563.51
B	557.39	563.22
C	557.68	562.93
D	557.97	562.64
E	558.26	562.35
F	558.75	561.38
G	559.15	559.98



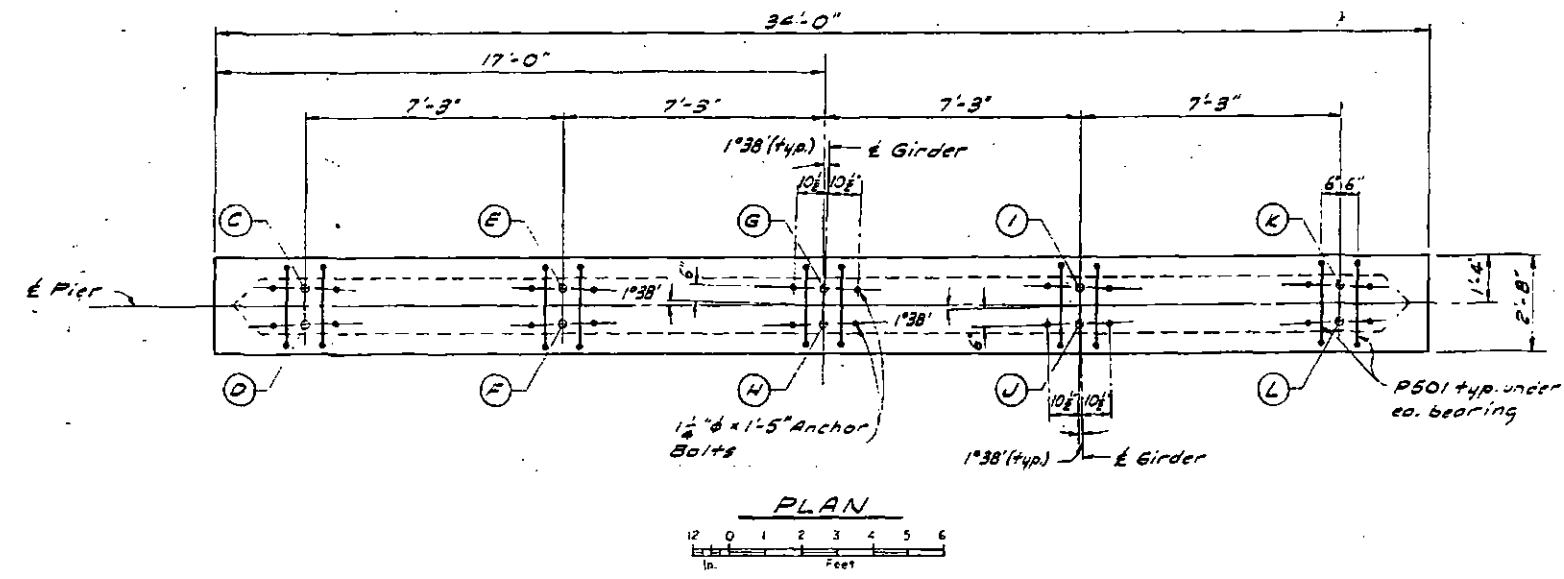
ANCHOR BOLT DETAIL
NO SCALE

CHATANIKA RIVER BRIDGE
ROUTE NO. S-680
ABUTMENTS

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

BRIDGE NO. 836
DWG. NO. 2296

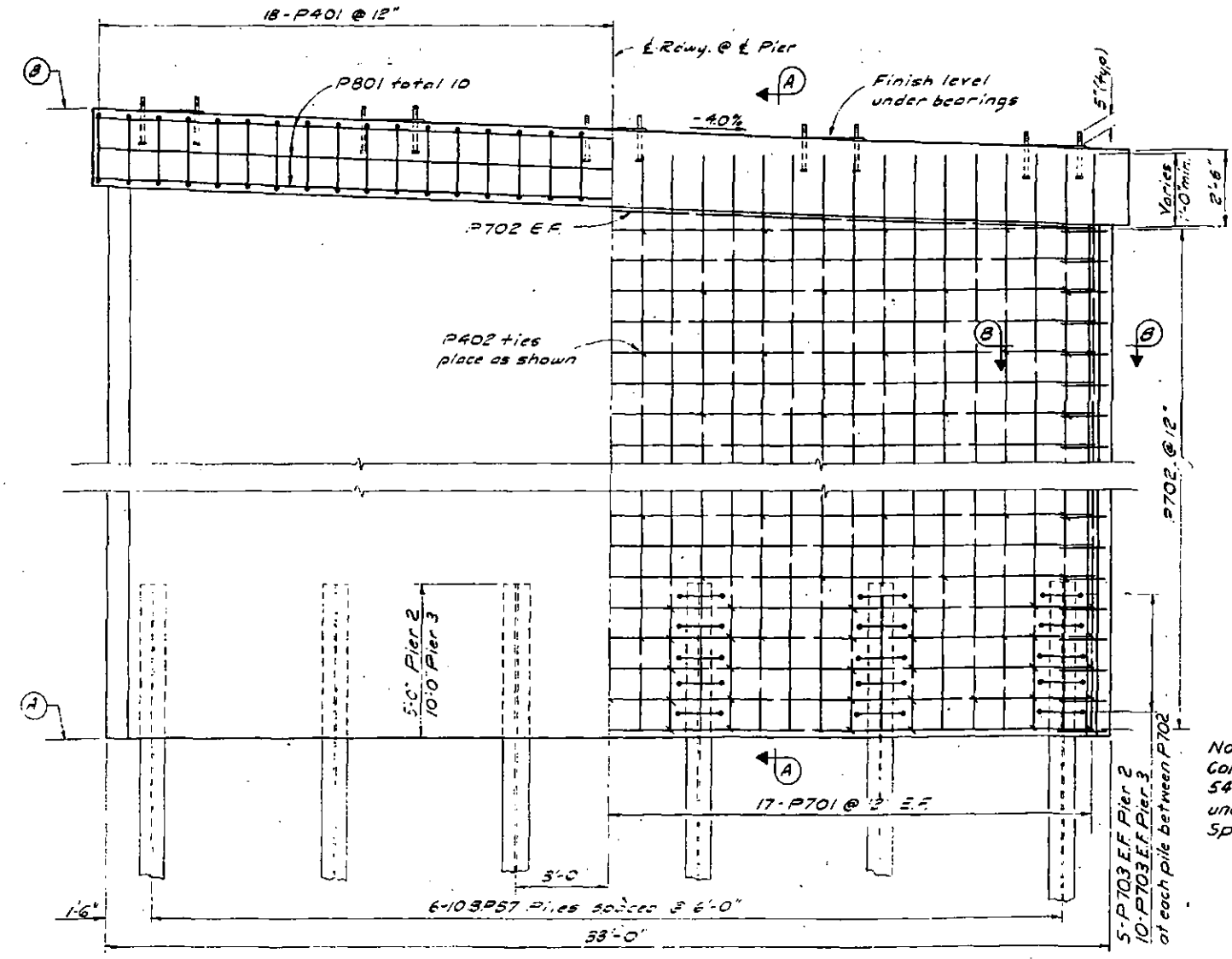
Designed By: J.C.
 Checked By: J.C.
 Drawn By: J.C.
 Traced By: J.C.



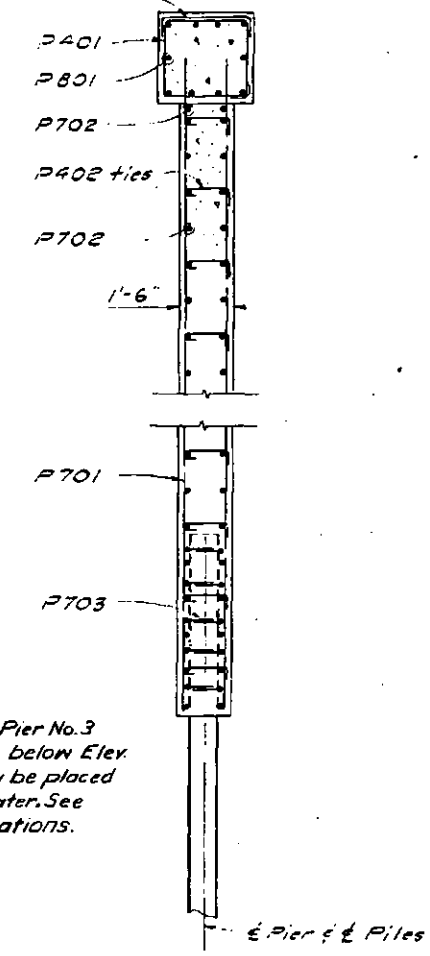
ELEVATIONS		
	Pier 2	Pier 3
A	541.0	535.0
B	560.10	561.86
C	560.01	561.77
D	559.99	561.75
E	559.72	561.48
F	559.70	561.46
G	559.43	561.19
H	559.41	561.17
I	559.14	560.90
J	559.12	560.88
K	558.85	560.61
L	558.83	560.59

REINFORCING SCHEDULE (2 PIERS)						
Location	Mark	Size	No.	Length	Type	Bending Diagram
Cap	P401	4	70	10'-0"	Bent	
	P801	5	20	3'-4"	Bent	
	P801	8	20	33'-8"	---	
Shaft (Pier 2 only)	P402	4	127	2'-3"	Bent	
	P403	4	33	3'-5"	Bent	
	P701	7	66	17'-3"	---	
	P702	7	34	31'-6"	---	
	P703	7	60	3'-0"	Bent	
Shaft (Pier 3 only)	P402	4	227	2'-3"	Bent	
	P403	4	47	3'-5"	Bent	
	P701	7	66	25'-0"	---	
	P702	7	48	31'-6"	---	
	P703	7	120	3'-0"	Bent	

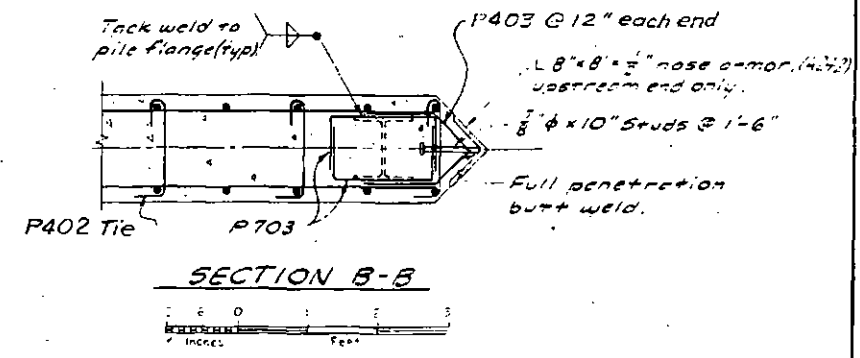
Note: Elevations C thru L are at top of finished conc. under Brg. R's.



Note: Reinforcing in cap shall not conflict with anchor bolts



Note: At Pier No. 3 Concrete below Eler 544 may be placed under water. See Specifications.



Designed by D.A. Date 1/70
 Checked by J.C. Date 1/70
 Drawn by J.C. Date 1/70
 Checked by L.A.C. Date 1/70
 Traced by J.C. Date 1/70

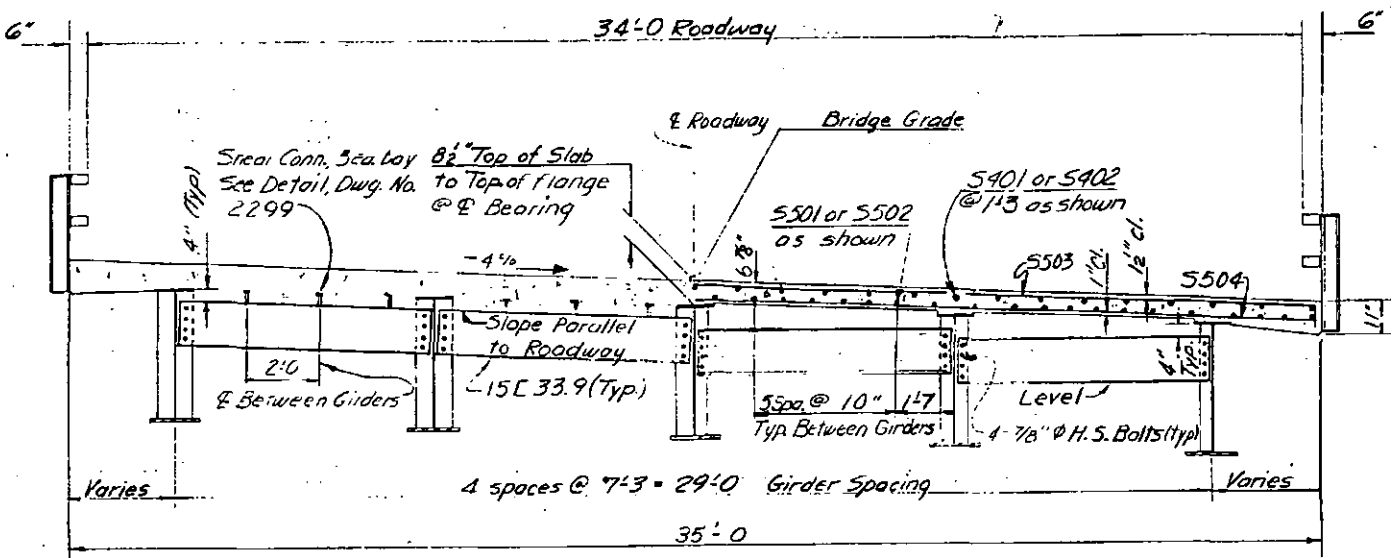
CHATANIKA RIVER BRIDGE

ROUTE NO. S-680

PIERS

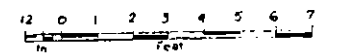
State of Alaska
DEPARTMENT OF HIGHWAYS
 Juneau, Alaska

Date 4/16/70
 Approved
 BRIDGE NO. 836
 DWNG. NO. 2297

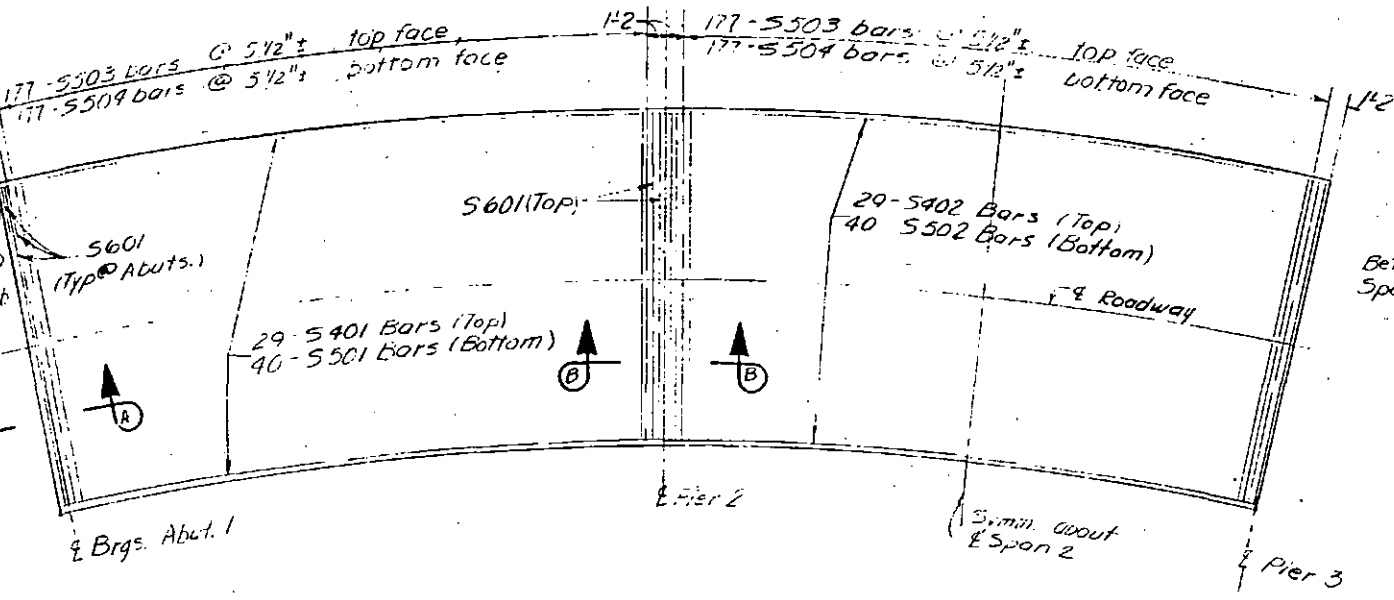


NEAR SUPPORT NEAR MIDSPAN

TYPICAL SECTION



Note: Place transverse reinforcing (S503 & S504) normal to roadway. Spacing is measured along outside edge of slab.

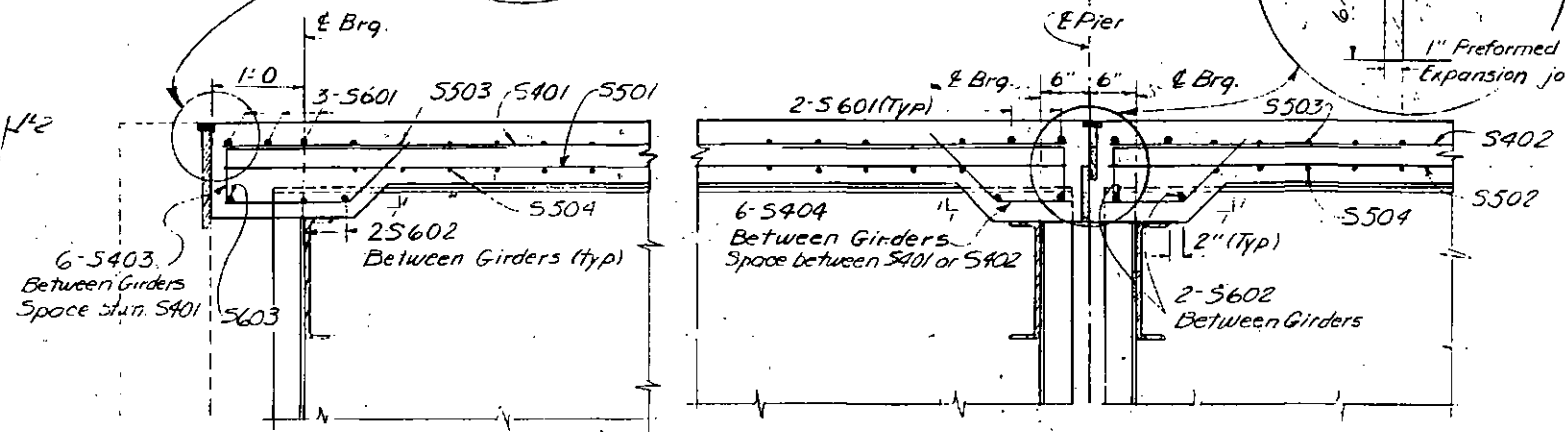
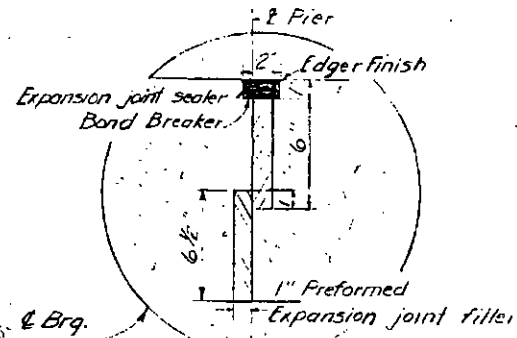
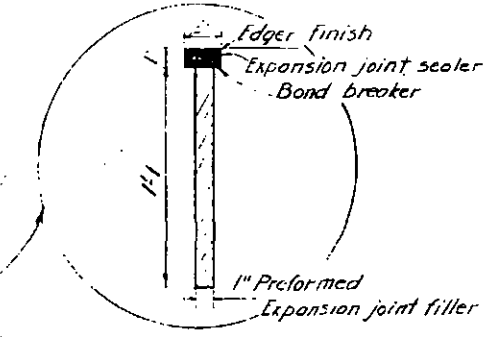


SLAB REINFORCING STEEL LAYOUT

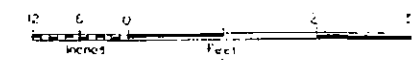
No Scale

SLAB REINFORCING STEEL					BENDING DIAGRAMS	
MARK	SIZE	NO.	LENGTH	TYPE		
S401	4	58	89'-8 1/2"	—		
S402	4	29	89'-2 1/2"	—		
S403	4	48	5'-10"	Bent		
S404	4	96	5'-4"	Bent		
S501	5	80	85'-8 1/2"	—		
S502	5	40	85'-2 1/2"	—		
S503	5	531	36'-0"	Bent		
S504	5	531	34'-8"	—		
S601	6	14	34'-8"	—		
S602	6	48	7'-0"	—		
S603	6	2	28'-8"	—		

① Includes allowance for 2 splices.



LONGITUDINAL SECTIONS



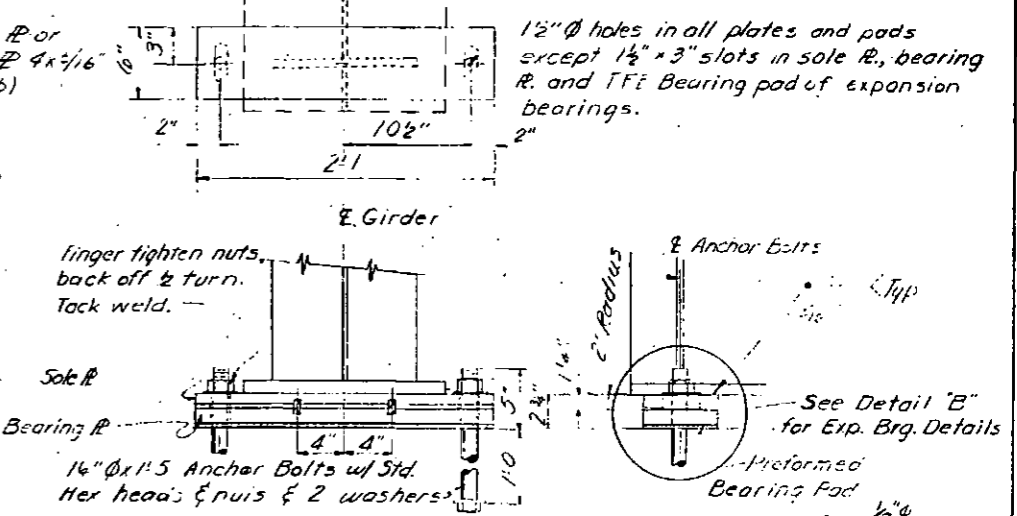
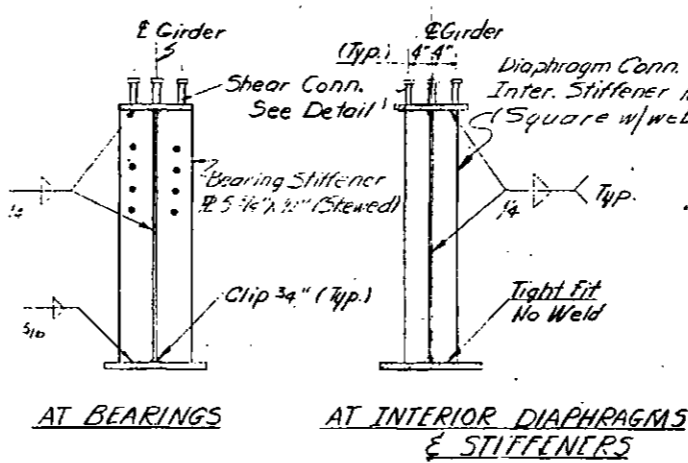
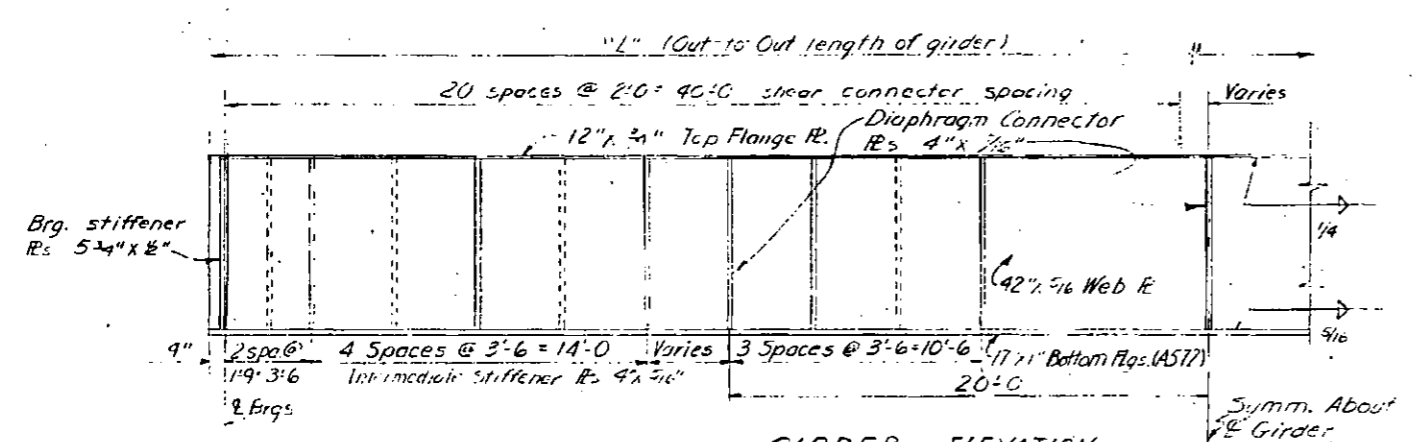
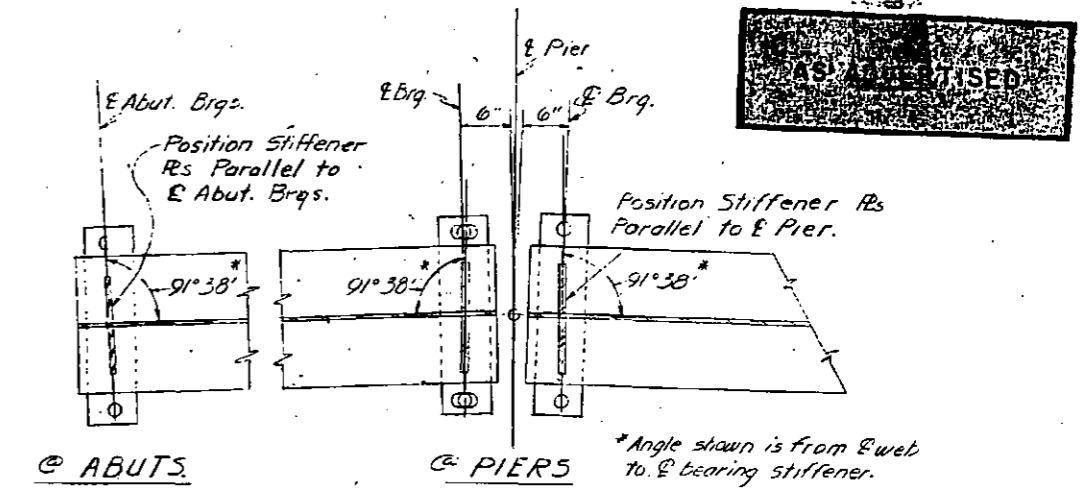
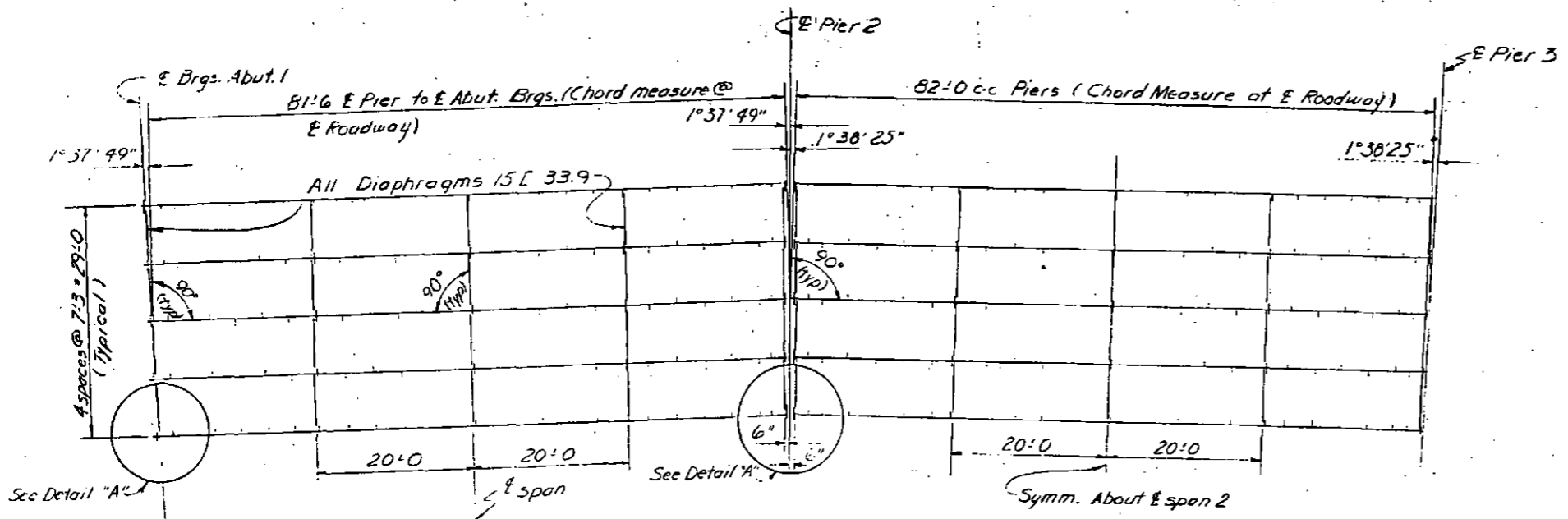
CHATANIKA RIVER BRIDGE
ROUTE NO. S-680
SLAB

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date 4/17/70
Approved [Signature]

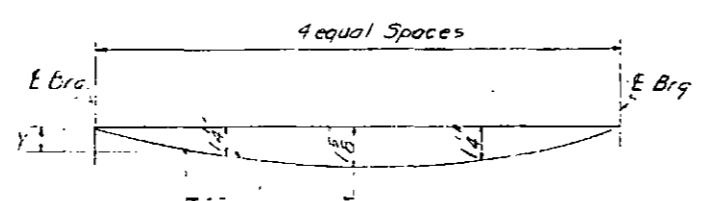
BRIDGE NO. 836
DWG. NO. 2298

Designed By: [Signature]
Checked By: [Signature]
Drawn By: [Signature]
Checked By: [Signature]
Traced By: [Signature]

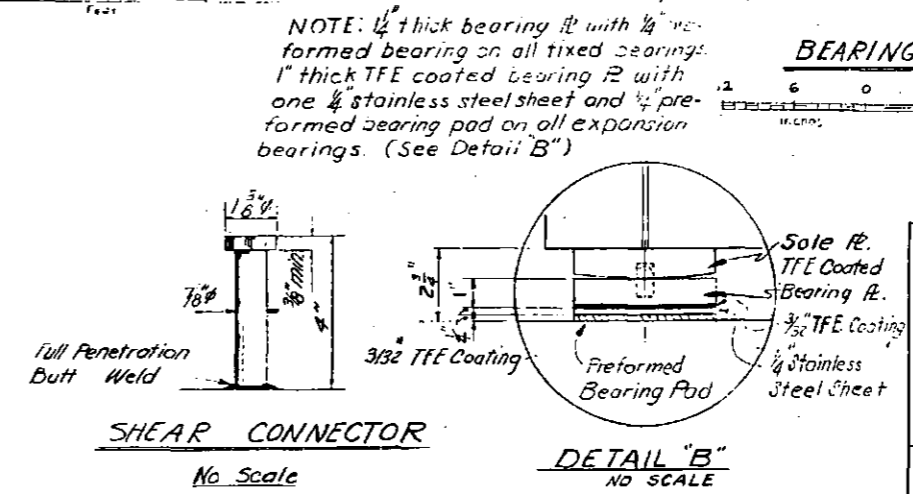


Note: Interior girder shown Exterior girder shall have intermediate stiffeners & diaphragm connector if's on inside only.

GIRDER NO.	DIMENSION L'
1	82'-5 1/2"
2	82'-1"
3	81'-8"
4	81'-3 1/2"
5	80'-10 1/4"



Deck screeds shall be set above theoretical grade to compensate for deflection shown. For points other than those shown, $y = 1.66 \cdot 0.00001x^2$ where y is in inches, x is in feet. Shop camber for total dead load deflection shall be 2 1/4" @ E span. (Parabolic)



Note: Pintles required on expansion bearings only

PINTLE DETAIL

No Scale

CHATANIKA RIVER BRIDGE

ROUTE NO. S-680

GIRDERS

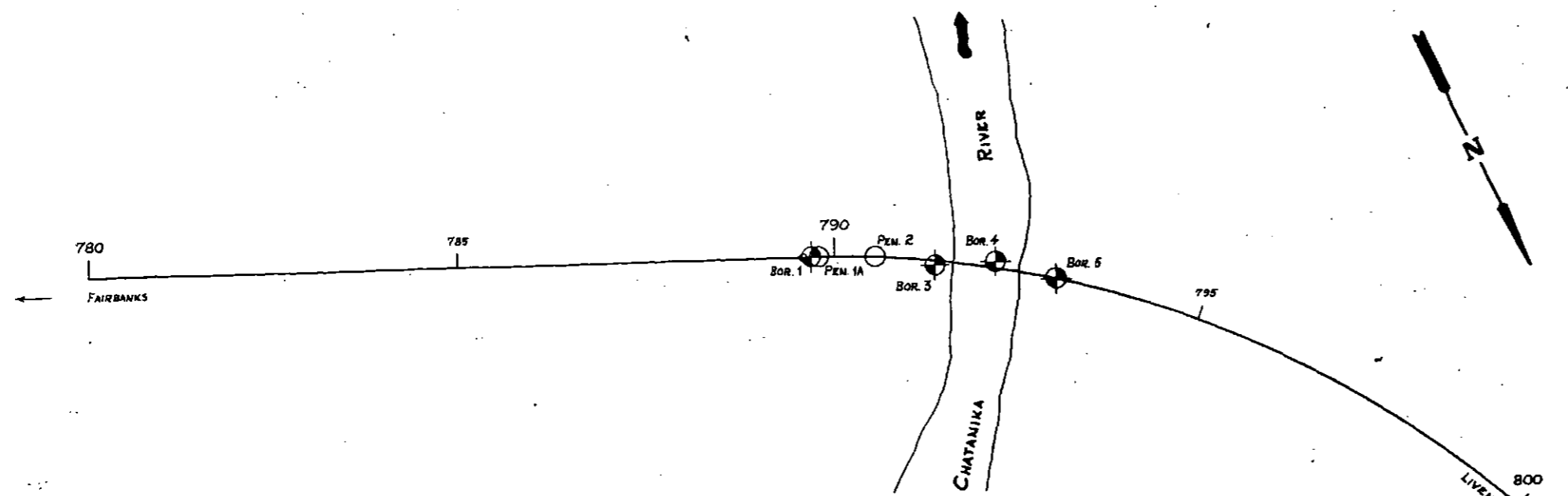
State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date 4/1/70
Approved [Signature]

BRIDGE NO. 836
DWG. NO. 2299

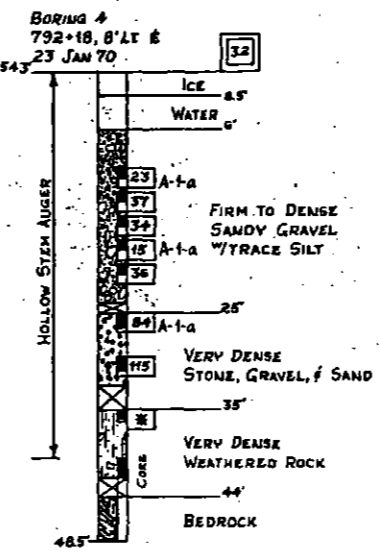
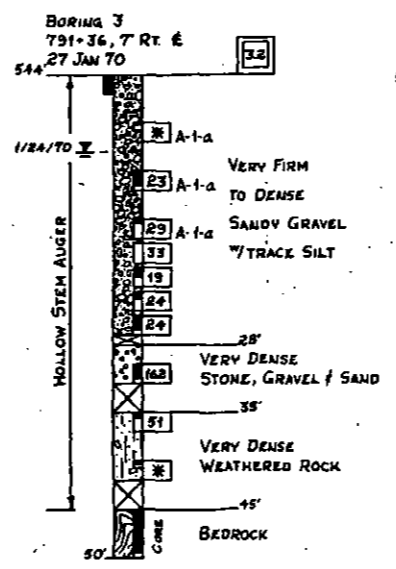
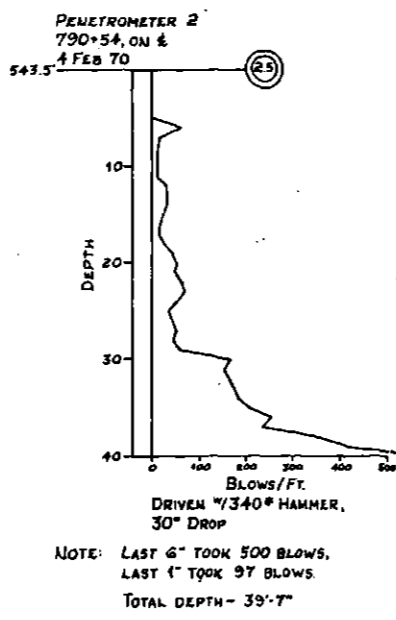
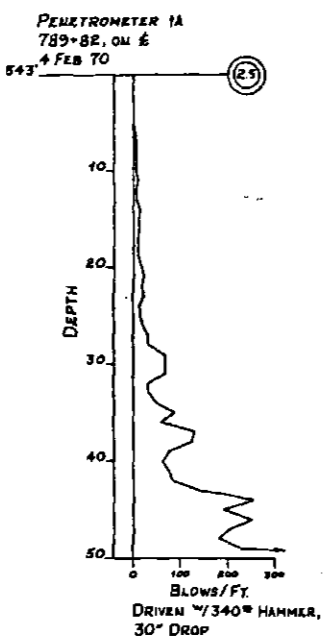
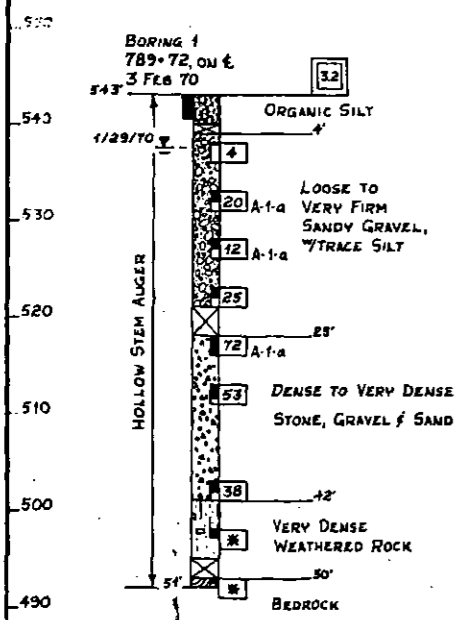
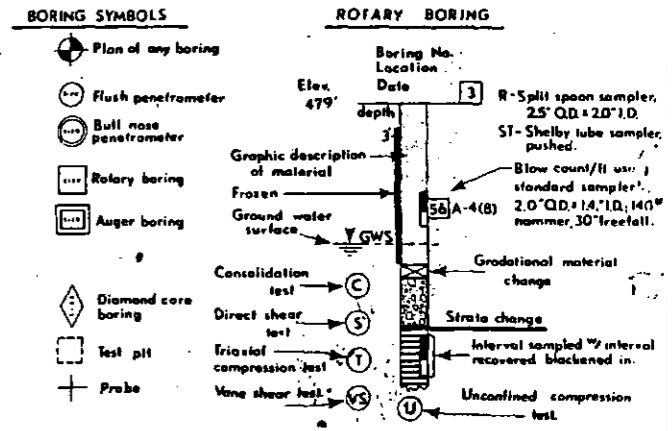
Designed By: [Signature] Date: 3/17/70
Checked By: [Signature] Date: 3/20/70
Drawn By: [Signature] Date: 3/20/70
Checked By: [Signature] Date: 3/20/70
Traced By: [Signature] Date: 3/20/70

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	S-0680(18)	1970	26	26

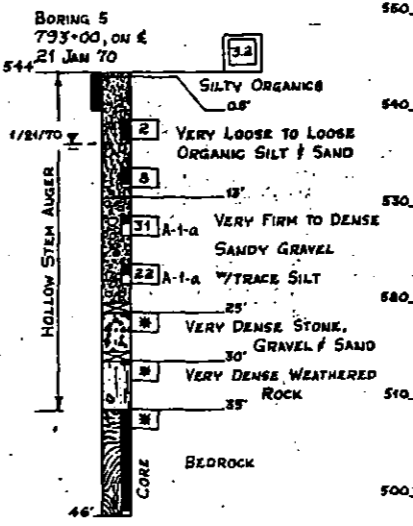


MATERIAL SYMBOLS

	Organics, Organic Silt		Clayey Silt
	Cobbles and Boulders		Sandy Silt
	Sandy Gravel		Gravelly Silt
	Gravelly Sand		Silty Clay
	Gravel		Silty Sand
	Sand		Silty Gravel
	Clay		Quartz-Mica Schist
	Silt		Weathered Rock



NOTE: POOR CORE RECOVERY DUE TO MECHANICAL DIFFICULTIES TO CORE BARREL.



NOTE: * - INDICATES REFUSAL OF STANDARD SAMPLER. BEDROCK IDENTIFIED AS QUARTZ-MICA SCHIST

PENETROMETER TEST

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

According to Standard Penetration Test

GRANULAR		COHESIVE	
Blows/ft.	Rel. Density	Blows/ft.	Consistency
0 - 4	very loose	0 - 1	very soft
5 - 10	loose	2 - 4	soft
11 - 20	firm	5 - 8	firm
21 - 30	very firm	9 - 15	stiff
31 - 50	dense	15 - 30	very stiff
Over 50	very dense	Over 30	hard

LOG OF TEST BORINGS
CHATANIKA RIVER

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date 2/25/70
Approved [Signature]
Bridge no. 830
Drawing no. 2301