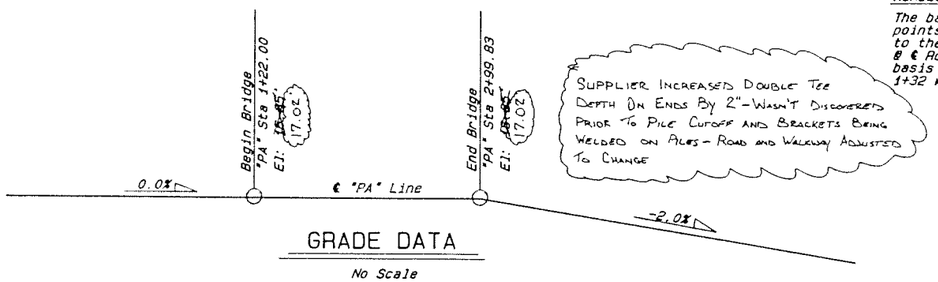
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	B-0003(21)	1991	2	9

HORIZONTAL AND VERTICAL CONTROL

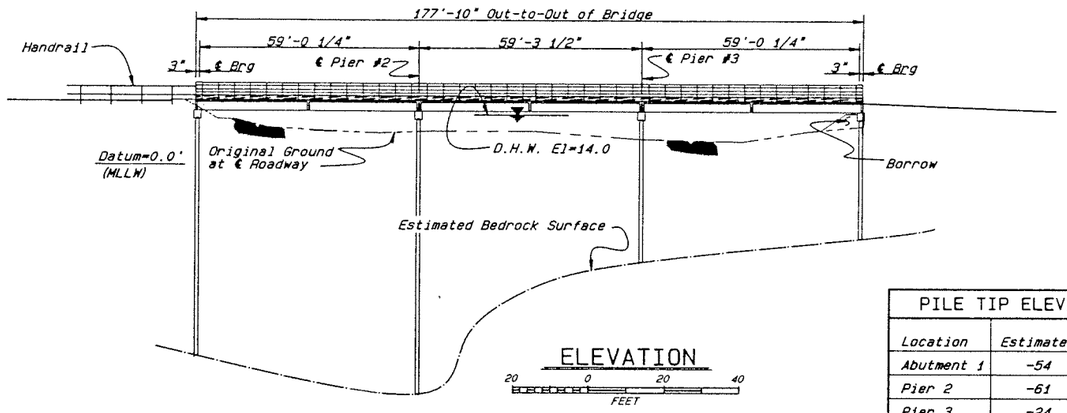
The basis of bearing is S26°04'29"E between control points P5 (a PK nail & washer @ ℄ of Rdwy & Abutment No. 1 to the existing bridge) and P10, OLD Station 3400 (a PK nail @ ℄ Rdwy @ South abutment of the existing bridge.) The basis of vertical control is located at P5, OLD Station 1+32 with an elevation of 15.815' M.L.L.W.



Supplier increased double tee depth on ends by 2"-Wasn't discovered prior to pile cutoff and brackets being welded on piles - Road and walkway adjusted to change

GRADE DATA

No Scale

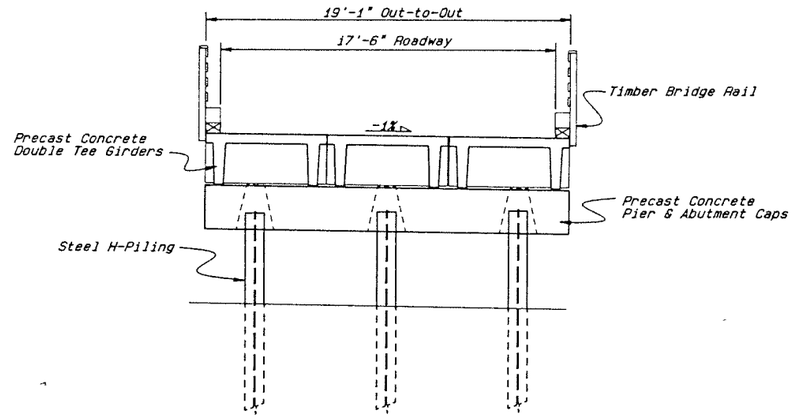


ELEVATION

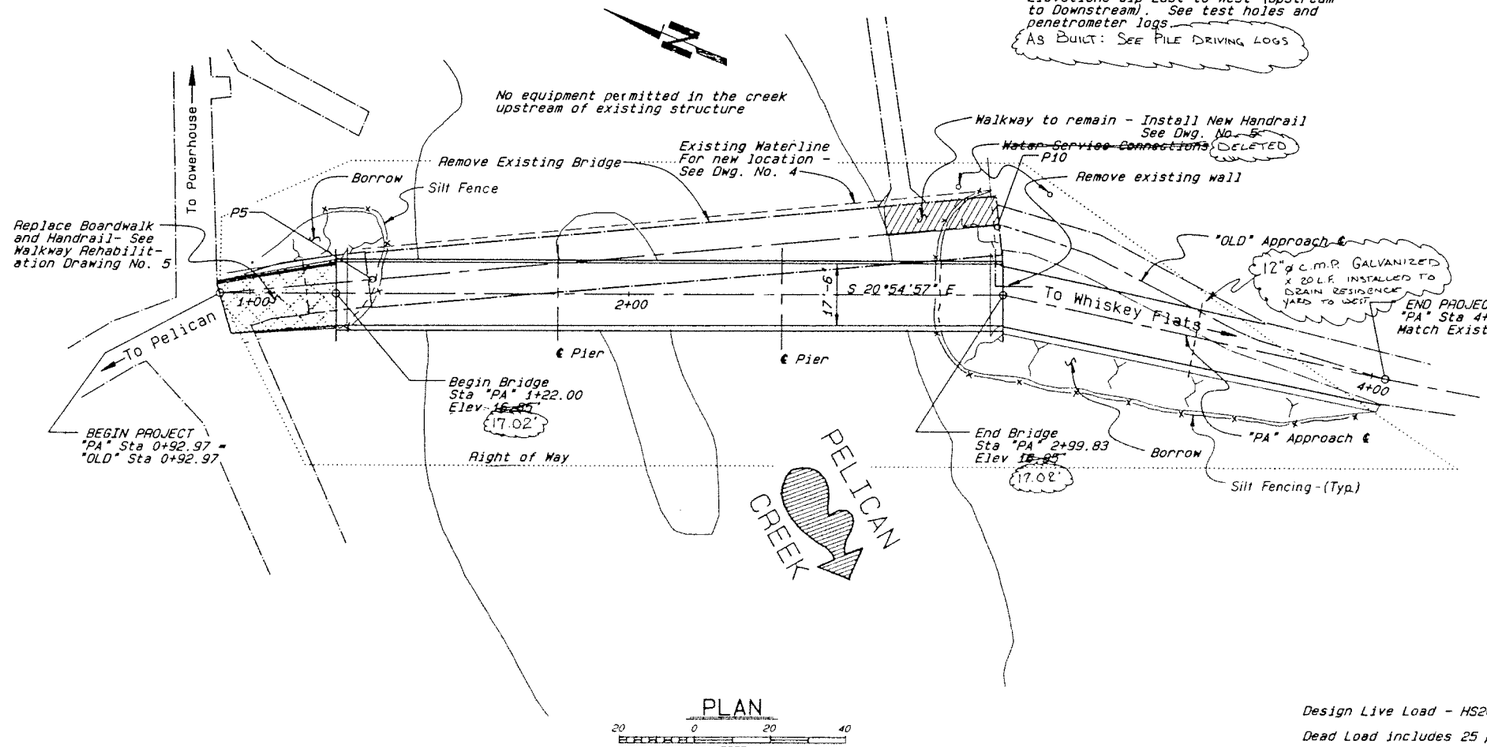
PILE TIP ELEVATIONS		
Location	Estimated	Minimum Desirable
Abutment 1	-54	-10
Pier 2	-61	-15
Pier 3	-24	-15
Abutment 4	-23	-10

Bedrock profile is extremely variable. Elevations dip East to West (Upstream to Downstream). See test holes and penetrometer logs.

As Built: See Pile Driving Logs



TYPICAL SECTION



PLAN

Design Live Load - HS20

Dead Load includes 25 psf for future paving

Start: July 7, 1992
End: August 21, 1992
Contractor: Trucano Construction Co.
Project Engineer: Mark Halverson
Date: September, 1992

DRAWING INDEX	
TITLE	Dwng No
GENERAL LAYOUT	1
SITE PLAN	2
PIER AND ABUTMENT CAP	3
SUPERSTRUCTURE DETAILS	4
WALKWAY REHABILITATION	5
TEST HOLE LOGS AND LOCATION	6-7

AS BUILT PLANS

Mark Halverson Project Engineer — Date Sept. 1992

CORRECTIONS TRANSFERRED

Tracings S.H. Sallie Jr. — Date 9/16/92

Checked GJW — Date 12/11/92

Plans prepared under my direct supervision.

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER L.A. Carlson CE 1401

10/30/91

/usr/aiken/1491/gl
9/20/91 Rev: 10/25/91
Scale = 25
Drawn By: MCH

PELICAN CREEK

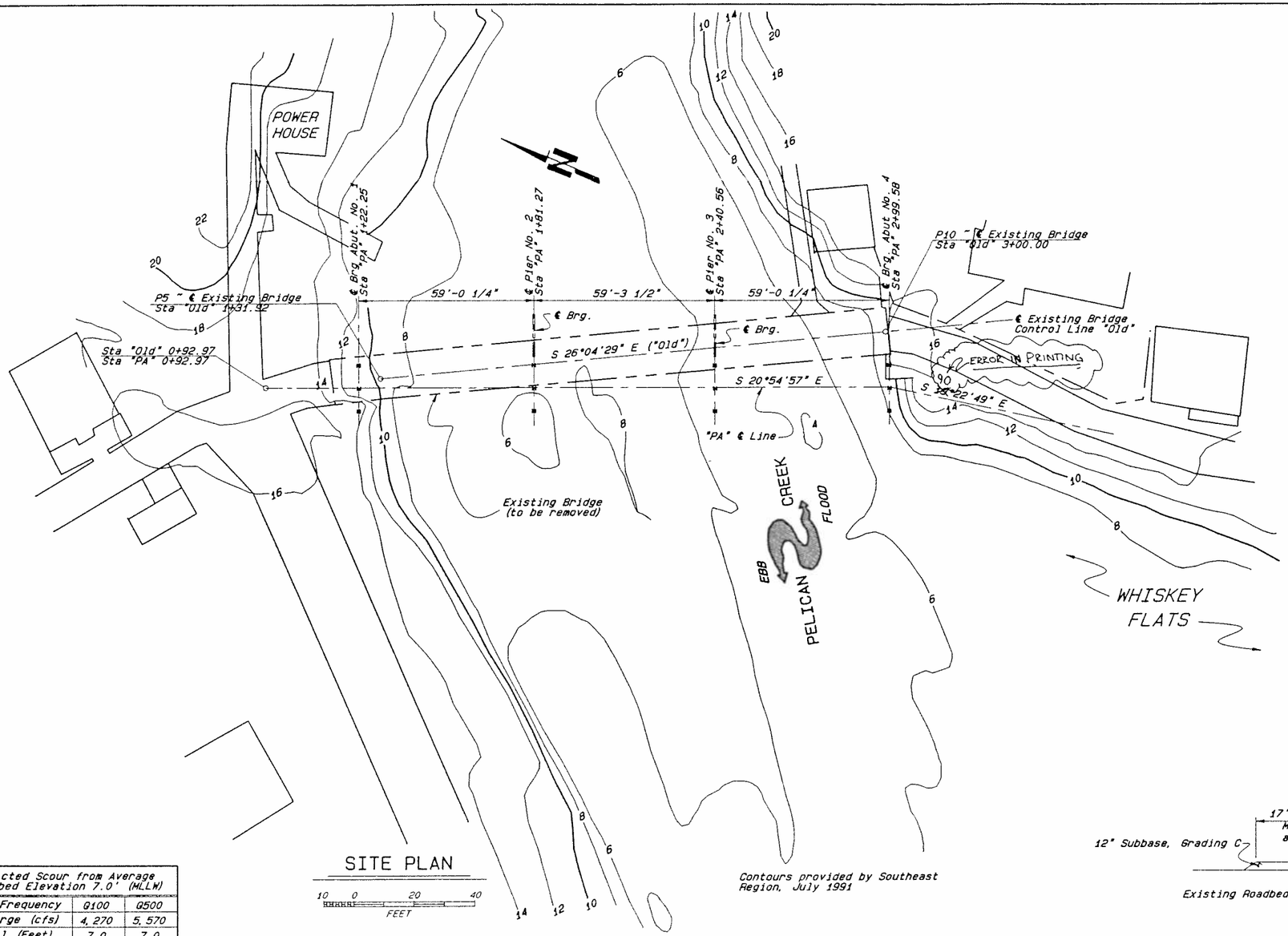
SALMON WAY, PELICAN ALASKA

GENERAL LAYOUT

State of Alaska
DEPARTMENT OF TRANSPORTATION and PUBLIC FACILITIES
Juneau, Alaska

BRIDGE NO. 1491
DWNG. NO. 1

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	B-0003(21)	1991	3	9



SITE PLAN

10 0 20 40
FEET

Contours provided by Southeast Region, July 1991

Predicted Scour from Average Streambed Elevation 7.0' (MLLW)		
Flood Frequency	Q100	Q500
Discharge (cfs)	4,270	5,570
General (Feet)	7.0	7.0
Pier (Feet)	0.0	-1.0
Abutment (Feet)	5.0	5.0

tum = Mean Lower Low Water (MLLW) = 0 Feet = 5.5 Feet Mean Sea Level (MSL)

HYDRAULIC & HYDROLOGIC SUMMARY

Design Flood Frequency	Q50	Q100	Design Flood#
Exceedance Probability	1%	.2%	N/A
Drainage Area (Sq. Mi.)	13.2	13.2	13.2
Design Discharge (cfs)	3,870	4,270	5,570
Design Highwater Elev. (ft)	9.9	10.1	14.5
Added Anticipated Backwater	0	0	0

Hydraulic Capacity: 16,300 cfs at Elevation 14.0 which has an exceedance probability equal to or less than .2% (Q500).

Bridge is sized to accomodate an anticipated storm of El: 14.5 ft. (MLLW) which has exceedance probability equal to or less than 1% (Q100) and to accomodate a Pelican Creek Hydro Dam failure event of 5,570 cfs which has an exceedance probability of approximately .2% (Q500).

ESTIMATED QUANTITIES

Item No.	Item	Unit	Substruct.	Superstr.	Total
120(1)	DBE Adjustment	C.S.	———	———	All Req'd
202(1)	Removal of Structures and Obstructions	L.S.	———	———	All Req'd
203(7)	Borrow, Type "D"	C.Y.V.M.	———	———	~~240~~ 360
304(3)	Subbase, Grading C	C.Y.V.M.	———	———	~~80~~ 180
502(1)	Prestressed Concrete Structural Member (58'-9" Double-Tee)	EACH	———	9	9
502(2)	Precast Concrete Caps	EACH	———	4	4
505(5)	Structural Steel Piling Furnished	L.F.	———	~~850~~ 555	~~850~~ 555
505(6)	Structural Steel Piling Driven	EACH	———	12	12
507(3)	Timber Bridge Railing	L.F.	———	356	356
618(1)	Hand Seeding	S.F.	———	———	~~5060~~ 3470
627(8)	Water Service Connection	EACH	———	———	~~2~~ 0
627(11)	Waterline Relocation	L.S.	———	———	All Req'd
640(1)	Mobilization and Demobilization	L.S.	———	———	All Req'd
641(1)	Temporary Erosion and Pollution Control	C.S.	———	———	All Req'd
641(2)	Silt Fence	L.F.	———	———	~~260~~ 212
642(1)	Construction Surveying	L.S.	———	———	All Req'd
644(1)	Field Office	L.S.	———	———	All Req'd

GENERAL NOTES

SPECIFICATIONS

Design: AASHTO Standard Specifications for Highway Bridges, 1989 Edition, with the latest Interim Specifications.

Construction: State of Alaska Standard Specifications for Highway Construction, 1988, with Standard Modifications and the Special Provisions.

Live Load: HS 20

Dead Load: Includes 25 psf for future paving.

DESIGN UNIT STRESES

Prestressed Concrete: See Girder Details

Structural Steel: A36: Fy = 36,000 psi
Fs = 20,000 psi

Reinforced Concrete: Class A: f'c = 4,000 psi
fc = 1,600 psi
Fy = 60,000 psi

STRUCTURAL MATERIALS

Concrete: All cast-in-place conrete shall be Class AA.

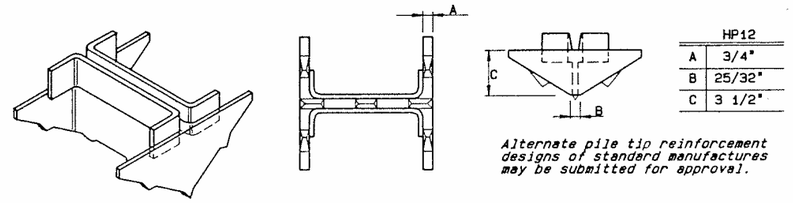
Reinforcing Steel: All reinforcing steel shall conform to ASTM 615 Grade 60.

Structural Steel: All structural steel shall be ASTM A36 unless otherwise noted. All railing fasteners shall be galvanized.

Piling: All structural steel piles shall be HP12x74 (ASTM A572). Pile tip reinforcing shall be as shown.

Timber: See special provisions.

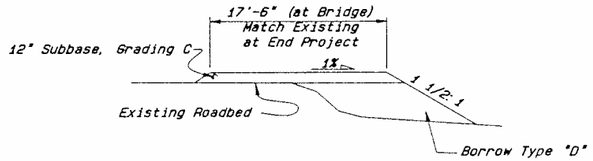
Design Capacity: 50 Tons - Piers
35 Tons - Abutments



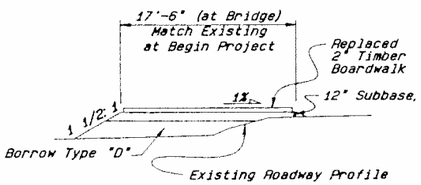
HP12	
A	3/4"
B	25/32"
C	3 1/2"

Alternate pile tip reinforcement designs of standard manufactures may be submitted for approval.

PILE TIP REINFORCEMENT
No Scale



WHISKEY FLATS TYPICAL SECTION
Sta. "PA" 2+93.30 (+)



BOARDWALK TYPICAL SECTION
Sta. "PA" 1+15.47 (-)

Plans prepared under my direct supervision.

STATE OF ALASKA 49TH
L. A. Carlson CE 1401
REGISTERED PROFESSIONAL ENGINEER
10/30/91

STATE OF ALASKA 49TH
Dean C. Griggs PE 4462
REGISTERED PROFESSIONAL ENGINEER

/usr/atkeh/1491/site
9/26/91 Rev: 1/3/92
Scale = .25
Drawn By: MCH

AS BUILT PLANS

MARK HALVORSEN Date SEPT 1992
Project Engineer
CORRECTIONS TRANSFERRED
Tracings S.H. SOLLIE JR Date 9/16/92
Checked G.J.W Date 12/11/92

PELICAN CREEK

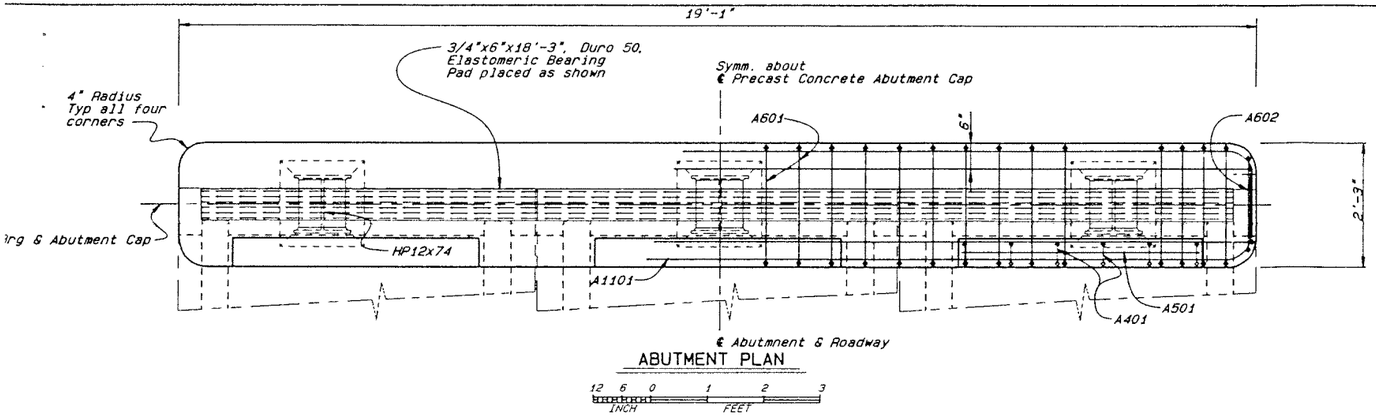
SALMON WAY, PELICAN ALASKA

SITE PLAN

State of Alaska
DEPARTMENT OF TRANSPORTATION and PUBLIC FACILITIES
Juneau, Alaska

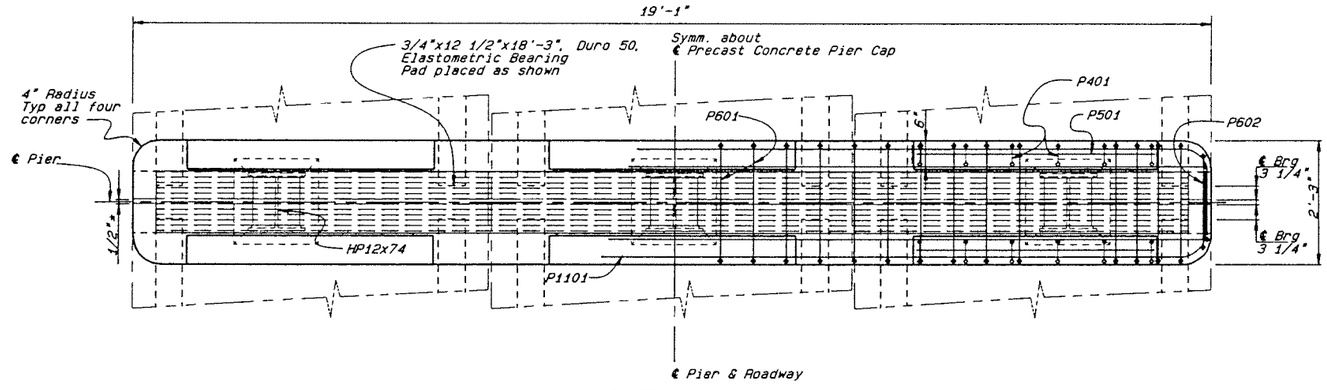
BRIDGE NO. 1491
DWNG. NO. 2

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	B-0003(21)	1991	4	9



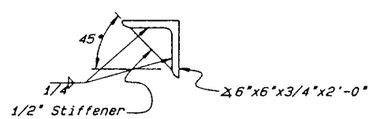
ABUTMENT PLAN

12 6 0 1 2 3 INCH FEET



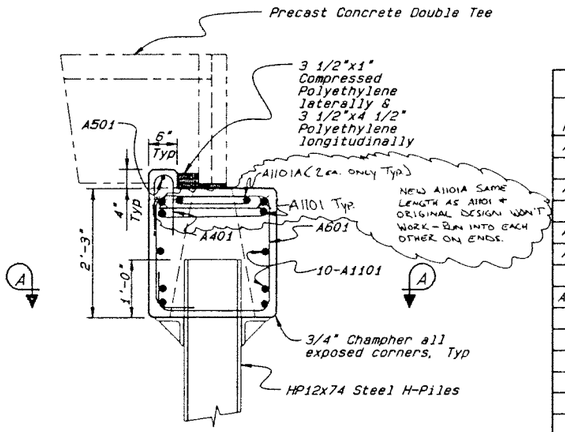
PIER PLAN

12 6 0 1 2 3 INCH FEET



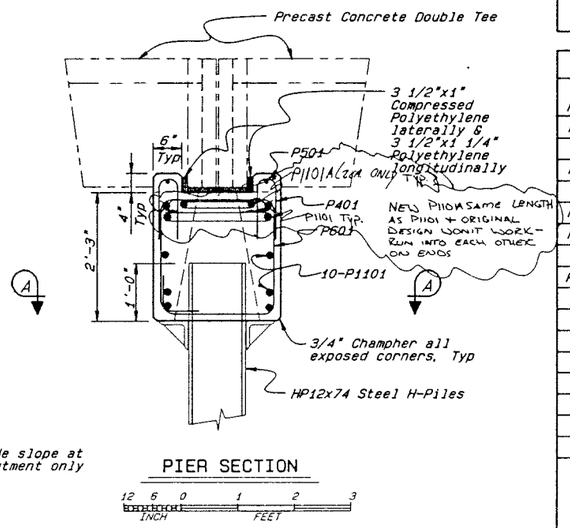
SECTION B-B

12 6 0 1 INCH FEET



ABUTMENT SECTION

12 6 0 1 2 3 INCH FEET

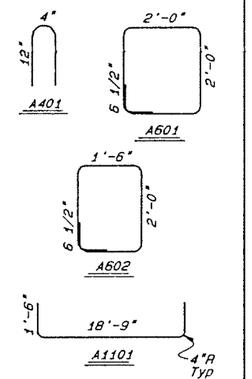


PIER SECTION

12 6 0 1 2 3 INCH FEET

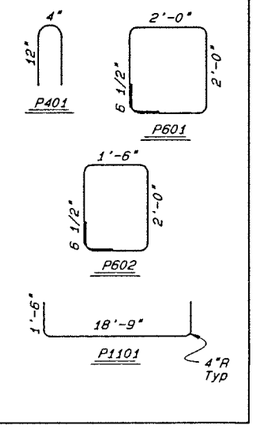
REINFORCING STEEL (One Abutment)

MARK	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAMS
A401	4	18	2'-2"	Bent	
A501	5	3	3'-11"	——	
A601	6	28	9'-1"	Bent	
A602	6	2	8'-1"	Bent	
A1101	11	10	21'-9"	Bent	



REINFORCING STEEL (One Pier)

MARK	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAMS
P401	4	36	2'-2"	Bent	
P501	5	6	3'-11"	——	
P601	6	28	9'-1"	Bent	
P602	6	2	8'-1"	Bent	
P1101	11	10	21'-9"	Bent	



NOTE: Epoxy coat all reinforcing steel.

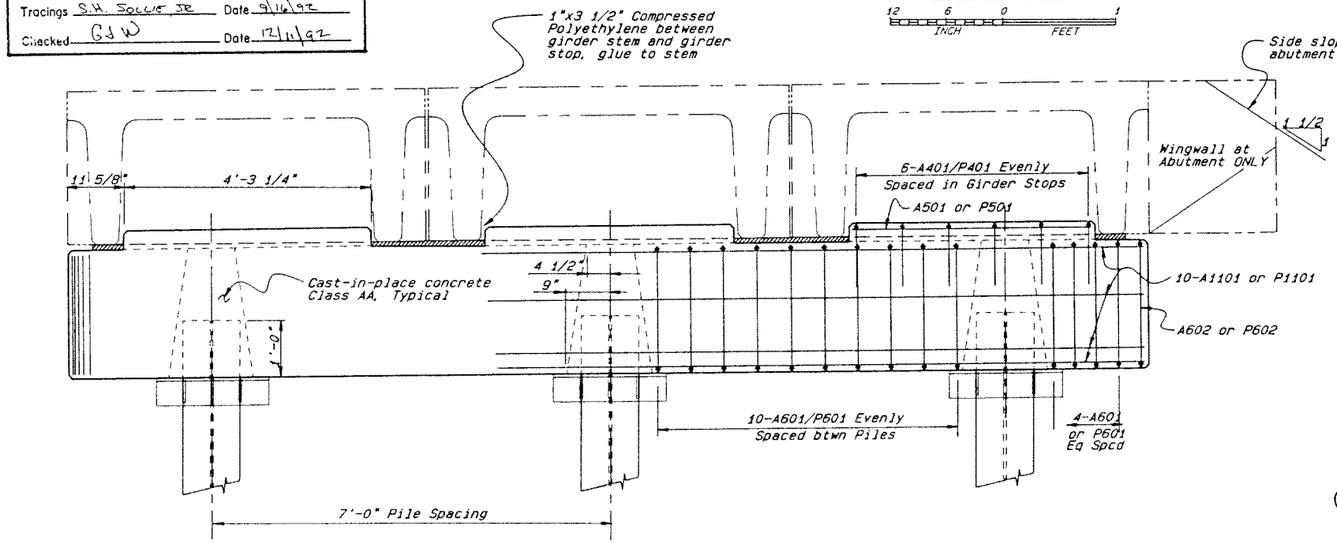
AS BUILT PLANS

MARK HALVORSEN Date SEPT. 1992
Project Engineer

CORRECTIONS TRANSFERRED

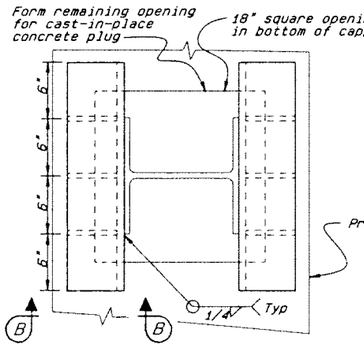
Tracings S.H. SOLLIE JR Date 9/16/92

Checked GJW Date 12/11/92



TYPICAL ELEVATION

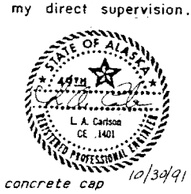
12 6 0 1 2 3 INCH FEET



SECTION A-A

12 6 0 1 INCH FEET

Plans prepared under my direct supervision.



10/30/91

PELICAN CREEK BRIDGE

SALMON WAY, PELICAN ALASKA

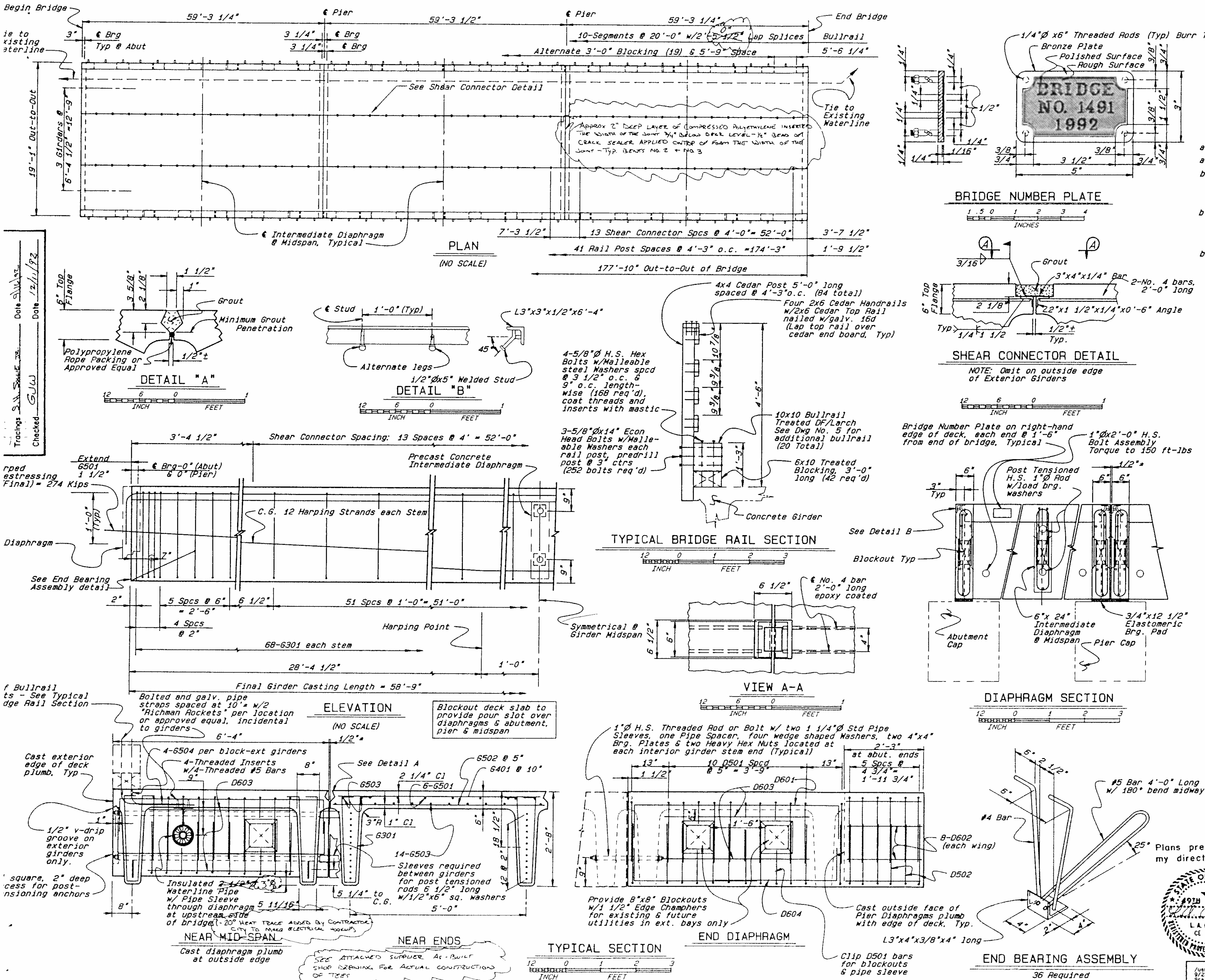
PIER AND ABUTMENT CAP

State of Alaska
DEPARTMENT OF TRANSPORTATION and PUBLIC FACILITIES
Juneau, Alaska

BRIDGE NO. 1491
DWNG. NO. 3

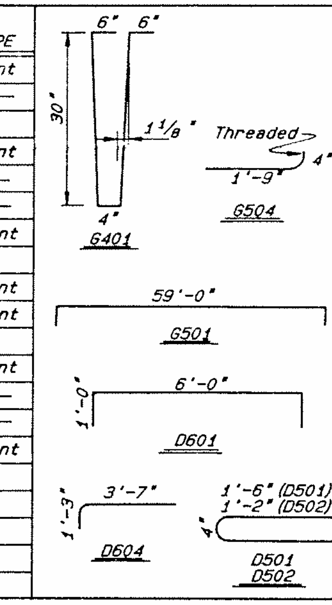
/user/mkeh/1491/cap
9/19/91 Rev: 10/25/91
Scale = .25
Drawn By: MCH

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	B-0003(21)	1991	5	9



REINFORCING STEEL (One Interior Girder)

	MARK	SIZE	NO.	LENGTH	TYPE
	G301	3	136	5'-11"	Bent
	G401	4	71	5'-11"	——
	G501	5	6	61'-0"	Bent
a	G502	5	141	5'-11"	——
a	G503	5	14	58'-8"	——
b	G504	5	168	2'-1"	Bent
	D501	5	48	3'-4"	Bent
b	D502	5	48	3'-0"	Bent
	D601	6	12	9'-0"	Bent
b	D602	6	36	2'-0"	——
	D603	6	11	4'-2"	——
	D604	6	6	4'-10"	Bent



a - No allowances for splices included. Lap Splice Length: G503= G504= 19"
b - The total number of bars required per bridge.

NOTE: Epoxy coat all reinforcing.

GENERAL NOTES:

Alternate designs are allowed per Section 502 of the Specifications.

Concrete for girders shall be normal weight have the following strengths:
At Stress Transfer f'_{ci} = 5,500 psi
At 28 days f'_c = 6,500 psi

All prestressing shall be with 1/2" round strands having an ultimate strength of 270 ksi. and an area of 0.153 sq. in. (strand shall be low relaxation.)

Design is based on the following Steel Stresses (Low Relaxation Strand):
Pretensioning - Jacking Stress 189 ksi
After Losses 149 ksi

One inch clear on all reinforcing except as noted

All structural steel embedded in girders shall be A36. All structural steel except shear connectors shall be galvanized after fabrication. After installation of shear connector bars, field coat all exposed surfaces of structural steel with epoxy coated patching material (see AASHTO M284.)

Approximate girder weight = 55 Kips.

Deflect forms to compensate for camber - see Specifications.

The top surface of precast members shall have a broomed finish.

Girder pay items shall include all epoxy coated reinforcing steel and structural steel as required.

Bridge Number Plate to be furnished by the Contractor. Bronze shall conform to A.S.T.M. B98-90 Alloy "A" or "B". Lettering shall conform to the "Century " type style. Studs and nuts shall conform to UNS C65100 or C65500. Stud to be bronze 1/4"Ø threaded rod brazed to back of plate with bronze nut, burr threads, 4 studs req'd.

Bridge Number PLates shall be paid for incidental to the precast concrete girders.

Plans prepared under my direct supervision.

L. A. Carlson CE 1401 10/30/91

PELICAN CREEK BRIDGE

SALMON WAY, PELICAN ALASKA

SUPERSTRUCTURE DETAILS

State of Alaska
DEPARTMENT OF TRANSPORTATION and PUBLIC FACILITIES
Juneau, Alaska

BRIDGE NO. 1491
DWNG. NO. 4

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	B-0003(21)	1991	6	9

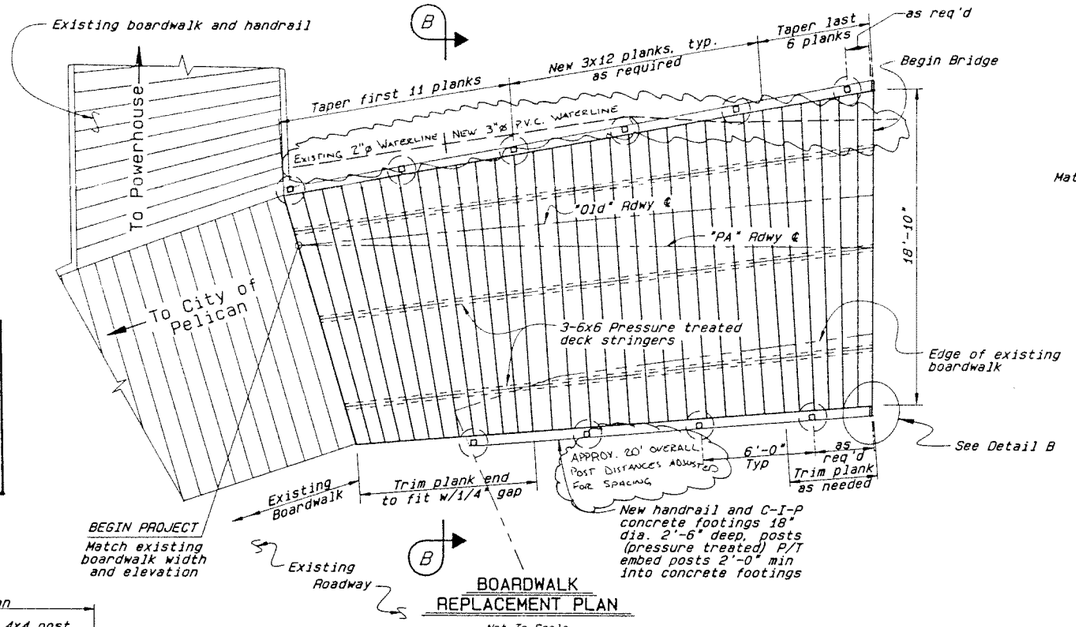
AS BUILT PLANS

MARK HALVORSEN Date SEPT. 1992
Project Engineer

CORRECTIONS TRANSFERRED

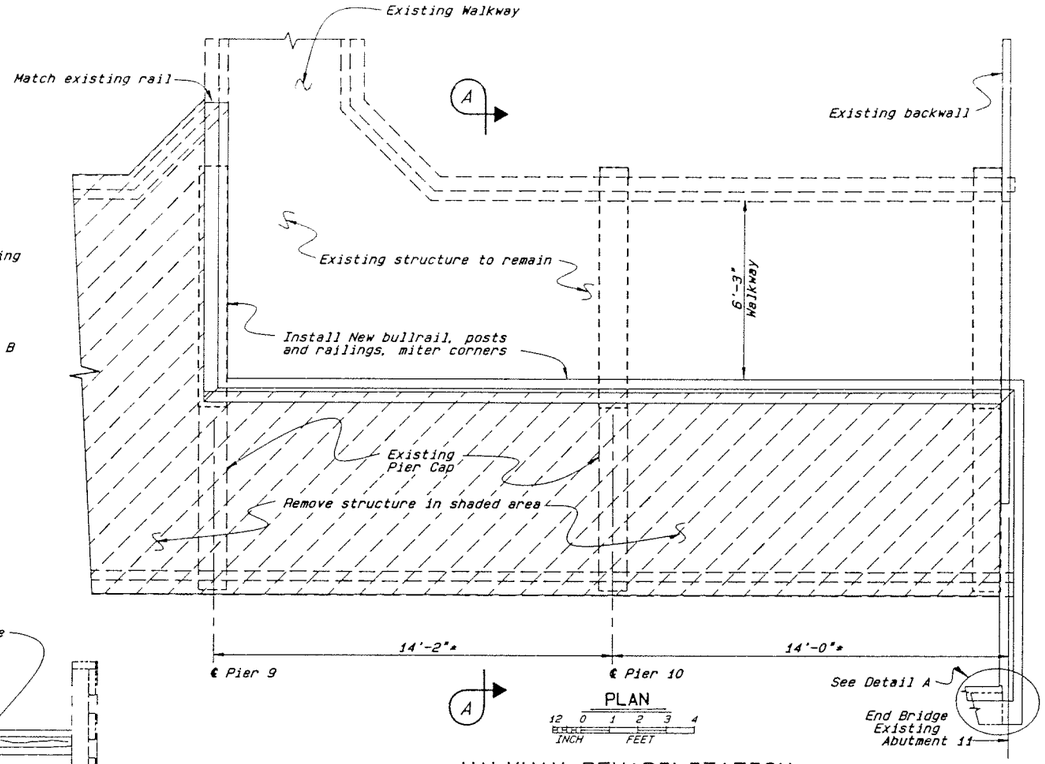
Tracings S.H. SOLLIE, JR. Date 9/8/92

Checked G.J.W. Date 12/11/92



BOARDWALK REPLACEMENT PLAN

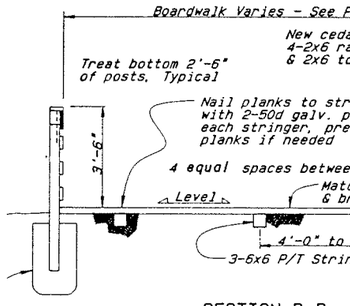
Not To Scale



PLAN

12 0 1 2 3 4
INCH FEET

WALKWAY REHABILITATION

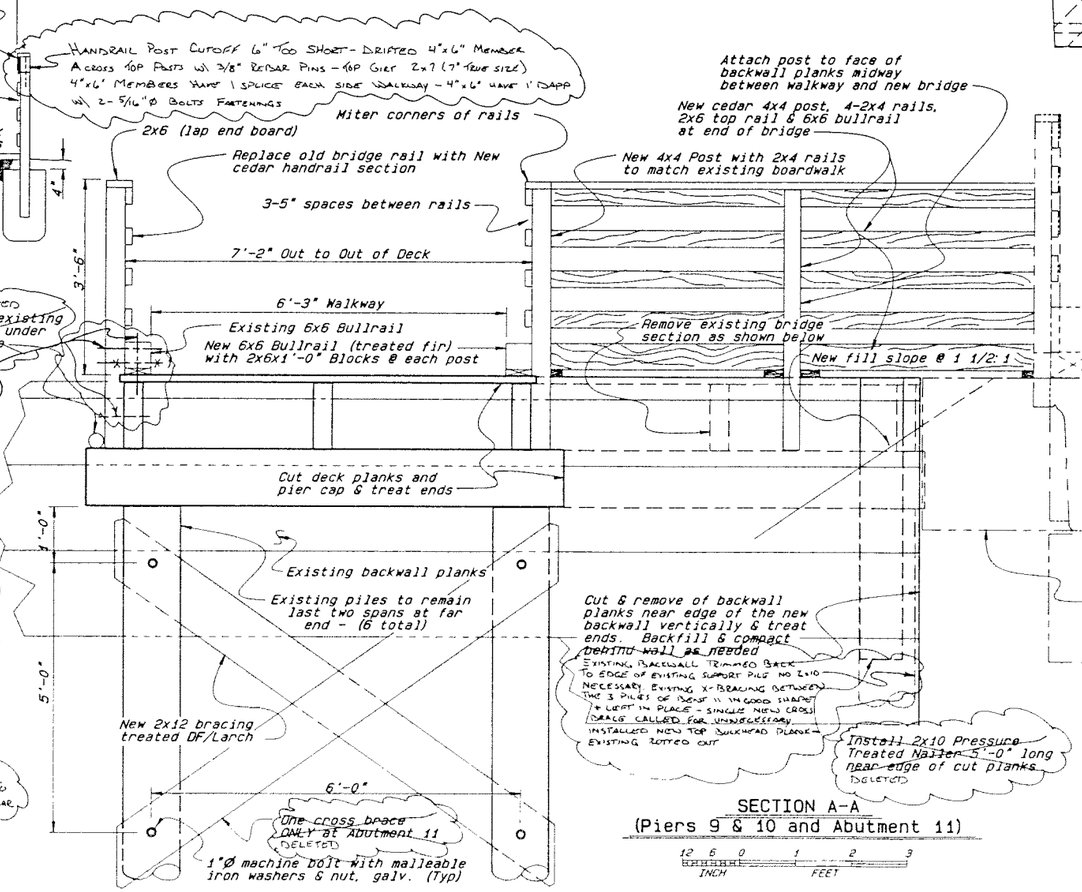


SECTION B-B

12 0 1 2 3 4
INCH FEET

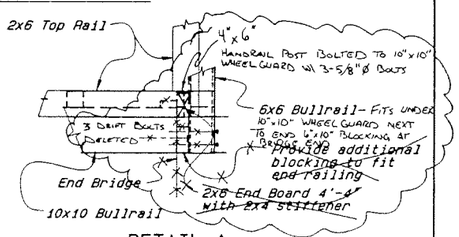
DETAIL B

12 6 0 1 2 3
INCH FEET



SECTION A-A
(Piers 9 & 10 and Abutment 11)

12 6 0 1 2 3
INCH FEET



DETAIL A

12 6 0 1 2 3
INCH FEET

Plans prepared under my direct supervision.

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER
L. A. Carlson CE 1401
10/29/91

/usr/mlken/1491/walk
9/25/91 08:44
Scale = 25
Drawn By: MCH

PELICAN CREEK BRIDGE

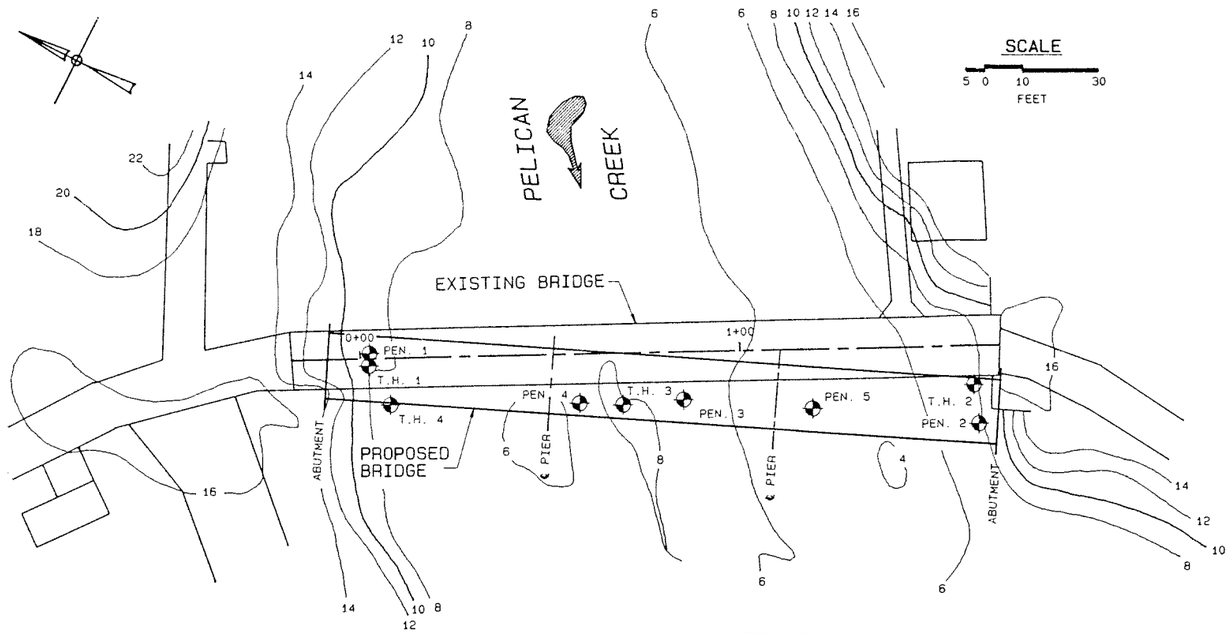
SALMON WAY, PELICAN ALASKA

WALKWAY REHABILITATION

State of Alaska
DEPARTMENT OF TRANSPORTATION and PUBLIC FACILITIES
Juneau, Alaska

BRIDGE NO. 1491
DWNG. NO. 5

BXPEL2	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
	ALASKA	BR-0003(21)	1991	7	9



BASIC MATERIALS SYMBOLS

Organic; Silt; Cobbles; Boulders; Clay; Gravel; Sand

NOTE: Significant soil mixtures are shown by combining soil symbols

TYPICAL TEST HOLE SYMBOLS

Plan View: Location of any hole

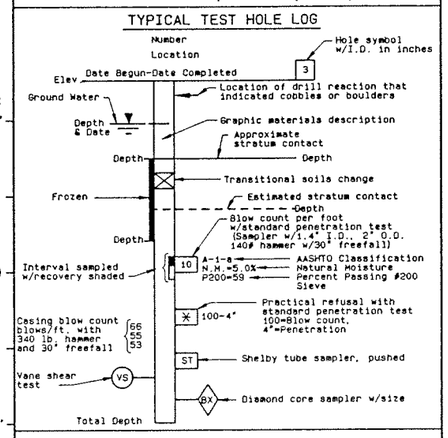
Section View: Rotary; Auger; Diamond Core; Penetrometer

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

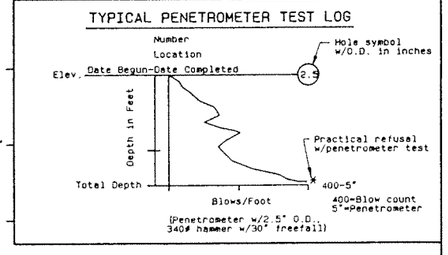
Based on Standard Penetration Test

GRANULAR		COHESIVE	
Blows/ft	Rel. Density	Blows/ft	Consistency
0-5	Very Loose	2	Very Soft
6-10	Loose	2-4	Soft
11-20	Firm	5-8	Medium
21-35	Compact	9-15	Stiff
36-50	Dense	16-30	Very Stiff
51-70	Very Dense	31-60	Hard
71+	V. Very Dense	61+	Very Hard

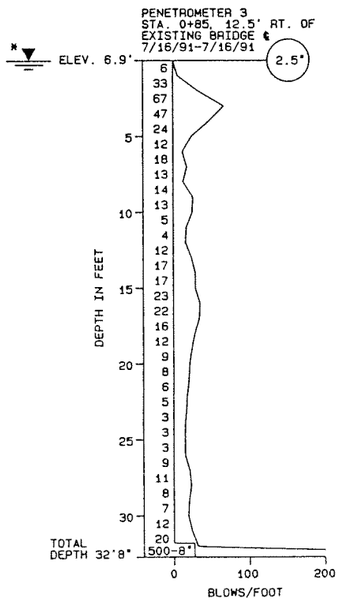
TYPICAL TEST HOLE LOG



TYPICAL PENETROMETER TEST LOG

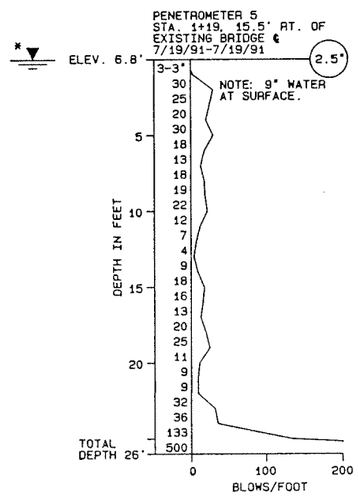


ELEVATIONS: 10' 0' (M.S.L.) -10' -20' -30'



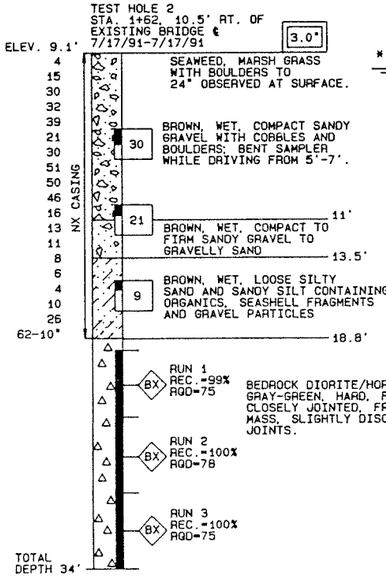
PENETROMETER 3 NOTE:

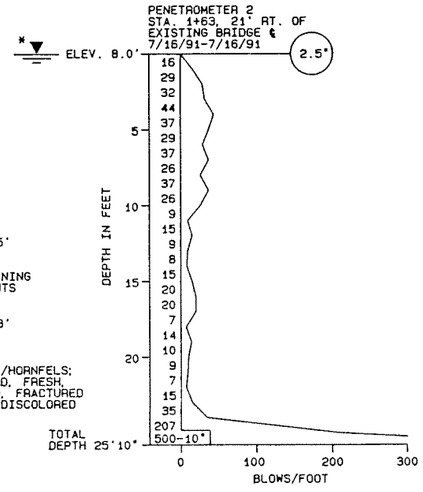
IT WAS NECESSARY TO RELOCATE ONCE WHILE DRIVING P-3 DUE TO A BOULDER AT 4'.



PENETROMETER 5 NOTES:

1. USED A COUPLING PIN FOR THE PENETROMETER TIP.
2. PULLOUT BREAK FORCE IMMEDIATELY AFTER DRIVING WAS 9,420 LBS.
3. PULLOUT FORCE DROPPED TO 2,826 LBS. ONCE PULLOUT STARTED.





PENETROMETER 2 NOTE:

PULLOUT BREAK FORCE IMMEDIATELY AFTER DRIVING WAS 3,768 LBS.

AS BUILT PLANS

Mark Halvorsen — Date Sept. 1992
Project Engineer

CORRECTIONS TRANSFERRED

Tracings S.H. Steve, JR — Date 9/9/92

Checked GJW — Date 12/11/92

STATE OF ALASKA 49TH — Eric O. Johnson — ERIC O. JOHNSON CE-3692 — REGISTERED PROFESSIONAL ENGINEER

TEST HOLE LOGS AND LOCATIONS

PELICAN CREEK BRIDGE REPLACEMENT

State of Alaska

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

Juneau, Alaska

Date: 8-27-91

Approved:

BRIDGE NO. 1491

DWNG. NO. 6

GENERAL NOTES:

EST HOLE(S) DEPICTED ARE A COMBINATION OF THE ORIGINAL FIELD), AND AN OFFICE EXAMINATION OF THE FIELD LOG(S), SOIL SAMPLE(S) A ROCK CORE(S).

TRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN TYPES OR RELATIVE DENSITIES. THE TRANSITION MAY BE GRADUAL.

*CASING IS INDICATED, THE NEED WAS PREDICATED BY THE POSITION E GROUNDWATER TABLE OR BY CAVING GROUND CONDITIONS. THE CASING NSTALLED TO PROVIDE TEMPORARY SOIL SUPPORT AND/OR PROVIDE FOR FLUID CIRCULATION.

4. FIELD MOISTURE DESCRIPTIONS (DRY, MOIST, AND WET) ARE BASED ON THE FOLLOWING FIELD OBSERVATIONS:

   A. DRY - A SOIL WITH NO VISIBLE MOISTURE, FEELS DRY WHEN HELD IN THE HAND, WILL NOT FORM A CAST.

   B. MOIST - A SOIL WITH VISIBLE MOISTURE, FEELS MOIST IN THE HAND, WILL FORM A CAST.

   C. WET - A SOIL WITH VISIBLE WATER, WETS THE HAND WHEN HELD, HAS FREE WATER WHEN SHAKEN.

   A COMBINATION OF THESE TERMS MAY BE USED TO DESCRIBE THE SOIL MOISTURE CONDITION.

* 5. ALL TEST HOLES AND PENETROMETERS WERE PLACED IN AN INTERTIDAL AREA AND THE WATER TABLE WILL VARY WITH THE TIDE.

SOIL GRAIN SIZE DEFINITIONS

Boulder	>10" Diameter
Cobble	3"- 10" Diameter
Broken rock (angular)	>3" Diameter
Gravel (rounded); Stone (angular)	#10 Sieve-3" Dia.
Sand	#200 Sieve- #10
Silt/Clay	<#200 Sieve

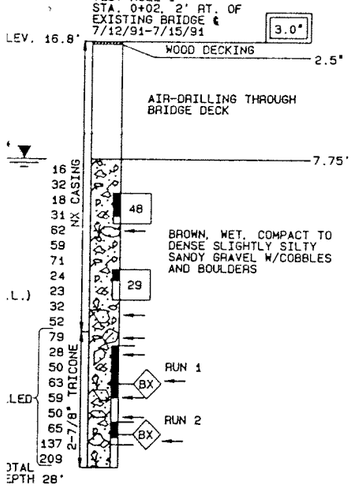
NOTE: Soil classifications are visual only unless AASHTO soil class is shown on the log.

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BR-0003(21)	1991	8	9

BXFEL1

IONS: -

TEST HOLE 1
STA. 0+02. 2' RT. OF EXISTING BRIDGE ℄
7/12/91-7/15/91

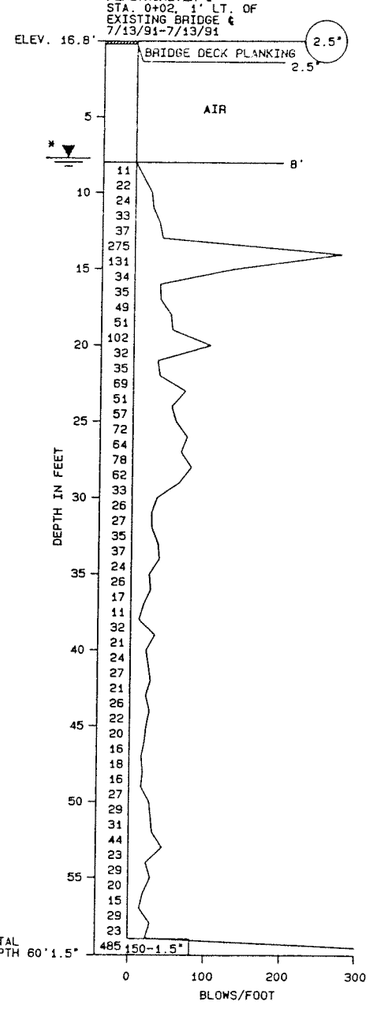


T.H. 1 NOTES:

BLOWCOUNT 19'-20':
50 BLOWS 1"
29 BLOWS 11" AFTER PREDRILLING

BROKEN AND DAMAGED CASING DUE TO "BOULDERS" PREVENTED ADVANCING CASING DEEPER THAN ELEV. -11.2.

PENETROMETER 1
STA. 0+02. 1' LT. OF EXISTING BRIDGE ℄
7/13/91-7/13/91

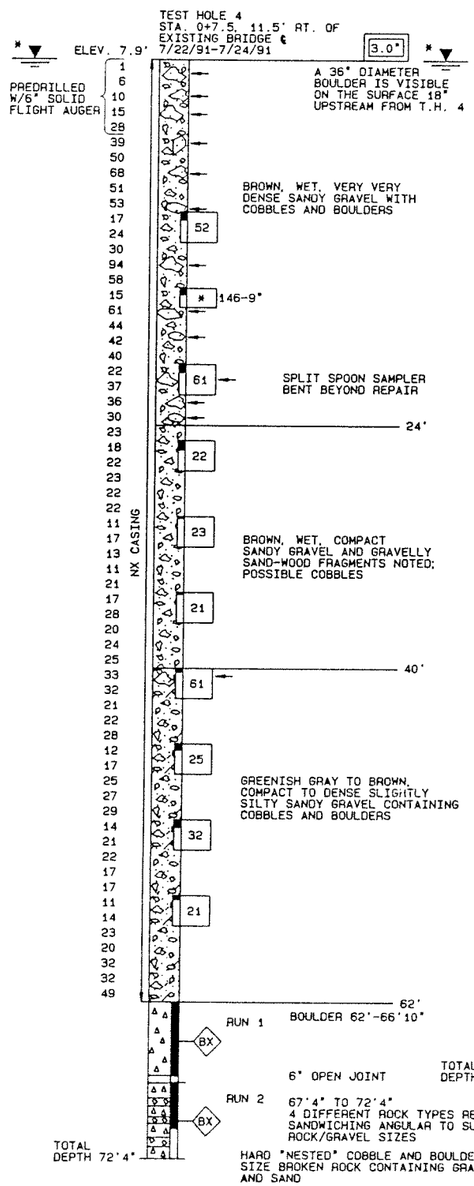


PENETROMETER 1 NOTES:

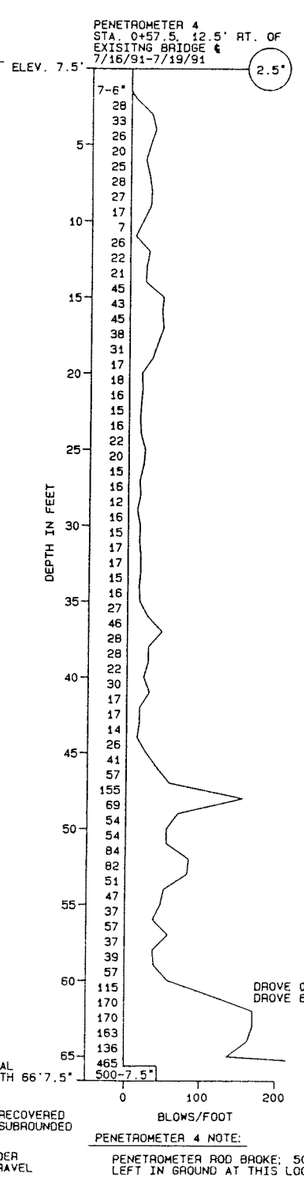
PENETROMETER PULLOUT BREAK FORCE IMMEDIATELY AFTER DRIVING WAS 5,024 LBS.

20' OF PENETROMETER ROD WAS BENT AND DAMAGED WHILE DRIVING P-1.

TEST HOLE 4
STA. 0+7.5. 11.5' RT. OF EXISTING BRIDGE ℄
7/22/91-7/24/91



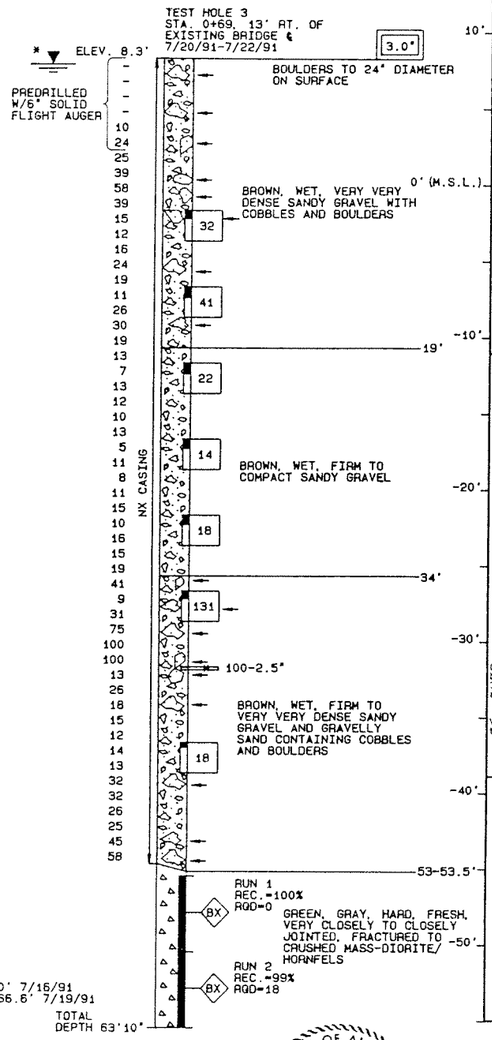
PENETROMETER 4
STA. 0+57.5. 12.5' RT. OF EXISITNG BRIDGE ℄
7/16/91-7/19/91



PENETROMETER 4 NOTE:

PENETROMETER ROD BROKE; 50' LEFT IN GROUND AT THIS LOCATION.

TEST HOLE 3
STA. 0+69. 13' RT. OF EXISTING BRIDGE ℄
7/20/91-7/22/91



BASIC MATERIALS SYMBOLS

Organic
Silt
Cobbles; Boulders
Clay
Gravel
Sand

NOTE: Significant soil mixtures are shown by combining soil symbols

TYPICAL TEST HOLE SYMBOLS

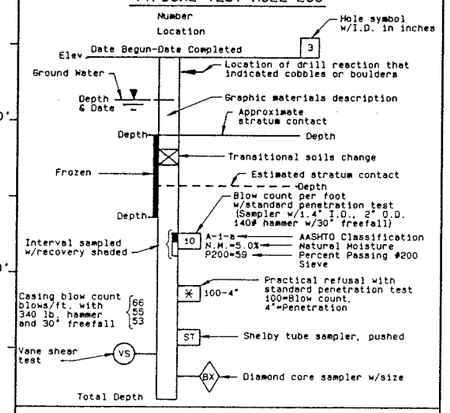
Plan View
Location of any hole
Section View
Rotary
Auger
Diamond Core
Penetrometer

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

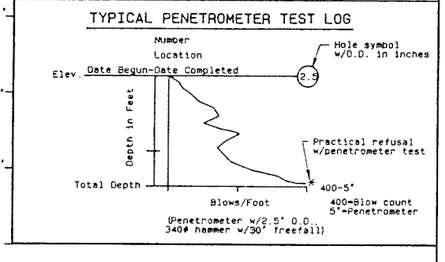
Based on Standard Penetration Test

GRANULAR		COHESIVE	
Blows/ft	Rel. Density	Blows/ft	Consistency
0-5	Very Loose	2	Very Soft
6-10	Loose	2-4	Soft
11-20	Firm	5-8	Medium
21-35	Compact	9-15	Stiff
36-50	Dense	16-30	Very Stiff
51-70	Very Dense	31-60	Hard
71+	V. Very Dense	61+	Very Hard

TYPICAL TEST HOLE LOG



TYPICAL PENETROMETER TEST LOG



AS BUILT PLANS

MARK HALVORSEN Date SEPT 1992
Project Engineer

CORRECTIONS TRANSFERRED

Tracings S.H. SOLIE JR. Date 9/18/92

Checked GW Date 11/11/92

GENERAL NOTES:

ST HOLE(S) DEPICTED ARE A COMBINATION OF THE ORIGINAL FIELD AND AN OFFICE EXAMINATION OF THE FIELD LOG(S), SOIL SAMPLE(S) ROCK CORE(S).

RATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN YPES OR RELATIVE DENSITIES. THE TRANSITION MAY BE GRADUAL.

CASING IS INDICATED, THE NEED WAS PREDICATED BY THE POSITION GROUNDWATER TABLE OR BY CAVING GROUND CONDITIONS. THE CASING STALLED TO PROVIDE TEMPORARY SOIL SUPPORT AND/OR PROVIDE FOR FLUID CIRCULATION.

4. FIELD MOISTURE DESCRIPTIONS (DRY, MOIST, AND WET) ARE BASED ON THE FOLLOWING FIELD OBSERVATIONS:

A. DRY - A SOIL WITH NO VISIBLE MOISTURE, FEELS DRY WHEN HELD IN THE HAND, WILL NOT FORM A CAST.

B. MOIST - A SOIL WITH VISIBLE MOISTURE, FEELS MOIST IN THE HAND, WILL FORM A CAST.

C. WET - A SOIL WITH VISIBLE WATER, WETS THE HAND WHEN HELD, HAS FREE WATER WHEN SHAKEN.

A COMBINATION OF THESE TERMS MAY BE USED TO DESCRIBE THE SOIL MOISTURE CONDITION.

*5. ALL TEST HOLES AND PENETROMETERS WERE PLACED IN AN INTERTIDAL AREA AND THE WATER TABLE WILL VARY WITH THE TIDE.

STATE OF ALASKA
49TH
Eric O. Johnson
ERIC O. JOHNSON
CE-3492
REGISTERED PROFESSIONAL ENGINEER

SOIL GRAIN SIZE DEFINITIONS

Boulder	>10" Diameter
Cobble	3"- 10" Diameter
Broken rock (angular)	>3" Diameter
Gravel (rounded); Stone (angular)	#10 Sieve-3" Dia.
Sand	#200 Sieve- #10
Silt/Clay	<#200 Sieve

NOTE: Soil classifications are visual only unless AASHTO soil class is shown on the log.

TEST HOLE LOGS

PELICAN CREEK BRIDGE REPLACEMENT

State of Alaska
DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Juneau, Alaska

Date: 8-27-91
Approved: DP

BRIDGE NO. 1491
DWNG. NO. 7