YC-121

FILE: HUMBOLDT COUNTY 1973

September 27, 1973

John Murray
Senior Civil Engineer

Tom McGee

Redwood Creek Bridge and Rohner and Strong Creek Projects

The following two projects were funded, but not specifically identified by line item:

1. Abutment protection of Redwood Creek Bridge on Chezum Road.

2. Stream clearance of Rohner Creek and Strong Creek.

The projects will have to go to bid, as they are not of the nature of work performed by our crews.

Thomas J. McGee
Business Manager

TJM;ml

WILLIAM O. LANGENBACH
CIVIL ENGINEERING CONSULTANT

3930 ROHNERVILLE RD.
FORTUNA, CA. 95540

TELEPHONE 707 725-5315

BRIDGE REPORT

Investigation November 16, 1971

REDWOOD CREEK
Humboldt Co. Road 6L200
(Chezem Road)

Bridge No. 4C-121
Post Mile 1.49

This report supplements the December 6, 1968 County report.

PLANS

Incomplete "As Built" plans of this structure are in the files of the California Division of Highways, Bridge Department in Sacramento. A copy of these plans may have been sent to the County.

CONSTRUCTION RECORD AND HISTORY

Erected across Redwood Creek in 1947 by the State.

The trusses were fabricated and erected across San Juan Creek by San Louis Obispo County in 1916. The State removed the bridge in 1941 and put the dismantled truss span in storage at Paso Robles. In 1947 the State reerected the span at its present location across Redwood Creek.

The bridge sustained serious damage by vehicular accidents on several occasions while in State service. All damage was repaired shortly after each accident.

Skid rails were installed in 1951.

Earth slide movement in the steep hill beside the Abutment 2 road approach prevented improvement of the approach to provide a longer turning radius from the creek bank roadway onto and off of the bridge. As a result long vehicles, primarily semi-trailer types, continually hit the bridge.

In 1960 a 2' high concrete barrier curb was constructed at the end of the bridge on the inside edge of the sharp curve on the approach at the Willow Creek end of the

bridge. The barrier curb was intended to push the vehicle wheels into the roadway and force the vehicle over so that it would not hit the bridge. Later steel facing was added to the curb to prevent roughening and gouging of the concrete, and the resultant climbing of the curb by vehicle wheels.

A major storm in December 1964 caused extensive scour along the stream's right bank and activated the slide. The large boulder upon which Abutment 2 is founded began moving toward the creek and split into three pieces. The bridge became in imminent danger of complete destruction. To stabilize and repair the structure and its abutment the boulder was tied together with a heavy cable made taut by a turnbuckle, the cracks in the boulder were filled with concrete, and concreted rock riprap was placed along the creek bank.

The Abutment 1 end of the bridge had been pushed off its bearings by thrust through the deck system from the movement at Abutment 2. To cope with this problem Abutment 1 was repaired and the bearing assembly revised from fixed to a slide bearing, and the Abutment 2 roller bearing assembly was made immobile. The overall repair and revisions returned the bridge to sound structural condition.

The structure was relinquished to Humboldt County March 4, 1966. Repainting of the structure by the State was completed subsequent to the relinquishment date as per the State and County agreement.

DIMENSIONS

Type - Steel through Pratt truss with concrete deck.

Skew - None.

Spans - 1 at 120.17' center to center of supports.

Length - 124'.

Vertical Clearance - Minimum vertical clearances are 15' 10" along both curbs and 15' 11" on bridge centerline.

Roadway Width - 16.0' between bases of concrete curbs.

Railing - Steel lattice about 2' 8" above the curb top.

Skid Railing - Connected along the roadway face of both trusses are 2 each steel 10" channels at 15.3 pounds per foot. Each channel is stiffened between supports by a

single 4WF13.0 beam welded to the face of the channel web. The railings are set with the top of the channels about 5' 3" and 6' 9" above the top of the deck. Horizontal clearance between the skid rails is 17' 8".

Curbs - RC 12" high. 3" battered face.

Surfacing - About 1.5" AC over the entire deck.

Deck - 6" thick RC slab.

Stringers - Steel 10125.4 at 3.0' centers.

Floorbeams - Steel 24179.9.

Trusses - Steel through pin-connected Pratt trusses with 7 panels at 17' 2". The trusses are spaced at 19' 2" center to center. The span is anchored at Abutment 2 and has a slide type expansion joint at Abutment 1.

Abutments - Abutment 1 is an RC wall type on spread footing bearing on rocky earth. Abutment 2 is a low but varying height RC sill bearing on a large "floating boulder". Both abutments have short RC wingwalls.

Profile - Distances measured to the ground from the top of the right (upstream) curb are as follows:

A-1 (Abut. face)	13'	Panel Point 5	28'
Panel Point 1	19'	Panel Point 6	18'
Panel Point 2	25'	A-2 (Abut. face)	8'
Panel Point 3	28'		
Panel Point 4	28'		

The distance from the top of the curb to the soffit of the stringers is 2.4'.

High water - Mr. Chezem, a local resident, stated that the crest of the stream in the major storm of December, 1964 was about 8' below the stringer soffits.

Channel - Well-defined within steep rocky earth banks with a gravel and rock bed. The right bank is along the toe of an active slide. This bank is protected with concreted rock riprap.

Utilities on Structure - None.

POSTING

On March 19, 1946 the prior bridge on this route, then a State highway, was posted for load and a speed limit of

"5 Miles on Bridge for Vehicles over 10 Tons". Following removal of the old bridge and construction of this bridge in 1947 the load limit portion of the posting was rescinded by State Director's approval dated November 3, 1947. This left the speed portion of the posting in effect and it so remains today.

During repairs following serious damage to the abutments in the December 1964 highwater period the load limit was temporarily reduced to "10 Tons Per Vehicle". When the repairs were completed the temporary load posting was rescinded.

CONDITION

Posting signs "Speed Limit 5 Miles on Bridge For Vehicles Over 10 Tons" and advisory signs "One Lane Bridge for Trucks and Buses" are in place on both approaches.

Clearance markers and post mile markers are set at both ends of the bridge.

There is a pot hole in the approach surfacing near Abutment 1.

A somewhat vertical crack has developed in the downstream end of Abutment 1. This crack appears to be caused by failure of the truss expansion bearing shoe to slip on the masonry plate as was intended by the design. The graphite sheet packing used between the masonry plate and the truss shoe has buckled, indicating some movement has occurred in the slip plane as was intended.

The crack is not a serious defect but should be observed periodically to determine its rate of development. If it does not increase in size no corrective measures will be required.

A few 1/4" to 1/2" wide cracks have developed in the concrete between the rock riprap near Abutment 2. These cracks probably are the result of settlement of the rocks into undermined spots at the toe of the riprap. I believe the cracks have existed for several years and are not an indication of imminent bank protection failure.

The structure was last painted in July, 1966 and the paint remains in good condition.

STRESS ANALYSIS and CAPACITY RATING

This structure was stress analyzed by the Bridge Department of the California Division of Highways in 1946 prior

to reerection at its present location. The analysis showed that forces caused by full legal loads with impact combined with dead loads developed in the members unit stresses that did not exceed allowable safe limits.

On the basis of the findings of the State's analysis and on the fact that no signs of distress due to overstress by vehicular loading were noted during this investigation, the structure may be classed as safe for full legal loads and moderate overloads.

Green color code rating should be assigned to the structure for use in issuance of transportation permits. This rating conforms with the overload classification for the structure when it was under State jurisdiction.

RECOMMENDATIONS

1. Patch the pot hole in the approach surfacing near Abutment 1.

2. Occasionally observe the crack in the downstream end of Abutment 1. If the crack continues to develop it may be necessary to jack up the end of the structure and lubricate the slide plates with graphite so as to reduce the friction and thereby relieve the forces tending to crack the abutment concrete.

The capacity rating assigned to this structure is based on conditions found during this investigation. Any changes in condition such as further deterioration or damages, or existing deterioration that is not evident by customary surface inspection of the structure will alter the capacity rating.

William O. Langenbach

William O. Langenbach
Professional Engineer C5944

WOL:eul

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Bridge No. 04C-[illegible]

SUPPLEMENTARY BRIDGE REPORT
DS-M19(REV.9-93)

Location 01-Hum-Co. Rt.
Dist.-Co.-Rte.-PM/City

Date of Investigation 7-23-96

Name REDWOOD CREEK (Chezem Road)

RATINGS:

[71] Waterway Adequacy 7 [61] Channel & Channel Protection 6 [72] Approach Rdwy Align. 3

TYPE OF INVESTIGATION/REPORT

Biennial	X	Group A		Other	
Damage		Underwater		Office	

EXISTING POSTING

A Director's Order dated 03/19/46 established the following restricted loading:
5 MPH ON BRIDGE FOR VEHICLES OVER 10 TONS

SIGNS

The following signs were observed in the vicinity of the bridge:
NARROW BRIDGE
ONE LANE BRIDGE FOR TRUCKS AND BUSES
5 MPH ON BRIDGE FOR VEHICLES OVER 10 TONS

CONDITION OF STRUCTURE

AC surface is raveling at west end of bridge.

Moveable bearings at the east end of bridge appear to be jammed against soil and rock and not free to move. This appears to be an old condition, and although technically undesirable has not noticeably interfered with the operation of the structure.

No significant changes were noted. The structure remains in satisfactory condition.

PAINT CONDITION

Code 5. Rust ranging from freckled to blanket scattered throughout. No measurable section loss.

RECOMMENDED POSTING

Retain existing posting.

William R. Baker
Registered Civil Engineer

6/30/97

WRB:zbt

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

ELEMENT LEVEL INSPECTION-(ELI)

BRIDGE NUMBER: 04C0121 (1–8)
FRAME: 01 (9)
INSPECTION DATE: 04 20 94 / 07 12 96 (11–16)

INFORMATION ONLY - NOT FOR UPDATE

SCOUR CRITICAL..... NO
GROUP A INVESTIGATION..... YES
FRACTURE CRITICAL..... NO
ELIGIBLE FOR RAIL UPGRADE.. NO
UNDERWATER INVESTIGATION... NO

DISTRICT 01
COUNTY HUM
ROUTE
POSTMILE
NAME REDWOOD CREEK

DEL	ELE #	ELEMENT DESCRIPTION	ENV	TOTAL QUANTITY	UNITS	QUANT CONDITION STATE 1	QUANT CONDITION STATE 2	QUANT CONDITION STATE 3	QUANT CONDITION STATE 4	QUANT CONDITION STATE 5
	13	CONCRETE DECK - UNPROTECTED W/ AC OVERLAY	~~3~~ 2	1	EA	1				
	121	PAINTED STEEL THRU TRUSS BOTTOM CHORD	3	76	M		60	16		
	126	PAINTED STEEL THRU TRUSS EXCLUDING BOTTOM CHORD	3	76	M		60	16		
	215	REINFORCED CONCRETE ABUTMENT	~~4~~ 2	~~1~~ 15	M	~~1~~ 15				
	152			36	M			36		
	113			260	M			260		
	311			2	EA			2		
	313			2	EA			2		

18 19 22 23 28 33 38 43 48

01/26/96 10A SCOTT STRAUB

BY: [signature]

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATI...

Bridge No. 04C-0121

SUPPLEMENTARY BRIDGE REPORT
DS-M19(REV.9-93)

Location 01-Hum-Co. Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 4-20-94

Name REDWOOD CREEK (Chezem Rd., 1.5 mi. E/O of SR 299)

RATINGS:

[71] Waterway Adequacy 7 [61] Channel & Channel Protection 6 [72] Approach Rdwy Align. 3

TYPE OF INVESTIGATION/REPORT

Biennial	X	Group A	X	Other	
Damage		Underwater		Office	

CONDITION OF STRUCTURE

Asphalt overlay continues to peel off deck; approximately 1 m^2 ($12'^2$) of PCC deck surface is now exposed.

Soil surrounds abutment bearings.

There are no significant structural changes from previously reported fair condition of this structure.

PAINT CONDITION

Code 5: There is moderate freckled and/or blanket rust throughout, but no significant section loss observed.

WORK RECOMMENDED

1. Clean soil from bearings.

SIGNS

The following signs were oberved in the vacinity of the bridge, near both ends, reading:

"NARROW BRIDGE"
"ONE TRUCK OR BUS ON BRIDGE AT A TIME"
"5 MPH ON BRIDGE FOR VEHICLES OVER 10 TONS"

EXISTING POSTING

This structure remains posted by the Director's Order dated 03-19-46 for the following restrictions:

"5 MPH ON BRIDGE FOR VEHICLES OVER 10 TONS"

RECOMMENDED POSTING

Retain existing posting.

FRACTURE CRITICAL MEMBER/DETAIL IDENTIFICATION

This structure is designated a Group "A" structure because of the following detail:

Steel through Pratt truss with eye-bar lower chord member.

On this date, an investigation was performed to visually inspect the steel through truss and eye-bar lower chord members. No indications of distress or fracture were oberved during this investigation.

BRIDGE NO. 04C-0121	
SHEET 2	DATE 4-20-94

NEXT RECOMMENDED GROUP "A" INVESTIGATION:
April, 1998; 48 month interval.

PONTIS INSPECTION
A PONTIS inspection form for this investigation is attached.

Barry L. Pavan
Reviewed and Approved by

Richard M. Hunt

Richard M. Hunt
Registered Civil Engineer

BLP/RMH/fm

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

(ATTACHMENT A)

PONTIS DATA FORM - PIA

BRIDGE NUMBER	FRAME	INSPECTION DATE
04C0121	01	04/20/94
1 8	9	11 16

INFORMATION ONLY - NOT FOR UPDATE

SCOUR CRITICAL	NO
CATEGORY A	YES
FRACTURE CRITICAL	NO
ELIGIBLE FOR RAIL UPGRADE	NO
UNDERWATER INSPECTION	NO

DISTRICT 01
COUNTY HUM
ROUTE
POSTMILE
NAME

DEL	ELE #	ELEMENT DESCRIPTION	ENV	TOTAL QUANTITY	UNITS	QUANT CONDITION STATE 1	QUANT CONDITION STATE 2	QUANT CONDITION STATE 3	QUANT CONDITION STATE 4	QUANT CONDITION STATE 5
	13	PAINTED STEEL THRU TRUSS BOTTOM CHORD	3	76	M		60	16		
	16	PAINTED STEEL THRU TRUSS EXCLUDING BOTTOM CHORD	3	76	M		60	16		
	51	CONCRETE ABUTMENT	3	11	M	11				
	113	CONCRETE DECK - UNPROTECTED W/ AC OVERLAY	3	1	EA	1				
18 19			22 23			28	33	38	43	48

8-10-94

03/01/94 10A S. STRAUB

BY: PAVAN

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Bridge No. 04C-0121

SUPPLEMENTARY BRIDGE REPORT

DS-M19(REV.1-90)

Location 01-Hum-Co.Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 4/1/92

Name REDWOOD CREEK (Chezem Rd.)

RATINGS:

58 Deck 6 | 59 Superstructure 6 | 60 Substructure 6 | 71 Waterway Adequacy 7

61 Channel & Channel Protection 6 | 62 Culvert N | 72 Approach Rdwy Align. 3

TYPE OF INVESTIGATION/REPORT

Biennial	X	Category A		Other	
Damage		Underwater		Office	

CONDITION OF STRUCTURE

Element U_1L_2 of the right truss has some slightly buckled single lacing. This is not a problem at this time.

There are some light to medium transverse cracks with efflorescence throughout the soffit.

There is a 1' x 4' section of delaminated AC on the deck near the Abutment 1 joint.

Otherwise, there is no significant change from the previously reported generally fair condition of this structure.

PAINT CONDITION

Paint Code 4; there is light to medium freckled rust and light blanket rust throughout.

SIGNS

There are signs at both approaches that read:

ONE LANE BRIDGE FOR TRUCKS AND BUSES
and
5 MPH ON BRIDGE FOR VEHICLES OVER 10 TONS

SCOUR

None noted. No supports in the channel. Stream section not taken due to the height of the structure over the channel.

EXISTING POSTING

This structure was posted by the Director's Order dated 3/19/46 for the following restrictions: "5 MPH ON BRIDGE FOR VEHICLES OVER 10 TONS".

RECOMMENDED POSTING

Retain existing posting.

Erol C. Kaslan
Registered Civil Engineer

REGISTERED PROFESSIONAL ENGINEER
Erol C. Kaslan
No. 45862
Exp. 12/31/94
CIVIL
STATE OF CALIFORNIA

ECK/pfa-19292
cc: Structures Hydraulics

Form BFU-1
July 1989

COUNTY OF HUMBOLT

Bridge File Update

Field Inspection By: L. R. Harvey Date 11-27-90

Stream: Redwood Creek Bridge No. 4C-121

Bridge Description: Thru. steel Truss - concrete deck

Road Name Chezem Road Road No. 6L200 PM 1.49

BRIDGE CONDITION: good
Paint remains in fairly good condition

WATERWAY CONDITION: Top curb to stream bed = 34'

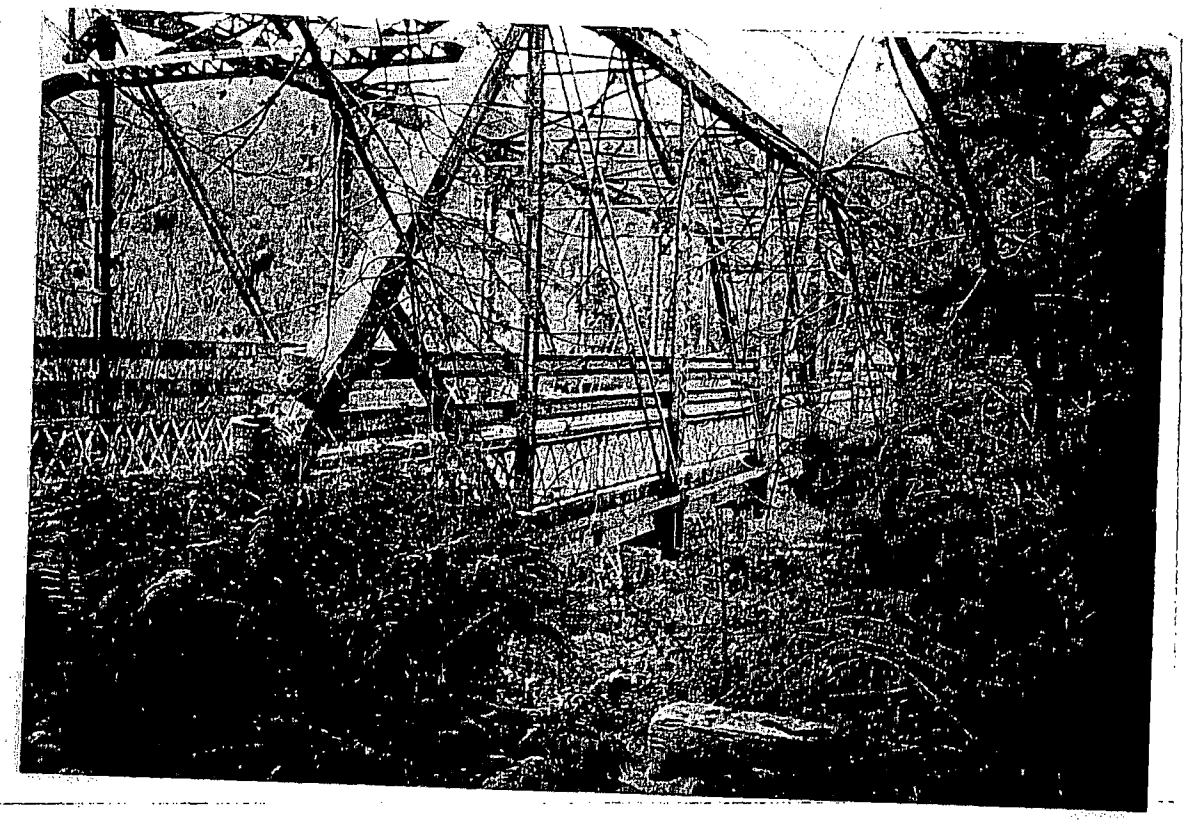
ROADWAY CONDITION: good

Bridge No 4C- 121 Date 11-27-[illegible]

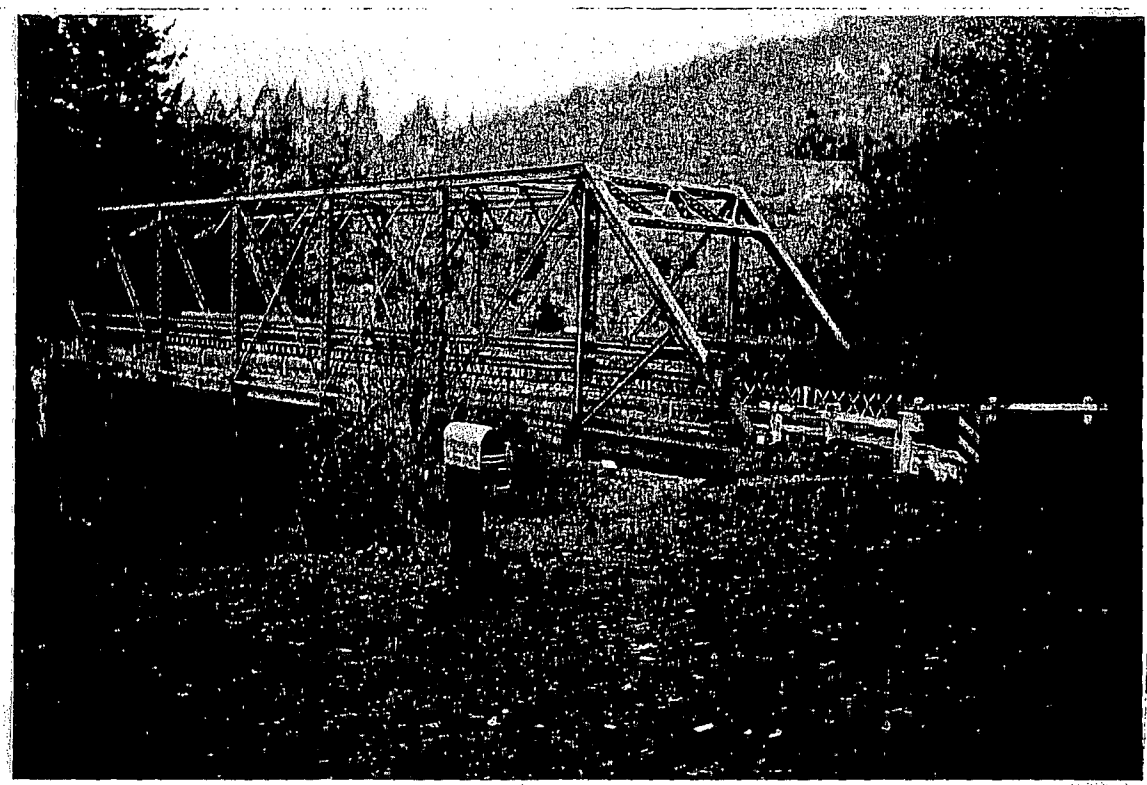
Approach Roadway Looking * West

*Fill in North, South, East or West

Approach Roadway Looking * East



Bridge Profile Looking Upstream



Bridge Profile Looking Downstream

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTAT

Bridge No. 04C-0121

SUPPLEMENTARY BRIDGE REPORT

DS-M19(REV.1-90)

Location 01-Hum-Co.Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 10-4-90

Name REDWOOD CREEK (Chezem Road)

RATINGS:

[58] Deck 6 [59] Superstructure 6 [60] Substructure 6 [71] Waterway Adequacy 7

[61] Channel & Channel Protection 6 [62] Culvert N [72] Approach Rdwy Align. 3

CODES:

[21] Custodian 02 [22] Owner 02 [26] Functional Classification: Deck 09 Under NA

[41] Str Open, Posted or Closed A [107] Deck Type 1 [108] Wearing Surface/Prot Sys 600

Max Col/Pier Ht. NA [111] Pier/Abut. Prot. NA

[55] Min Lat Underclr on Rt. NA [54] Min Vert Underclr NA [112] NBIS Bridge Length Y

DATA:

[51] Bridge Width (NET) 16.0 [109] Average Daily Trucks (% of ADT): Deck 2 Under NA

[114] Future ADT: Deck 100 Under NA [115] Yr. of Future ADT: Deck 2010 Under NA

Number of Intermediate Joints: @ Hinges 0 @ Bents 0

TYPE OF INVESTIGATION/REPORT

Biennial	X	Category A		Other	
Damage		Underwater		Office	

SIGNS

Visible on the approach are signs which read:

1 LANE BRIDGE
FOR TRUCKS
AND BUSES

and:

5 MPH
ON BRIDGE
FOR VEHICLES OVER
10 TONS

CONDITION OF STRUCTURE

No significant changes were noted. The structure remains in satisfactory condition.

CONDITION OF PAINT

Dirty, beginning to peel, and rust showing through in scattered locations.

Code = 4

BRIDGE NO. 04C-0121	
SHEET 2	DATE 10-4-90

FRACTURE CRITICAL MEMBER/DETAIL IDENTIFICATION

This structure is designated a Category "A" structure because of the following detail:

eye-bar lower chord member

Category "A" Inspection interval - 60 months.

William R. Baker
Registered Civil Engineer

WRB/ms-30090

m Gates
vision of Structures
O. Box 942874
cramento, CA
274-0001

SEISMIC RETROFIT INVENTORY FORM

BRIDGE NO. 4C 0121 BRIDGE NAME Redwood Creek

NUMBER OF INTERMEDIATE SUPERSTRUCTURE JOINTS (HINGE) —
(BENT) —

SUBSTRUCTURE: (CHECK APPROPRIATE BOXES)

COLUMNS:	Y	N
SINGLE COLUMN:	☐	☒
MULTI-COLUMN:	☐	☒
PIER WALL:	☐	☒
PILE BENT:	☐	☒
OTHER (DESCRIBE):		
ABUTMENTS:		
SEAT ABUTMENT:	☒	☐
MONOLITHIC ABUTMENT:	☐	☒

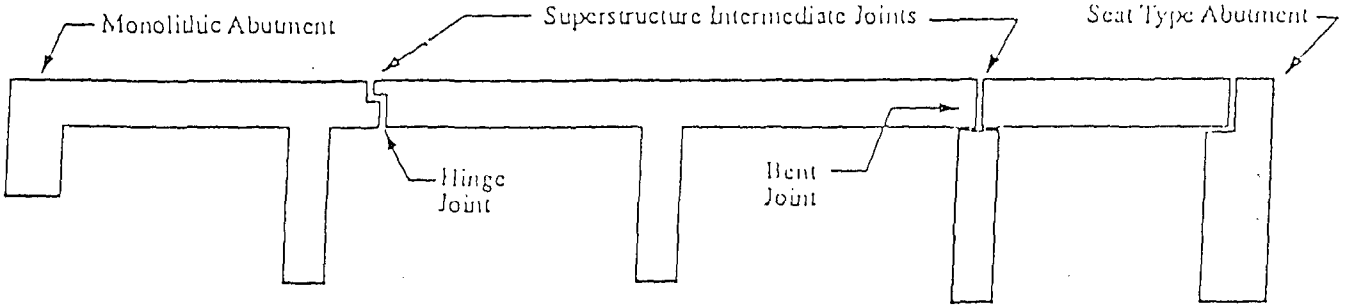
PLANS AVAILABLE?:	Y	N
	☒	☐

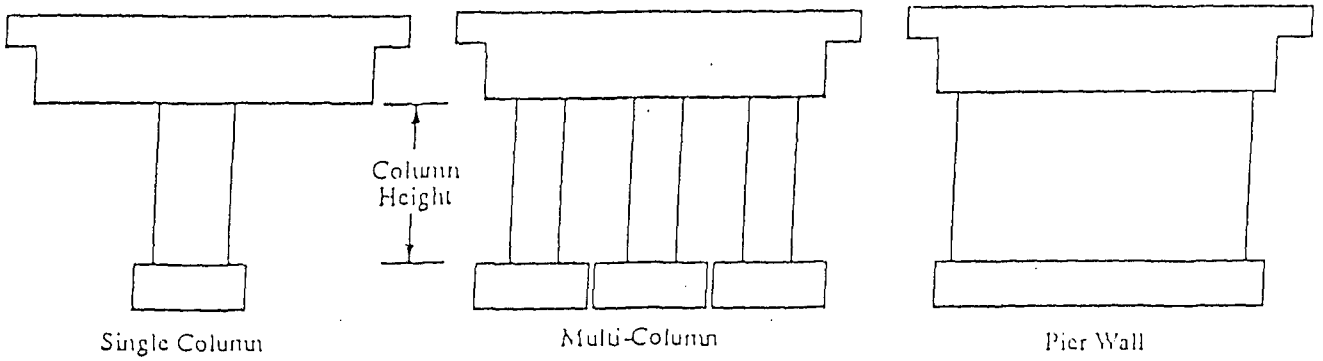
ESTIMATED ADT: < 50

MAXIMUM COLUMN / PIER HIEGHT: (CHECK ONE)

- 0' TO 20': ☐
- 20' TO 30': ☒
- OVER 30': ☐

DEFINITIONS:





PREPARED BY: L.R. Harvey
DATE: 12-11-89

CONTACT: John Murray
OWNER/AGENCY: County of Humboldt
ADDRESS: 1106 2nd Street
Eureka Ca. 95501
PHONE: 707-445-7493

☐ COMMENTS ON BACK (SKETCHES, ETC.)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DS-M19 (REV. 2/75)

Bridge No. 4C 21

Location 1-Hum-Co. Rd.
Dist - Co - Rte - PM - City

Date of Investigation September 4, 1986

Name REDWOOD CREEK (Chezem Road)

CONDITION RATING: **APPRAISAL RATING:**

Deck 7 Superstructure 7 Substr. & Pipes 6 Overall 3

Channel & Channel Protection 7 [redacted]

[redacted]

Action Required [redacted] Yes ☐ No ☒

CATEGORY A INSPECTION

A close up inspection of the eye-bar lower chord was performed on this date in conformance with criteria established by this office.

The re-inspection interval for this feature should be 5 years.

CONDITION OF STRUCTURE

No defects or changes were observed. The structure remains in fairly good condition.

William R. Baker

WRB/sr

REGISTERED PROFESSIONAL ENGINEER
William R. Baker
No. 16500
6-30-89
CIVIL
STATE OF CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DS-M19 (REV. 2/75)

Bridge No. 4C 21

Location 01-Hum-C.R.
Dist - Co - Rte - PM - City

Date of Investigation May 28, 1985

Name REDWOOD CREEK

CONDITION RATING: APPRAISAL RATING:

Deck 7 Superstructure 7 Substr. & Pipes 6 Overall 3

Channel & Channel Protection 7 Retaining Walls N

Widenable? Yes ☐ No ☒ Conditional ☐

Action Required by District: Yes ☒ No ☐

PAINT:

The paint is in condition code 4.

The paint, in general, is in good condition. In a very few locations there are small areas of rust.

CONDITION OF STRUCTURE:

There is efflorescence in the soffit of spans 1, 6, and 7.

The bearings are covered with dirt.

A shear crack has developed in the wingwall at Abutment 1 left.

RECOMMENDATION:

Remove dirt from the bearings.

James P. Hunter
by Paul Feinberg
Paul Feinberg

JPH/PF/nlc

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE REPORT
DS-M58 (REV. 10/79)

REVISED ORIGINAL

#51

Bridge No. 4C-121

Other No. 6L200-1.49

P.U.C. No.

Location 01-Hum-C.R.
Dist - Co - Rte - PM - City

Date of Investigation January 17, 1980

Name REDWOOD CREEK (on Chezem Road, 1.5 mi. E of Highway 299)

Lat. 40°-54.7' Long. 123°-49.0'

STRUCTURAL DATA AND HISTORY

Year Built 1947 By State Contract No. Unknown

Date of Revisions

Designed by: B.D. ☐ Unknown Plans Avail. @ State

Description: Steel through Pratt truss with RC deck on RC abutments.

Spans 1 @ 120.2'

Length 124' Skew None Design LL Unknown

Ratings: Inventory H10 Operating H17 Permit OOXXX

DESCRIPTION – ON STRUCTURE

Bridge Width 1.2' tr - 0.2' r - 0.9' cu - 16.0' - 0.9' cu - 0.2' r - 1.2' tr

Total Width 18.0' Lanes 1 Tracks None

Median None Rail Type Steel (0000)

Vert. Clearance over deck 15'-11" on bridge C/L Appr. Rdwy. Width 23'

Wearing Surface 1-1/2" AC Deck Seal None

Alignment Tangent west, 75' radius curve east.

DESCRIPTION – UNDER STRUCTURE

Roadway Section None

Clearances: Vert. Horiz.; Lt.

Lanes Tracks Pumpplant: None ☐ See Br. No.

Facilities Crossed Redwood Creek

cc:

CONDITION OF STRUCTURE:

Railing: Bolts are starting to rust, forming streak marks on the rail below them. Minor collisions have resulted in slight bends to the railing in a few places.

Deck: The AC riding surface is in very good shape.

The curb above the upstream side of Abutment 1 has had 2' broken off its end. Just across the road there is a transverse crack 2' from the end of the downstream curb. Random minor checking has occurred on the underside of the deck.

Steel Truss Members: All appear to be in good shape.

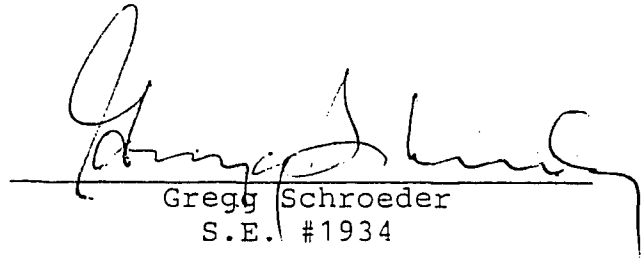
Abutments: Abutment 1 has cracks in the vicinity of both bearing devices. This cracking generally appears to be old and probably has not progressed since the 1971 report where similar condition was noted.

Approach: The guard rail posts on the downstream side of the approach to Abutment 1 are starting to rot.

Channel: Riprap in place at both upstream banks and at Abutment 2 downstream.

LOAD CAPACITY: Calculated - stringers control at 22.5 ksi (Operating); safe for all legal and orange permit loads of 5 and 7 axles.

RECOMMENDED POSTING: None.



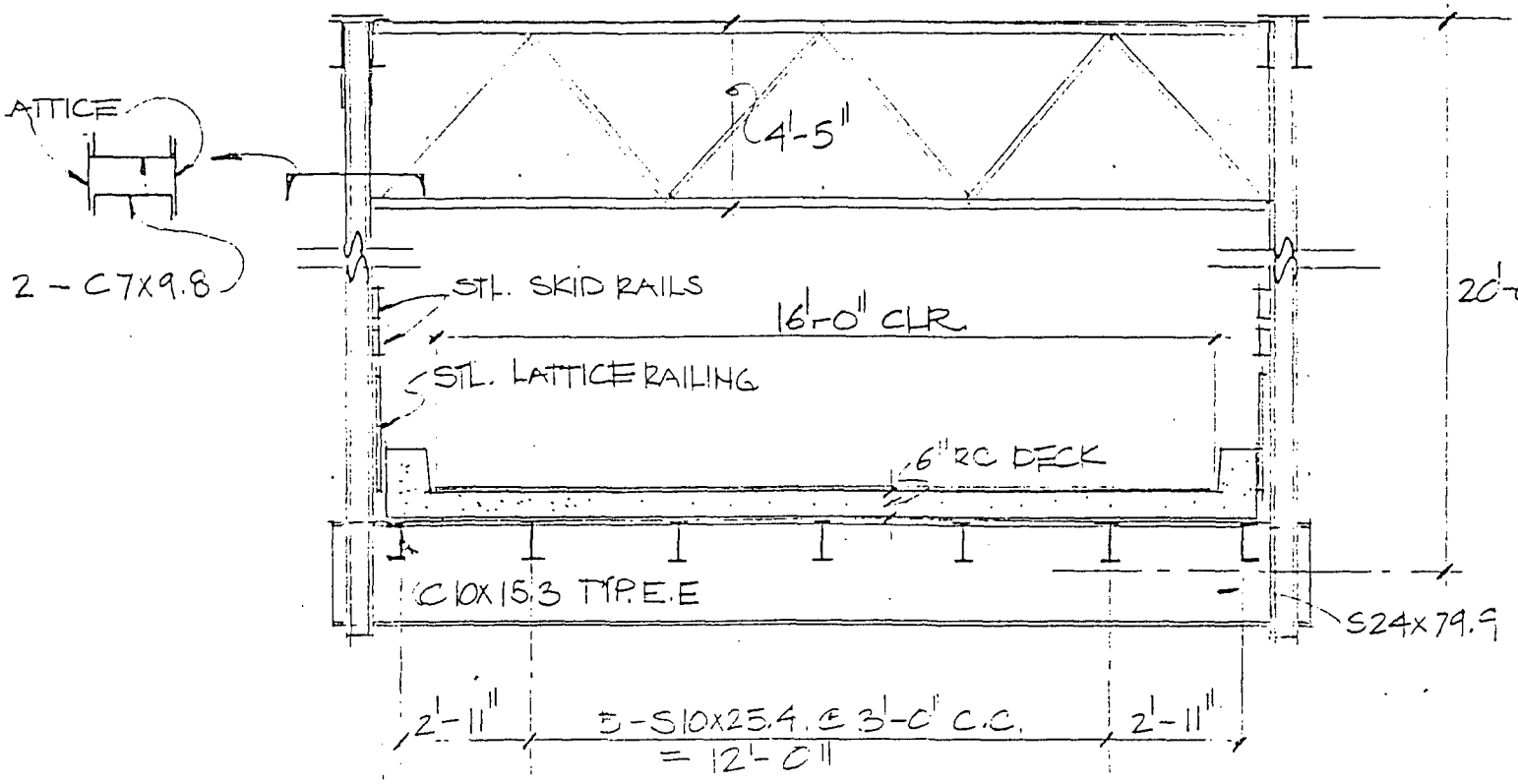
Gregg Schroeder
S.E. #1934

WINZLER & KELLY
CONSULTING ENGINEERS

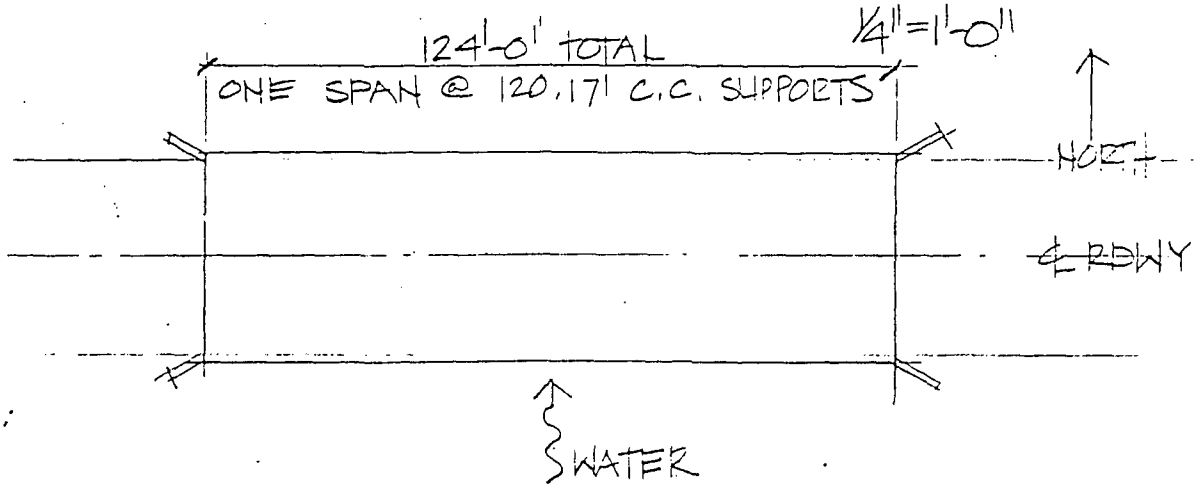
495 TESCONI CIRCLE
SANTA ROSA, CALIFORNIA 95401
(707) 523-1010

By _____ Date _____ Subject BRIDGE # 51 Sheet No. ___ of ___

Client _____ Job No. _____



TYP. SECTION @ MID SPAN



PLAN VIEW

N.T.S.

BRIDGE NO. 4C-121
#51
CHEZEM ROAD

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE REPORT
DS-M58A (REV. 10/79)

Bridge No. .....

Date January 17, 1980

DESCRIPTION – HYDRAULICS

Channel Gravel and rock. Rock riprap is in place along the upstream bank of Abutment 1. There is also some both upstream and downstream from Abutment 2.

Navigable: Yes ☐ No ☒ Clearances: Vert. ..... Horiz. .....

MAINTENANCE

Custodian County Owner County

ORIGINAL CONDITION RATING		ORIGINAL APPRAISAL	
Deck	7	Overall	4
Superstructure	7	Deck Geometry	3
Substructure & Pipes	6	Underclearances Vert.	N
Channel & Channel Protection	7	Horiz.	N
Retaining Walls	N	Safe Load Capacity	5
Approach Rdwy. Alignment	2	Waterway Adequacy	8
Estimated Remaining Life	30	Approach Rdwy. Alignment	2

Widenable? Yes ☐ No ☒ Conditional ☐

Action Required: Yes ☐ No ☒

Average Daily Traffic & Year 100 (1979)

Posting Required: None ☐ Load ☐ Speed ☒

Bypass Detour Length 5 mi.

Seismic Retrofit Not required.

HISTORY: The most recent previous inspection was performed on November 18, 1971, by W. O. Langenbach. Structure has considerable history as indicated in this report.

SIGNS: Signs posted on both approaches read as follows:

(1) "Narrow Bridge"
(2) "One Lane Bridge for Trucks and Buses"

WIDENABLE: No; existing bridge is through-truss.

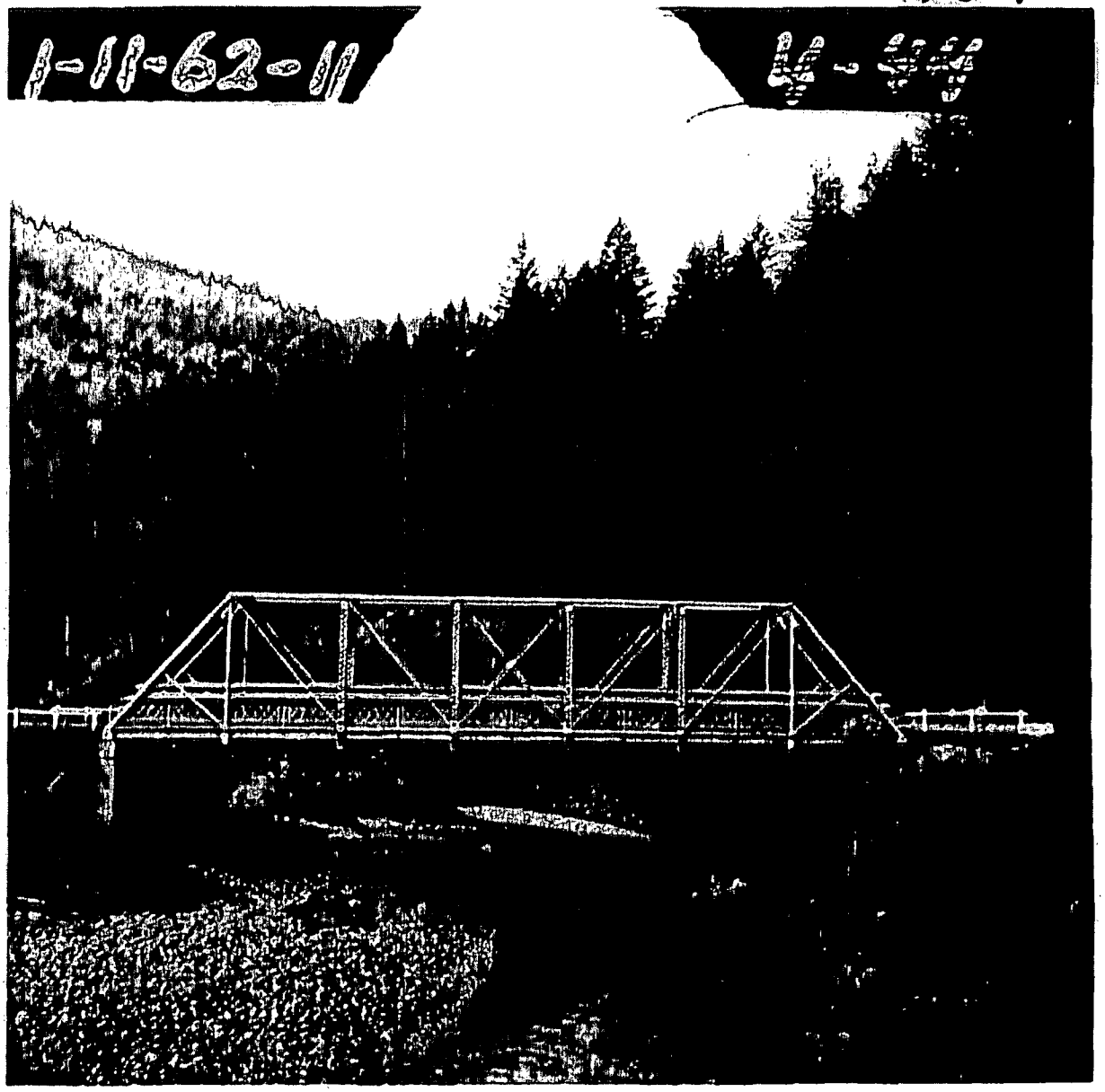
PAINT: Good condition on all steel.

PLANS AND DIMENSIONS: See sketches.

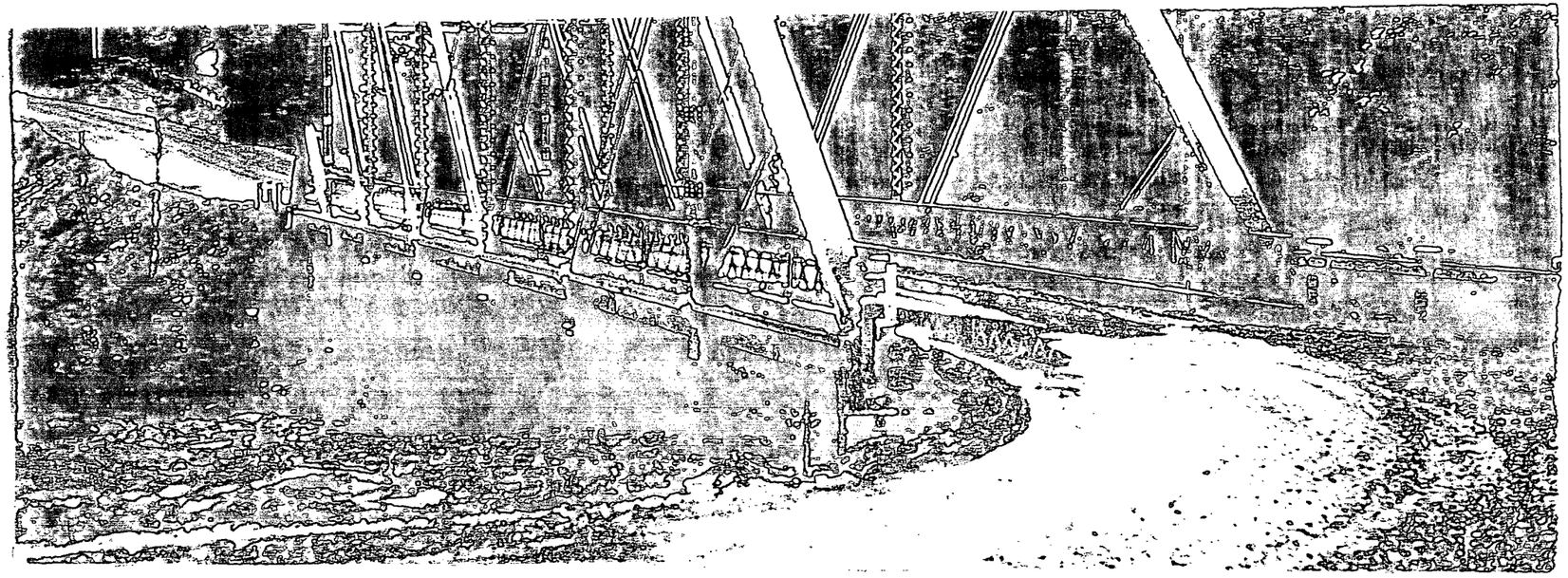
(2) con't

4C-121

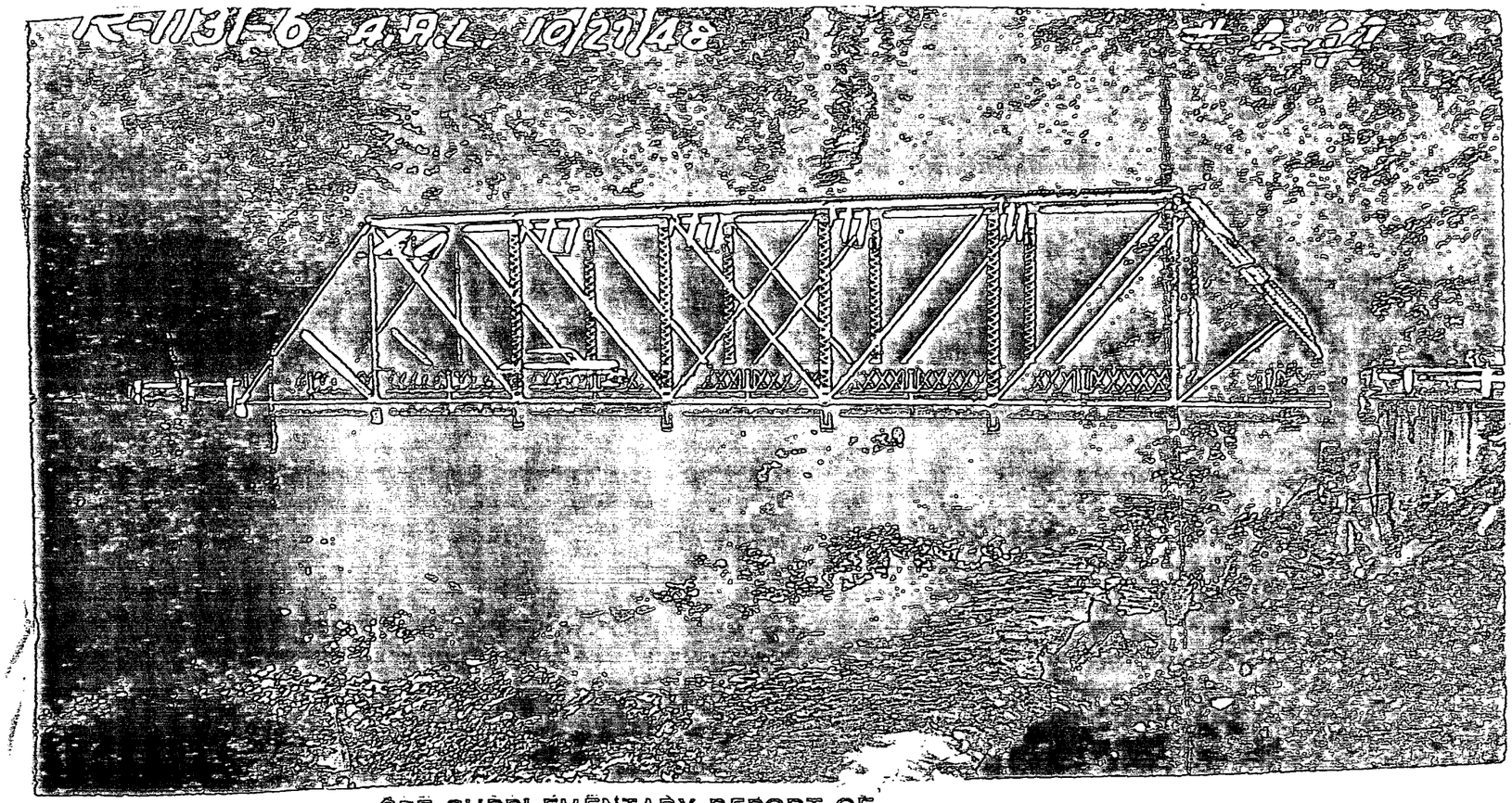
8-11-62-11



Sideview looking North (DS)

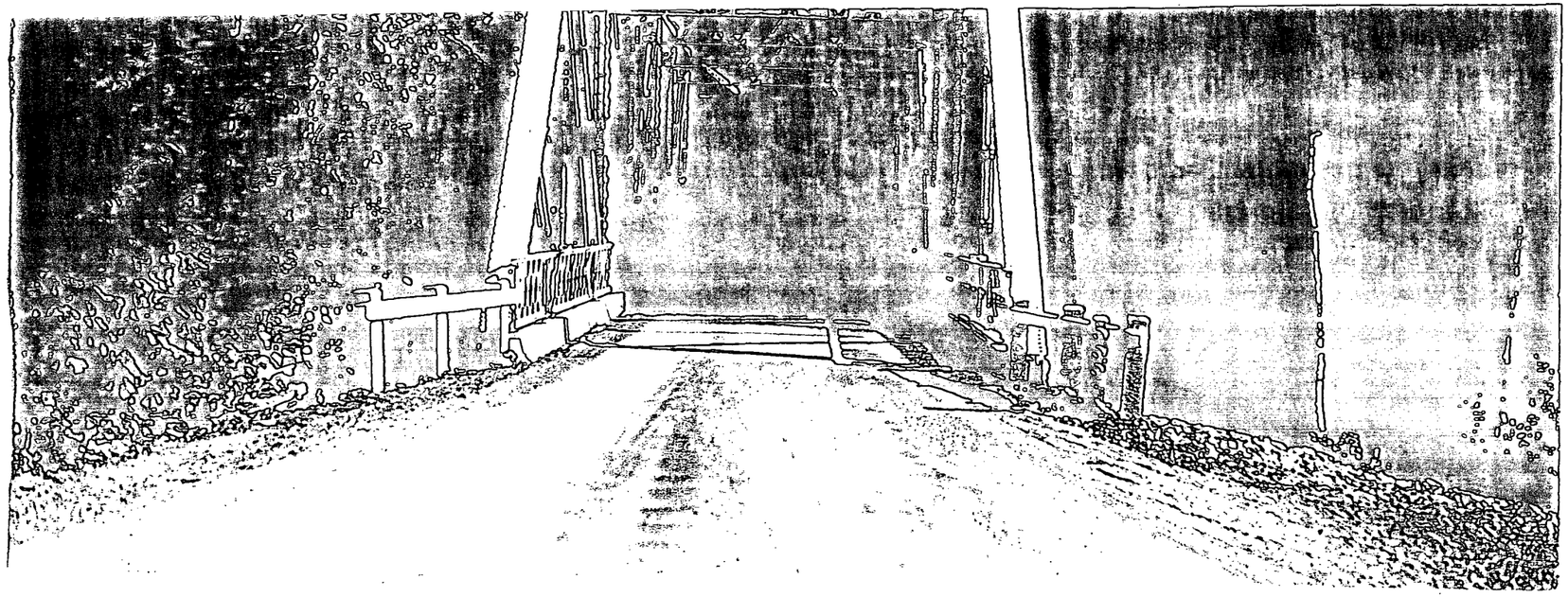


Looking along Route 20 toward Route 1

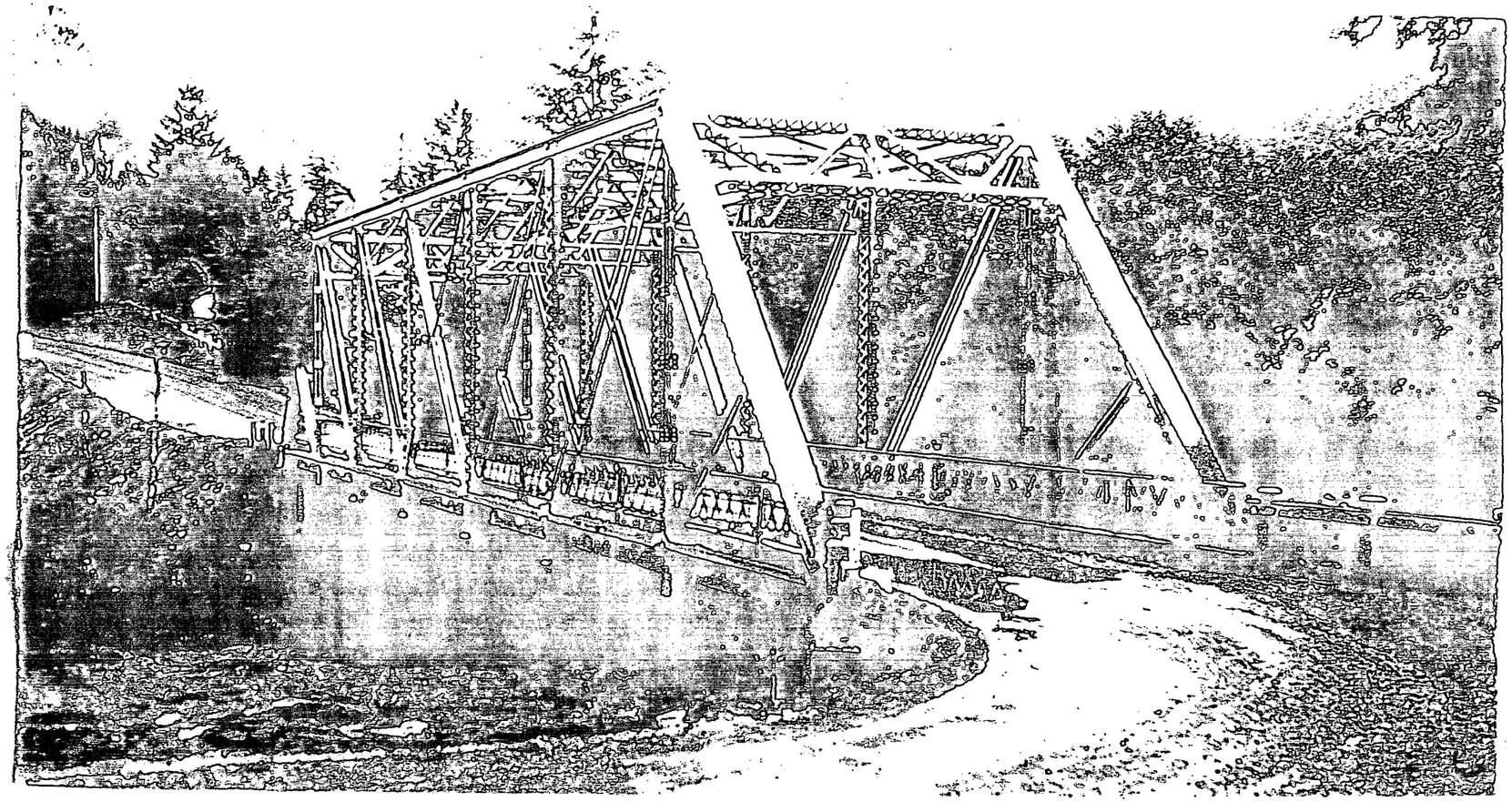


SEE SUPPLEMENTARY REPORT OF

Downstream side



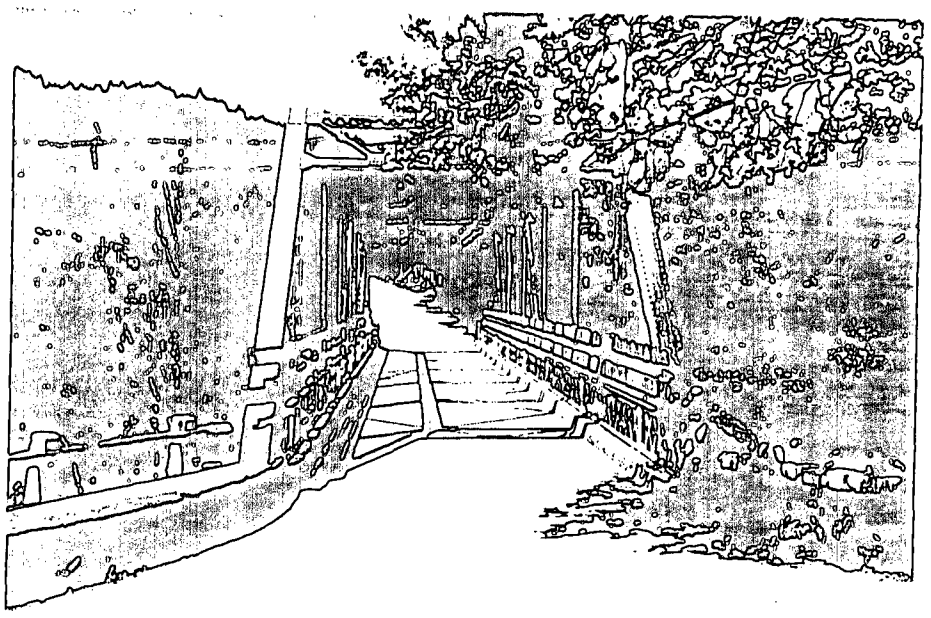
Looking along Route 20 toward Willow Creek



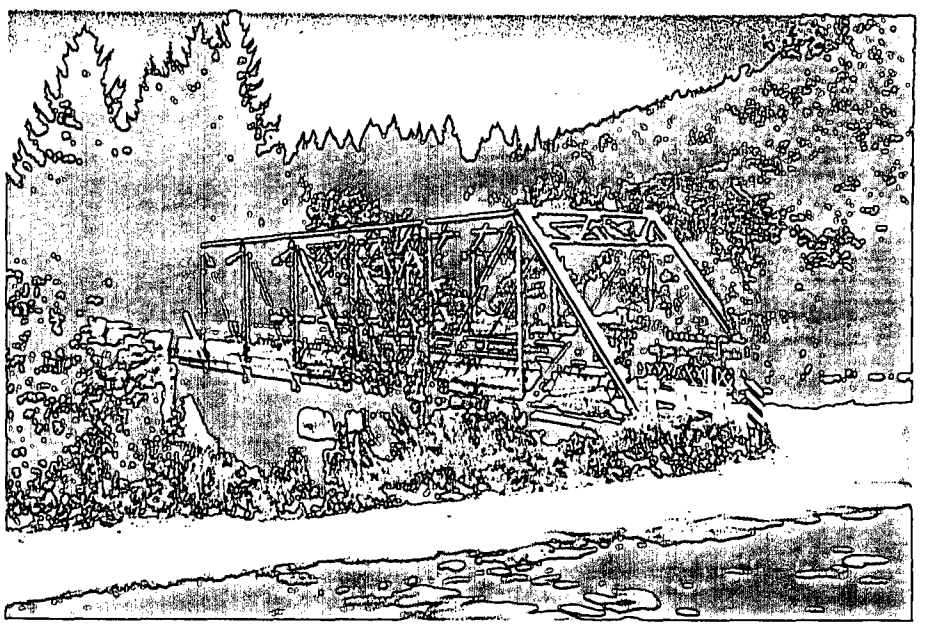
1-Hum-Co.Rd.

4C-121

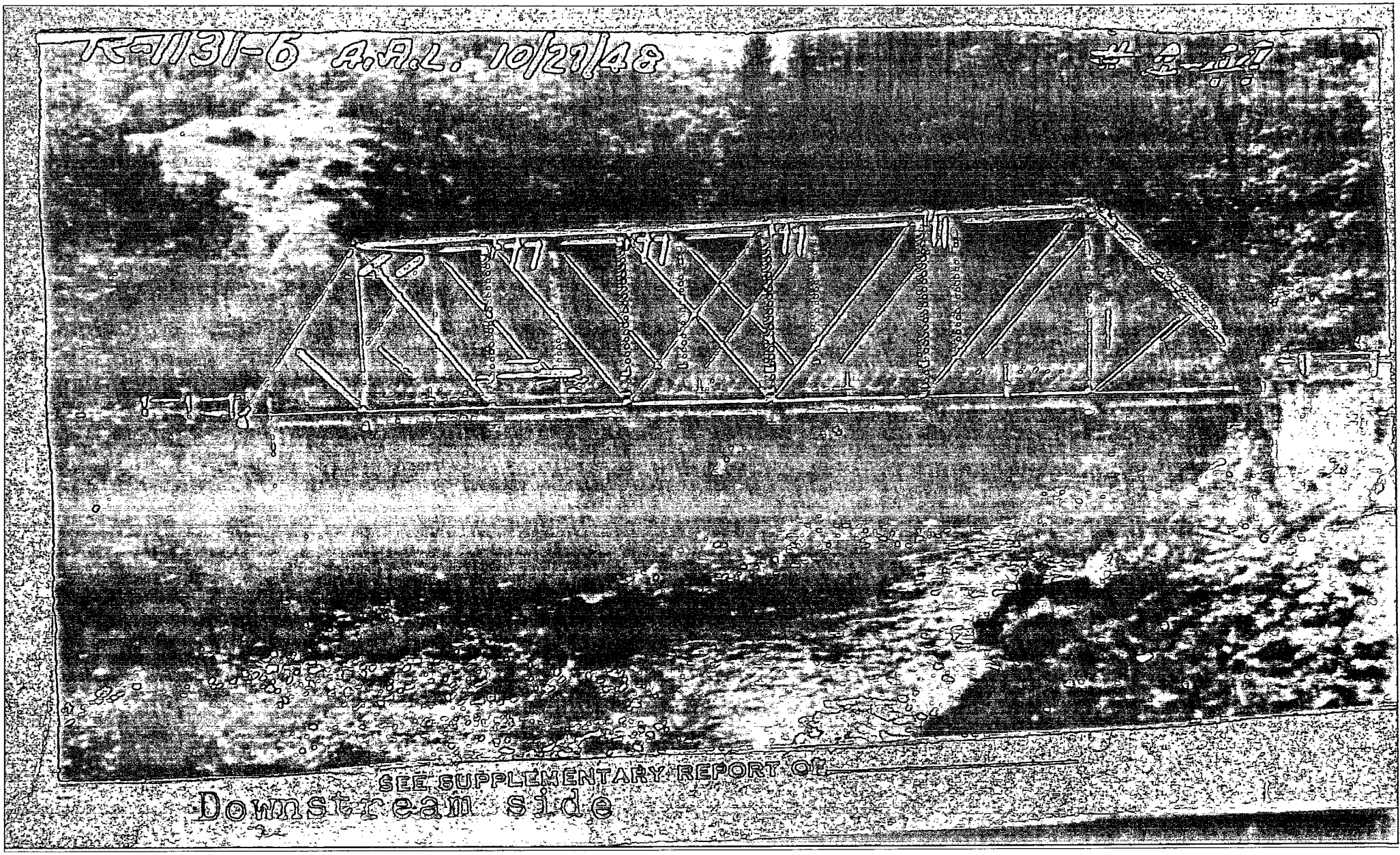
REDWOOD CREEK



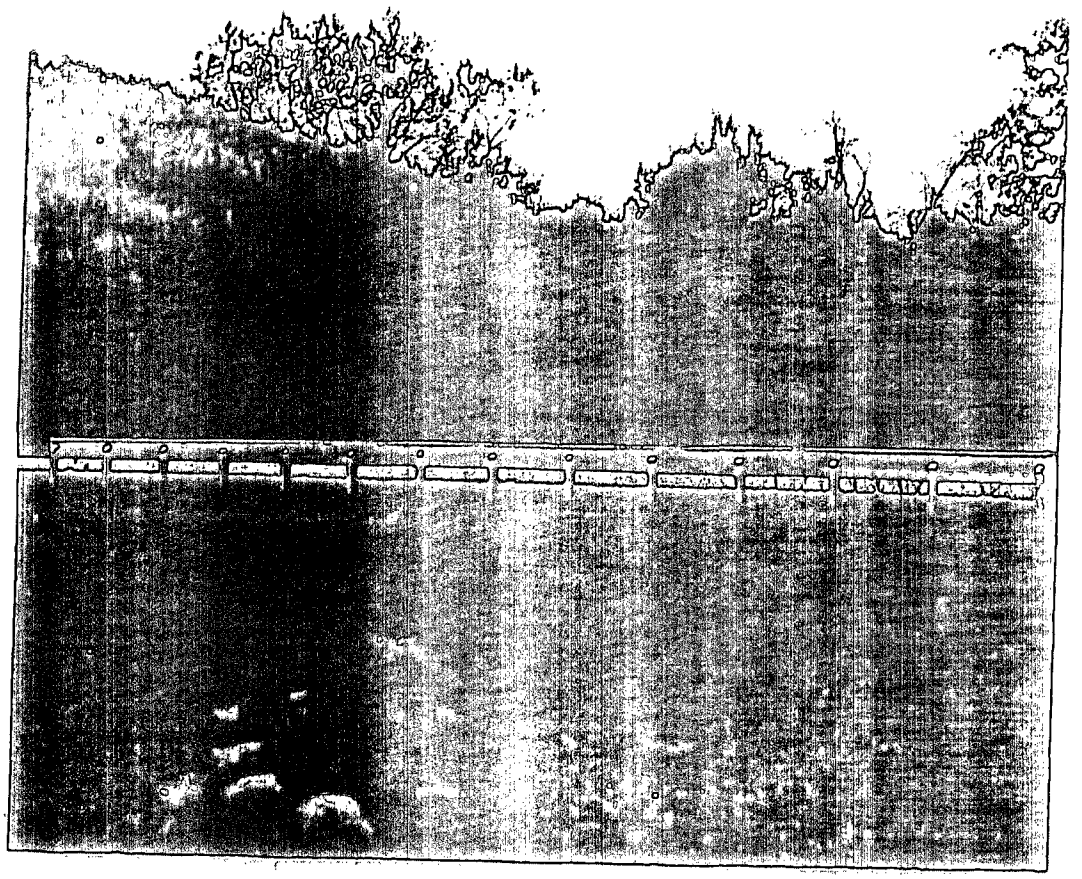
DECKVIEW, LOOKING WESTERLY ON CHEZEM ROAD
4-20-94.22
BLP-11



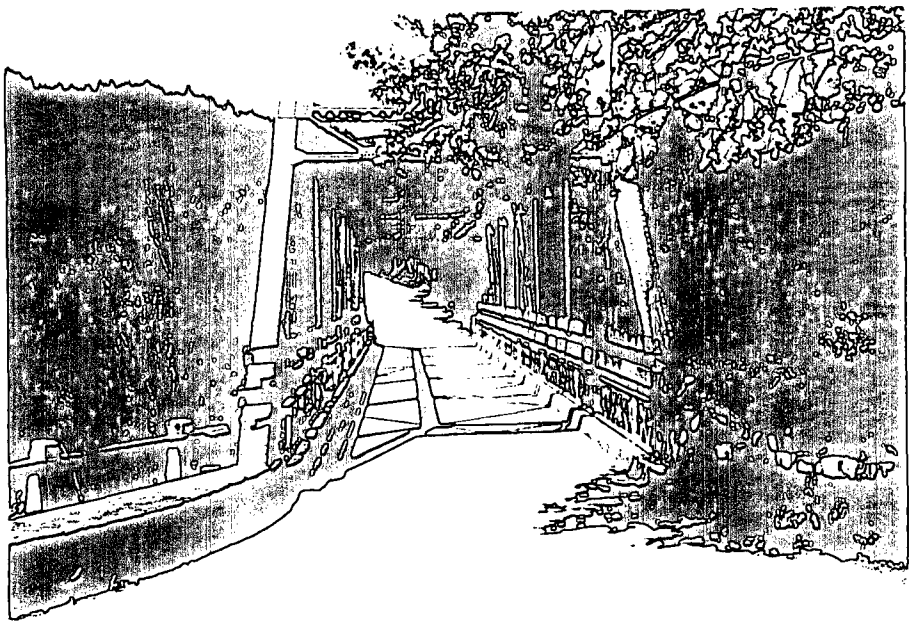
OBLIQUE SIDEVIEW, UPSTREAM
4-20-94.23
BLP-11


R-1131-6 A.A.L. 10/21/48
SEE SUPPLEMENTARY REPORT OF
Downstream Side

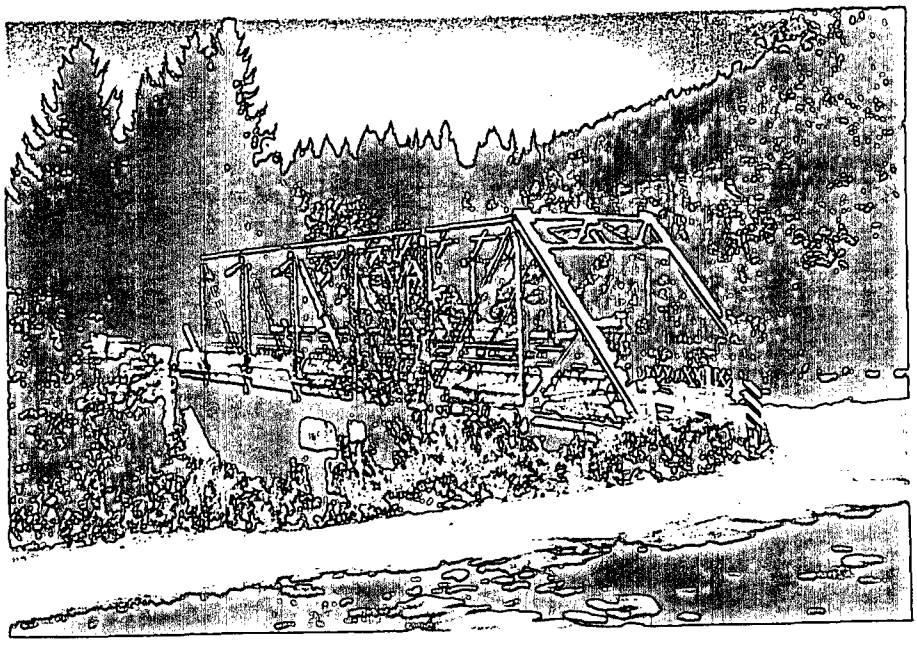
10-18-71-2 FP-12 4C-5



Side view - left



DECKVIEW, LOOKING WESTERLY ON CHEZEM ROAD
4-20-94.22
BLP-11



~~4-49~~ 4C-121

1/6,9,11,14/65

Redwood Creek, 01-Hum-299 (21.94)

Photos available

Heavy flow in Redwood Creek washed away its right bank both US and DS from the bridge and undermined the large boulder upon which Abutment 2 was founded. This condition coupled with the heavy soaking of the ground started the old slide in the hill above the bridge to moving. The slide moved Abut. 2 toward the creek a total of about 8". The steel stringers and concrete deck in this through truss span acted as a strut and pushed on the earth embankment at Abut. 1. The thrust on the bearing shoes of the truss at Abutment 2 was transmitted to Abutment 1 in the form of relief of tension in the steel eye bars of the lower chord. The shoes at A-2 were on a roller nest but had reached their limit of expansion in the early stages of movement.

4-44
(Cont'd)

The concrete in Abutment 1 was of poor quality and crumbled easily. The shoes moved on their concrete seats. After a short while all support below the shoes at A-1 was crumbled, the shoes started to tip over and to slide outward from bridge centerline.

The rock under Abut. 2 split into 3 primary parts.

All was rehabilitated to good condition at A-2 by tieing the rock and right wingwall at A-2 together with cables and filling the void between rocks with concrete, restoring the river bank with earth and large rock, and concreting the riprap both sides of the abutment.

During the above operation repairs at A-1 to restore it were underway. The two truss shoes were tied together with a cable at road grade. A jacking shoe was installed in each end post about 5' from Lo. A 12"x12" Douglas fir timber 20' long was placed on top of each end post and securely fastened at each end to stiffen

~~4-44~~ 4C-121
(Cont'd)

this truss compression member so it could withstand the bending moment it would get when the bridge was jacked. 100 Ton jacks were installed on timber posts at the face of the abutment and the truss jacked up. The concrete was removed below the shoes and new concrete cast. A ½" thick steel bearing pl was anchored into the new concrete for the shoes to bear on. After 48 hours of cure the truss was lowered onto its new bearings and guides welded in place to hold the shoes from spreading.

Posting:

During repairs the load limit was reduced to 10 Tons Per Vehicle.

When the truss was back on its shoes at A-1 the load restriction was raised to Orange but load lengths restricted to 40' maximum so that the wingwall at A-2 would not be hit.

When the riprap on the US side of A-2 was concreted all length restrictions were relieved and the loading raised to Green. on Jan. 17, 1965.

Recommend—

1. Next summer excavate to rock along the stream face of the rock supporting A-2 and construct a concrete mass wall to support the rock. $ 5000

2. Repair the concrete diaphragms between steel stringers at both ends of the bridge. (More details of this repair will be furnished.) (Next summer) (Est. later)

3. Permanently lock the roller nest under truss bearing shoes at A-2 and let expansion or contraction take place at A-1.
(More detail later)
(Next summer.) (Est. later)

W O Longenbach

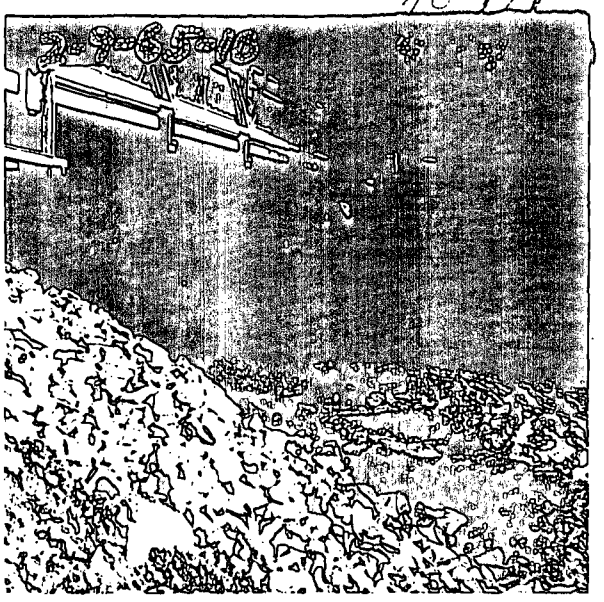
District 01 (4)
Maintenance Dept.

I-Hum-299

#4-121
#4=44

REDWOOD CREEK

HC-121



Looking across creek @ bank protection around abutment-2

HC-121

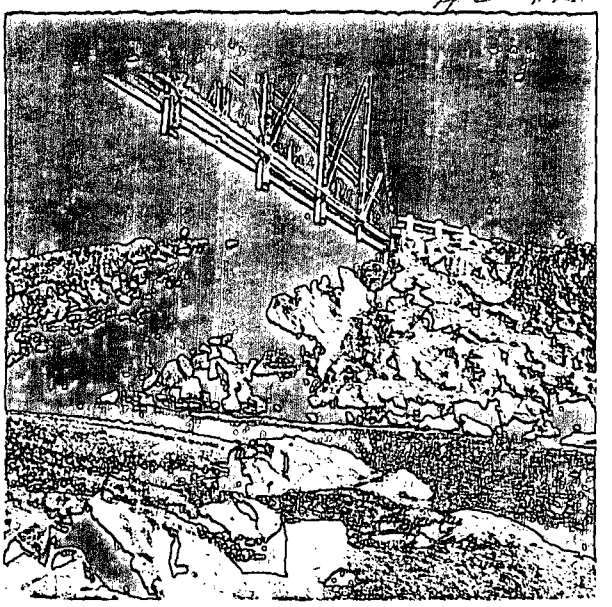
Repaired bearing assembly for left truss @ abutment-1

I-Hum-299

4C-121
#4-44

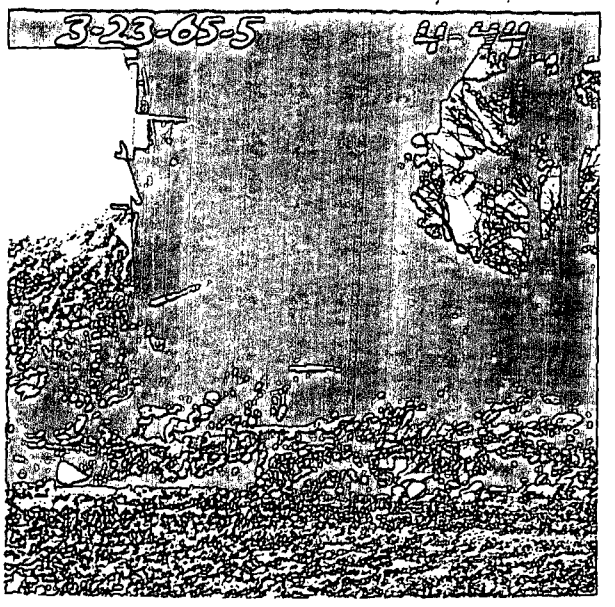
REDWOOD CREEK

4C-121



Abutment 2 -Note riprap

4C-12.1

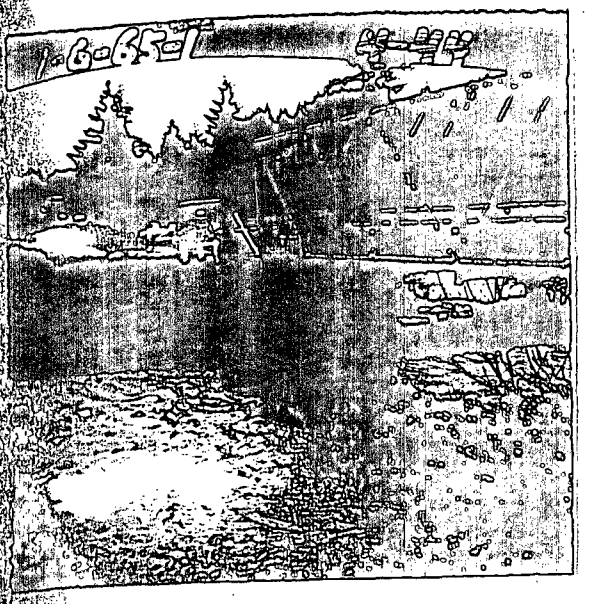


Abutment 1-Note new embankment
with no bank protection

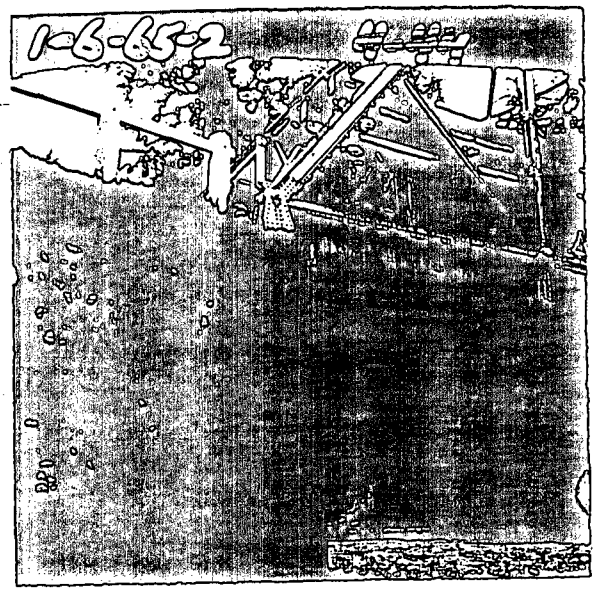
I-Hum-299

#4-44

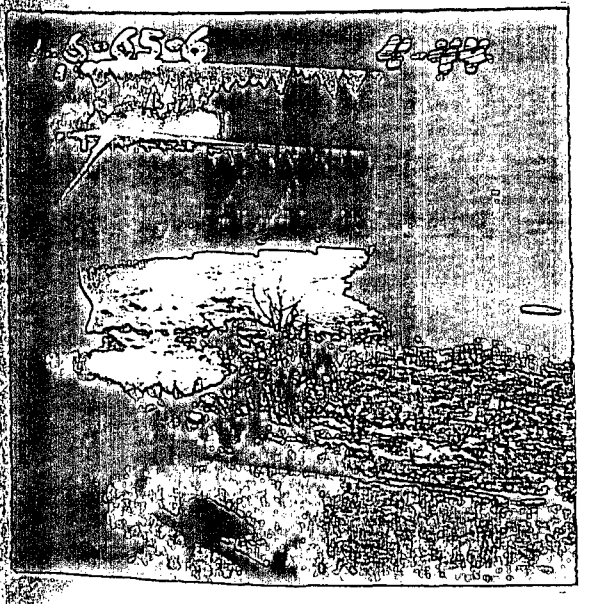
REDWOOD CREEK



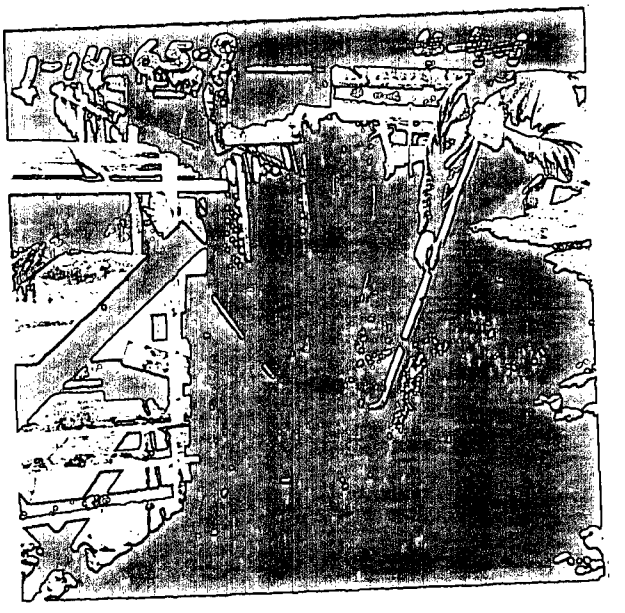
Abutment A-1



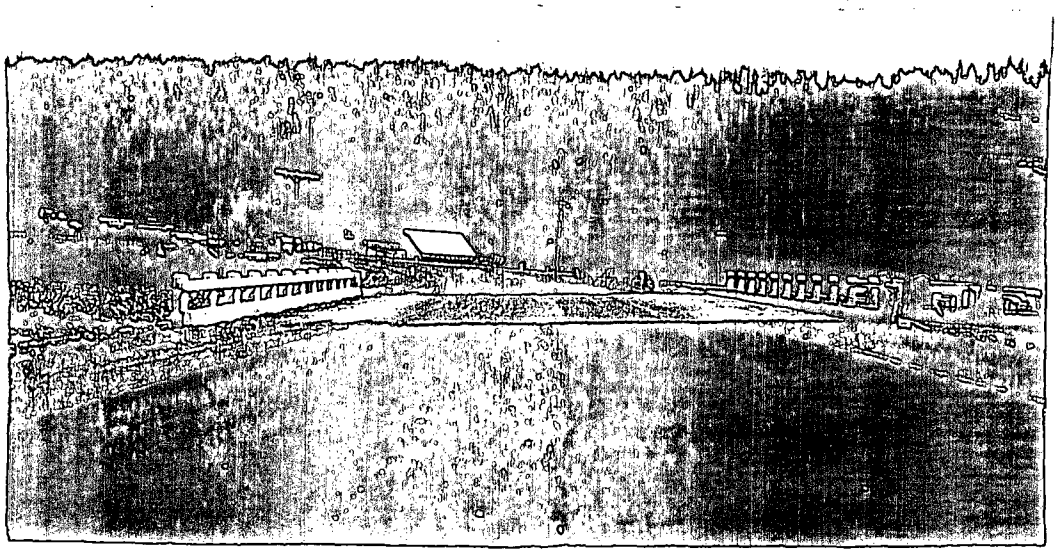
Upstream side of A-1



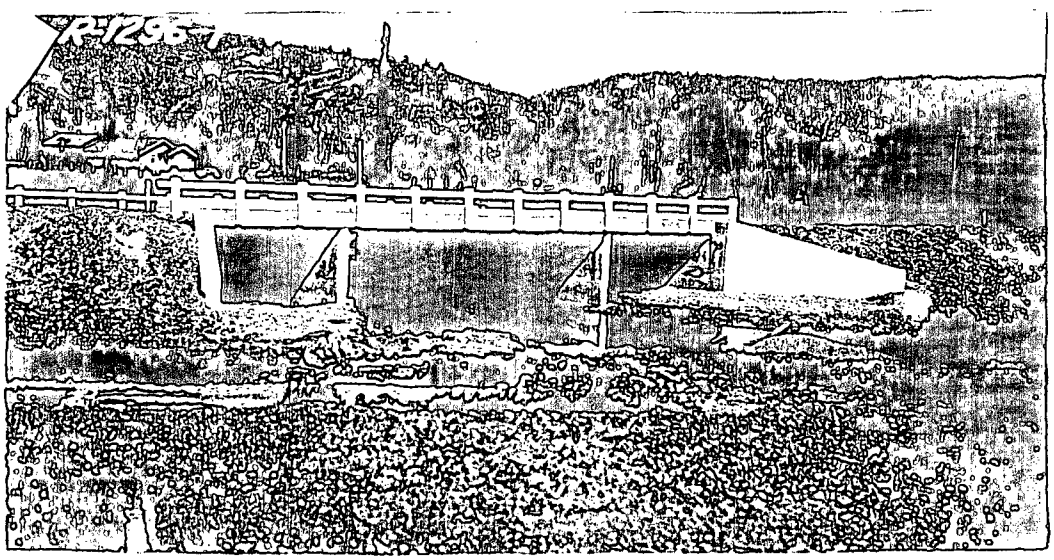
Looking upstream toward bridge from right bank



Partial dig out below truss shoe. Removed concrete taken out by bare hands.

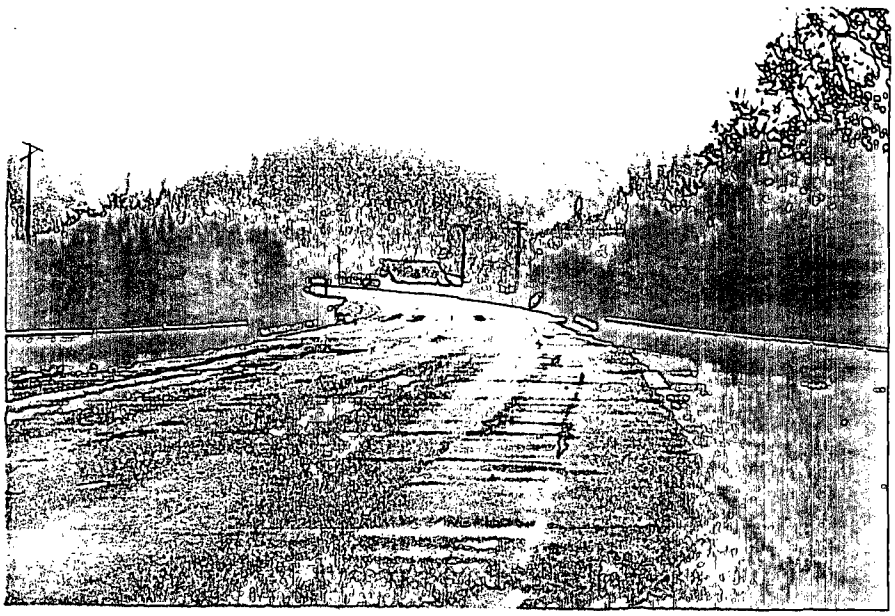


Looking along Route 1 toward Orick

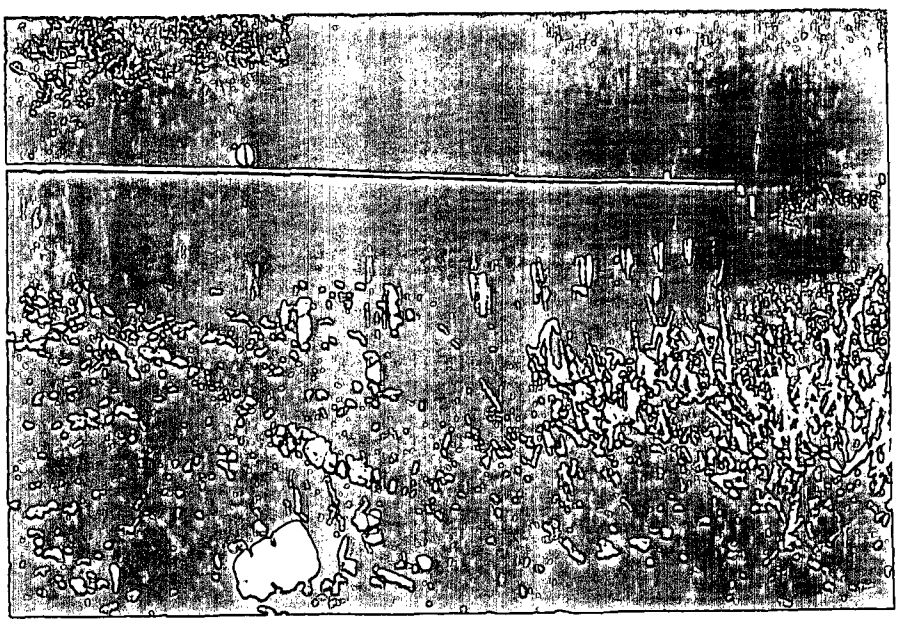


Upstream side.

REDWOOD CREEK OVERFLOW

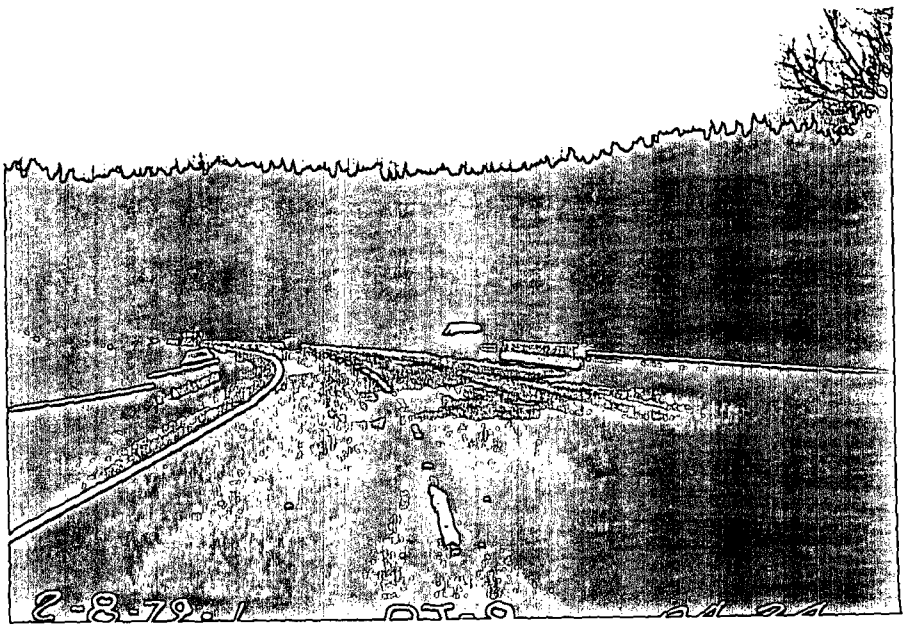


DECKVIEW LOOKING AHEAD
3-17-87.19
JPH-5

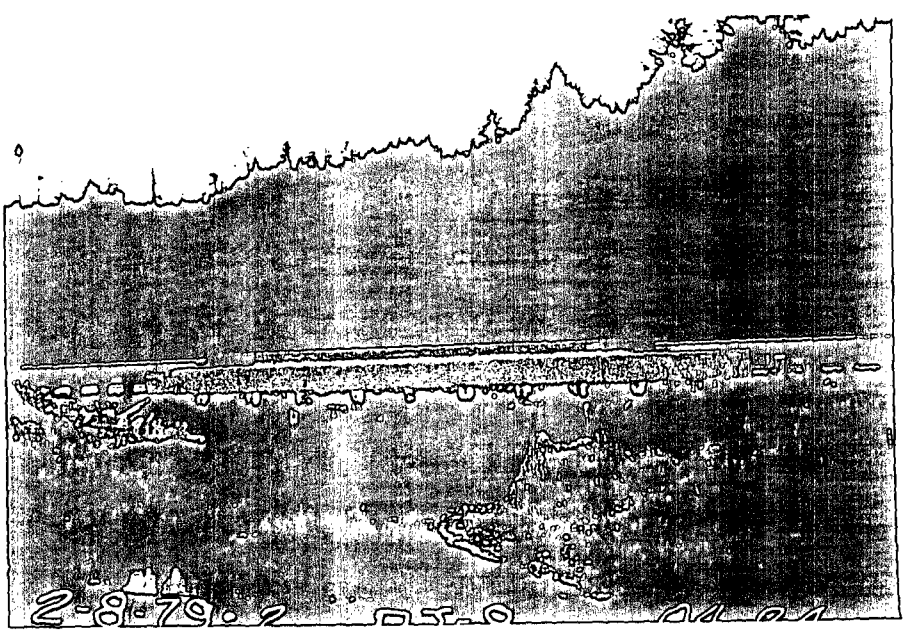


SIDEVIEW LOOKING UPSTREAM
3-17-87.20
JPH-5

REDWOOD CREEK OVERFLOW

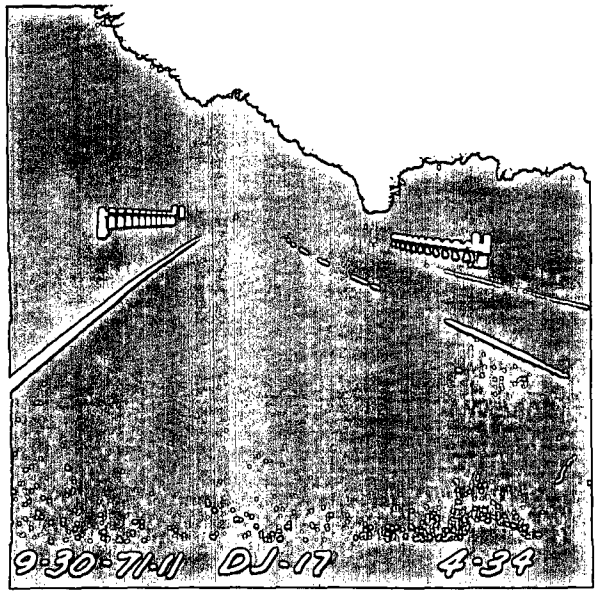


ROADWAY VIEW LOOKING AHEAD

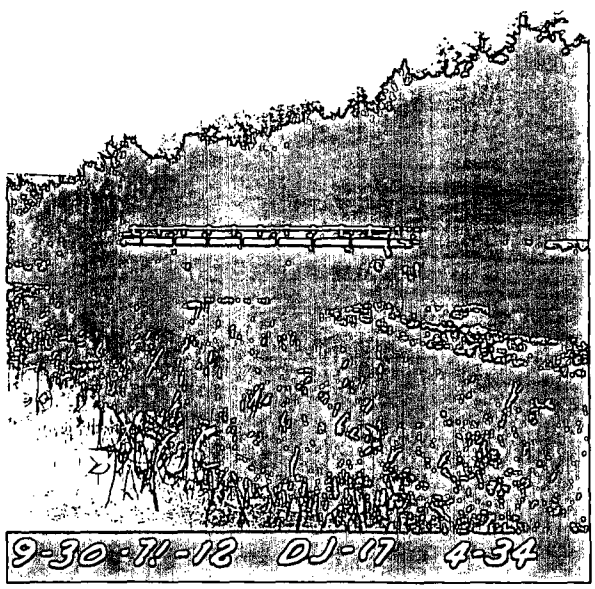


DOWNSTREAM SIDEVIEW

REDWOOD CREEK OVERFLOW

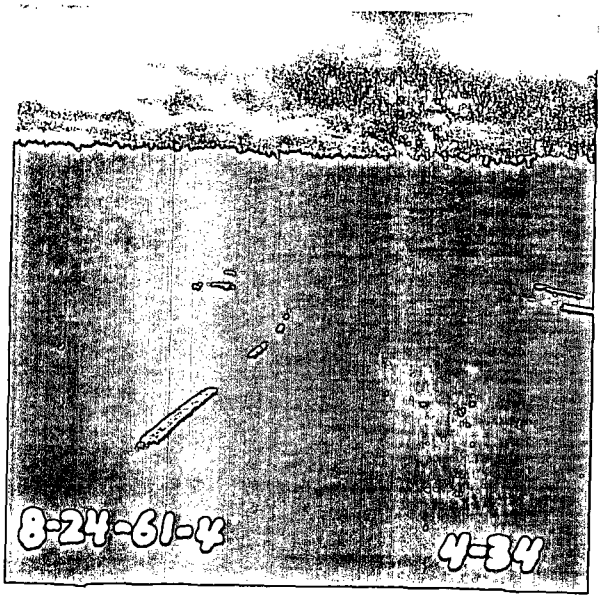


Roadway view looking back

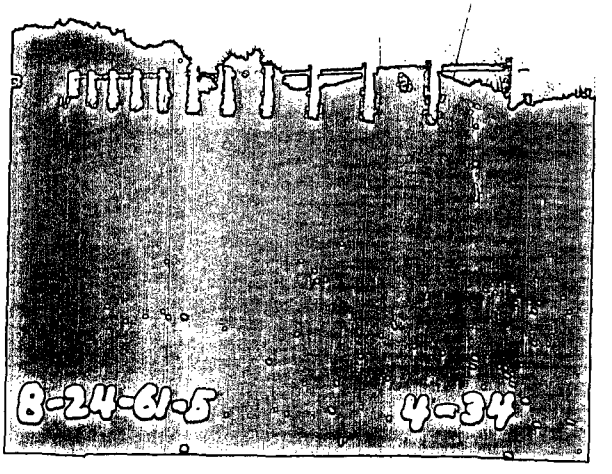


Left side looking East

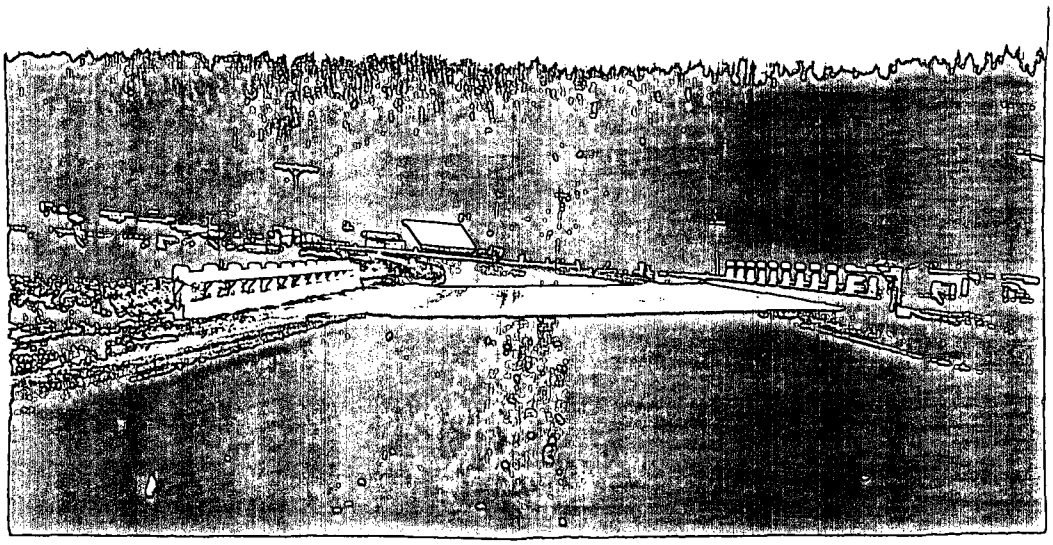
REDWOOD CREEK O'FLOW



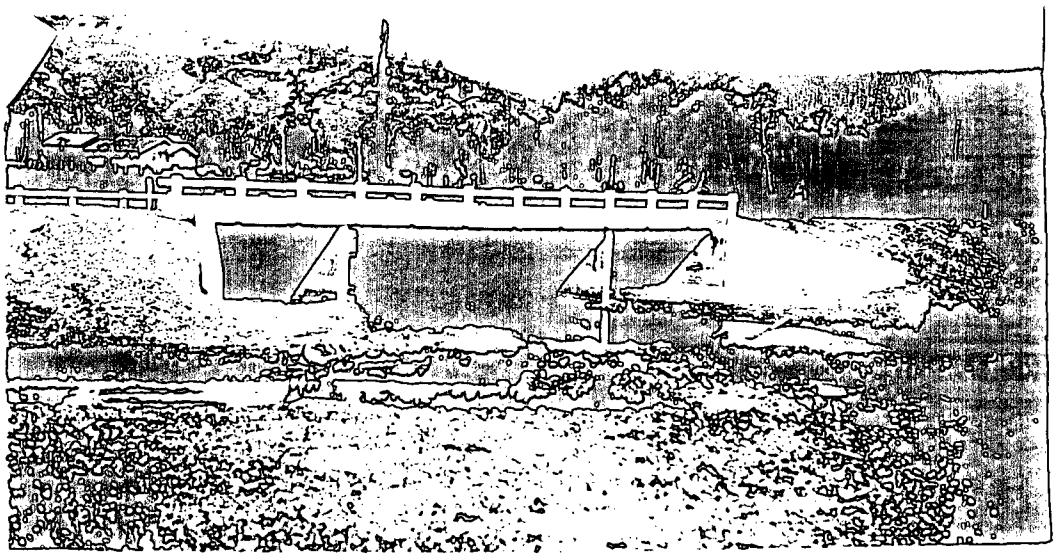
Roadway view looking East (ahead)



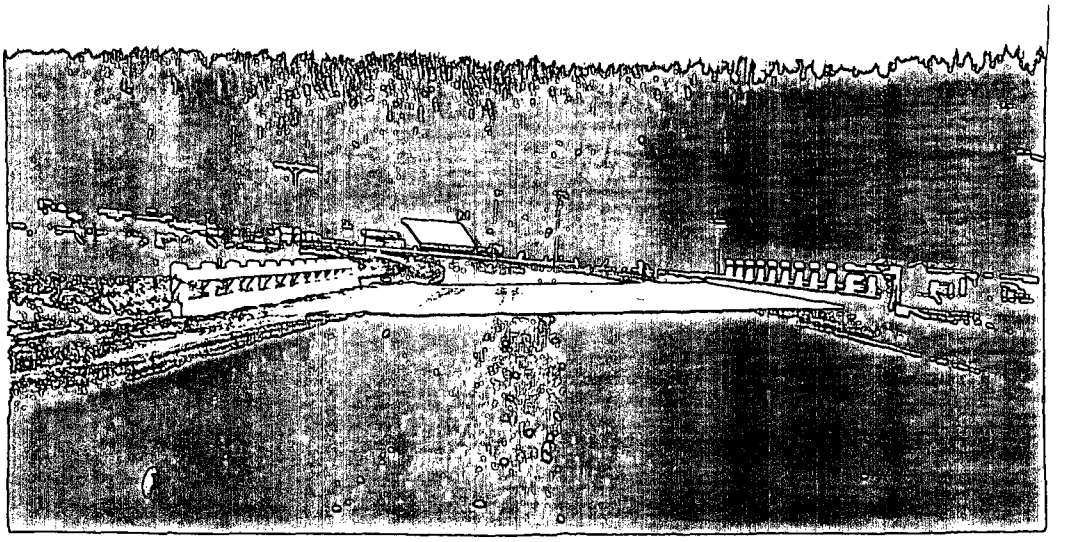
Upstream side looking Northwest



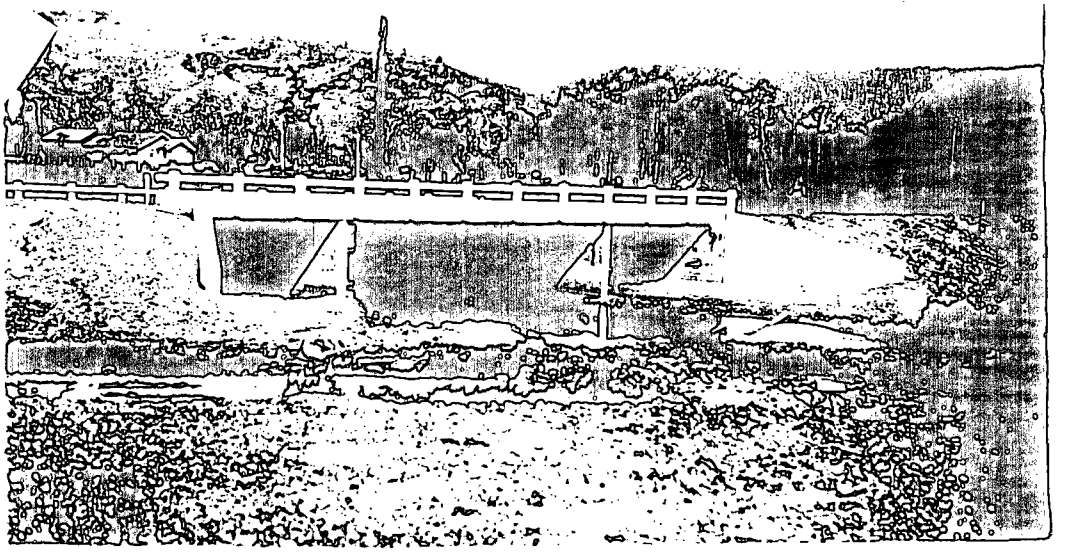
Looking along Route 1 toward Orick



Upstream side.



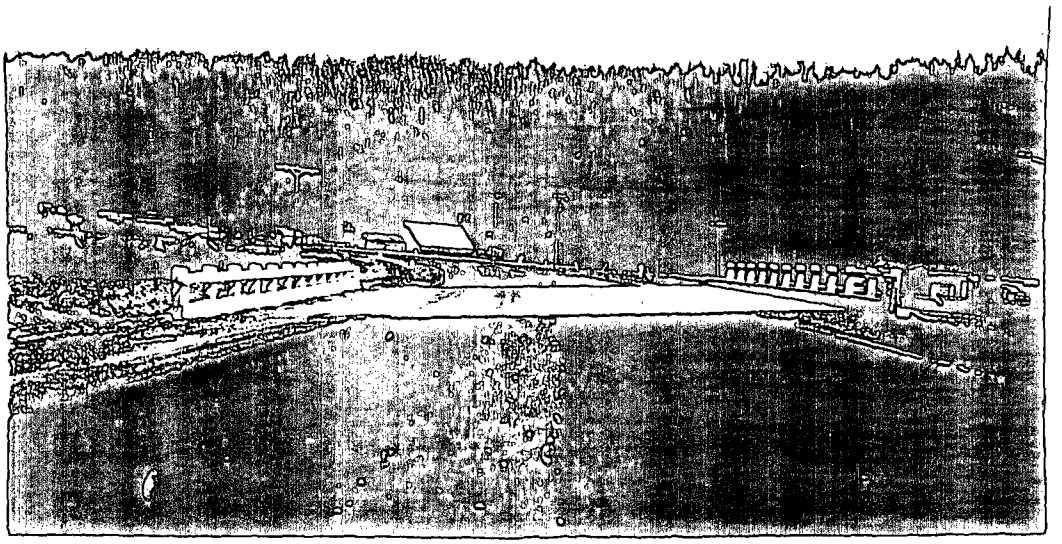
Looking along Route 1 toward Orick



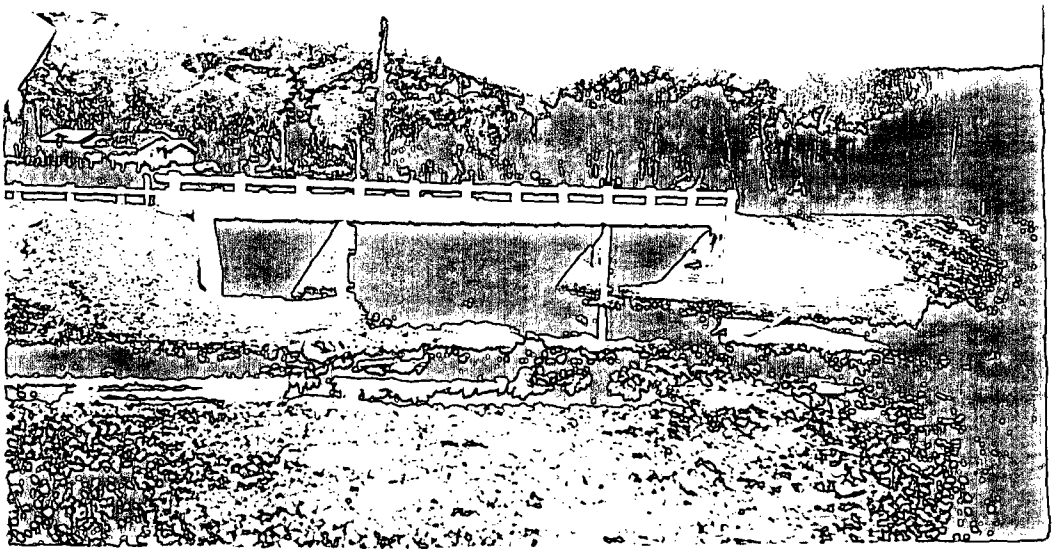
Upstream side.

FORM BD-24, EST 1140

BRIDGE NO. 4-34
SHEET 4
DATE March 27, 1951.



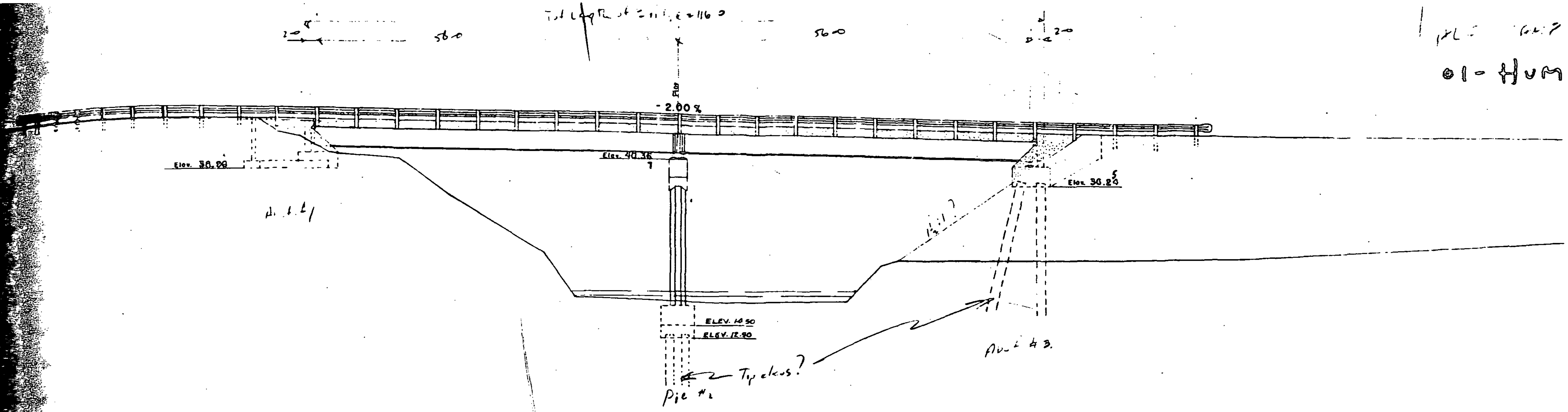
Looking along Route 1 toward Orick



Upstream side.

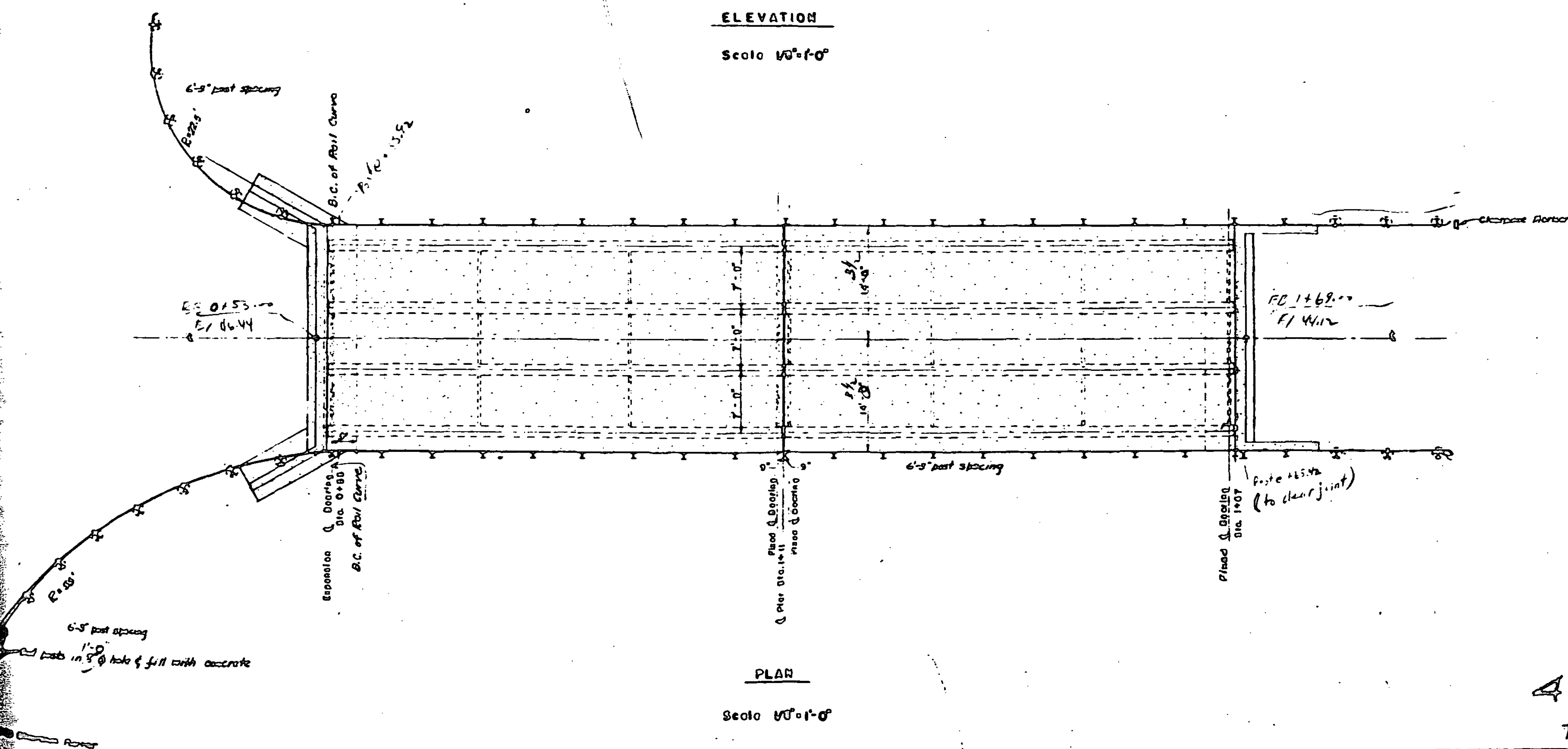
SEE SUPPLEMENTARY REPORT OF

01-HUM



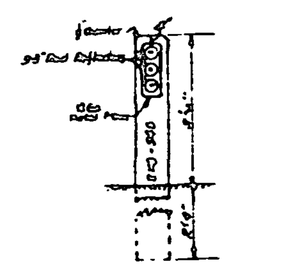
ELEVATION

Scale 1/8"=1'-0"



PLAN

Scale 1/8"=1'-0"



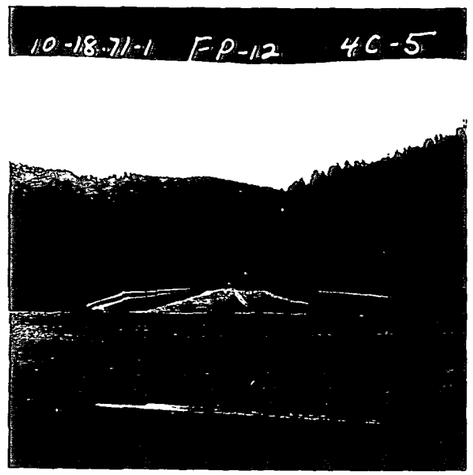
CLEARANCE MARKER

4C-05

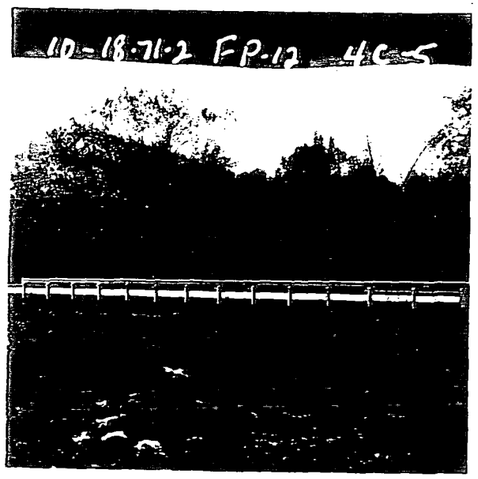
PLAN & PROFILE

COUNTY OF HUMBOLDT

BRIDGE OVER PRAIRIE CREEK NEAR ORICK



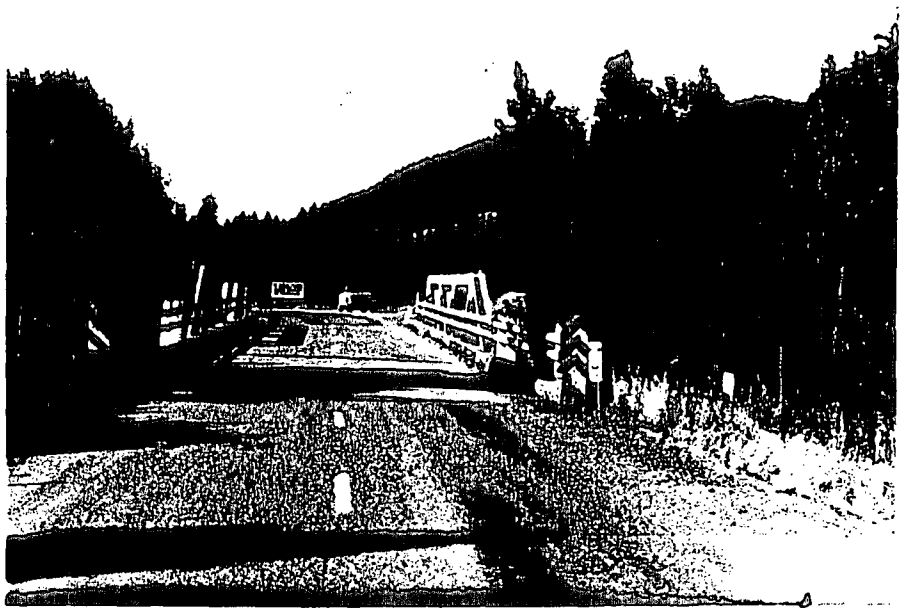
Roadway view - ahead



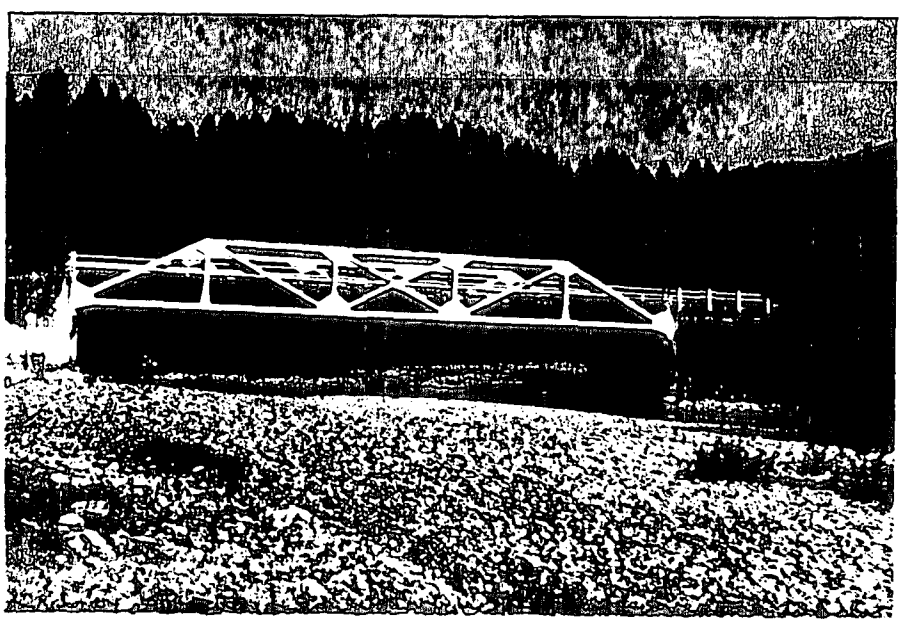
Side view - left

1-Hum-Co.Rd. # 4C-116

REDWOOD CREEK



ROAD LOOKING NORTH
9-13-89.9
BB-19

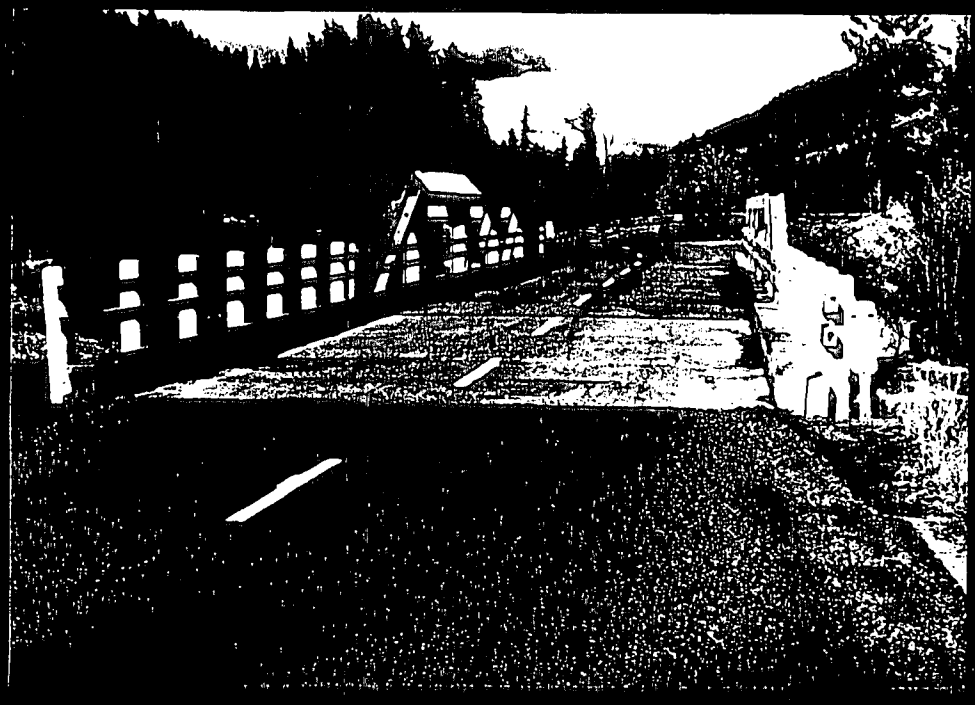


SIDE LOOKING EAST
9-13-89.10
BB-19

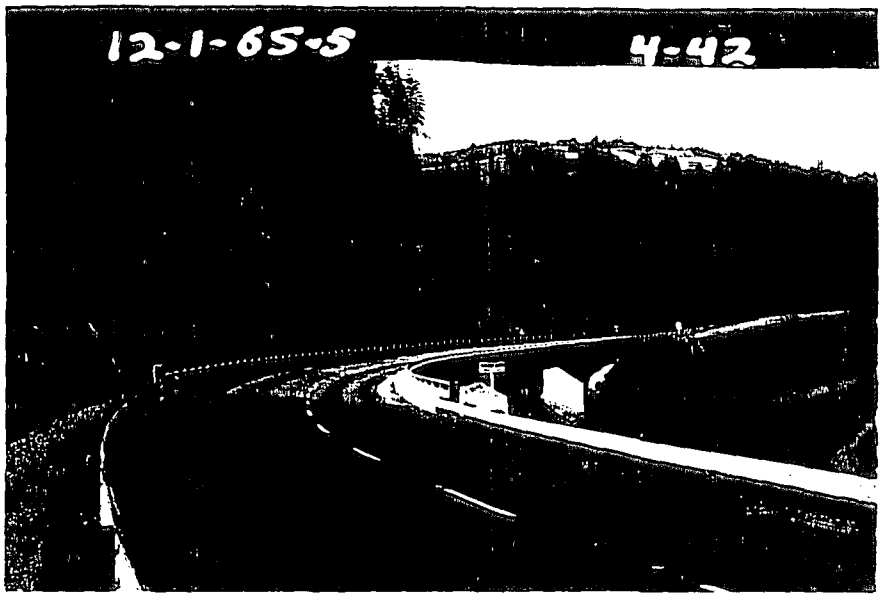
01-Hum-CR

4C-116

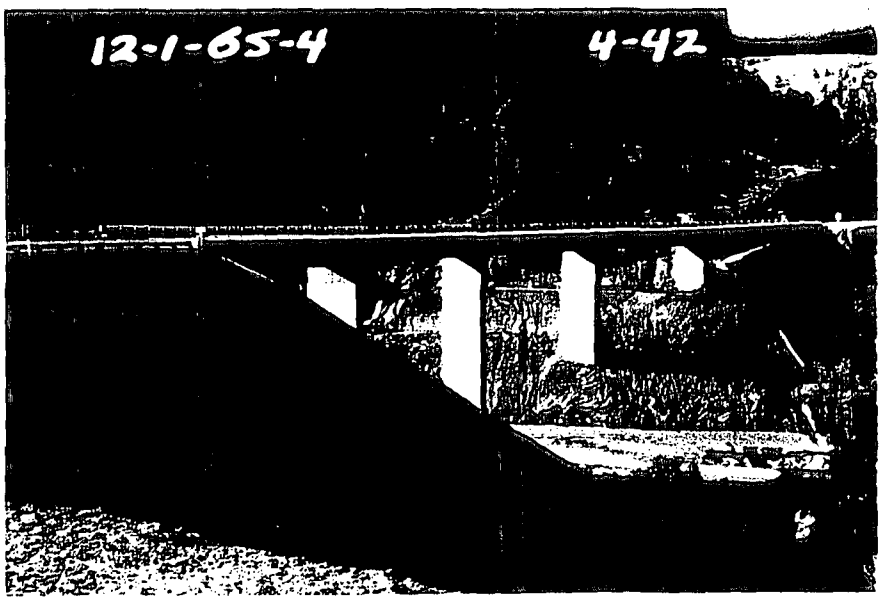
REDWOOD CREEK



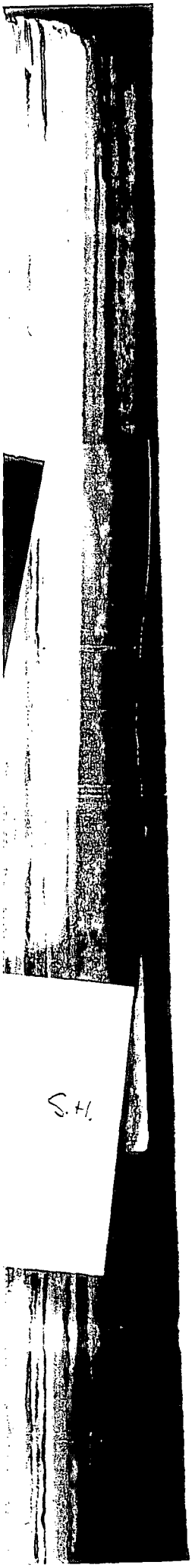
REDWOOD CREEK



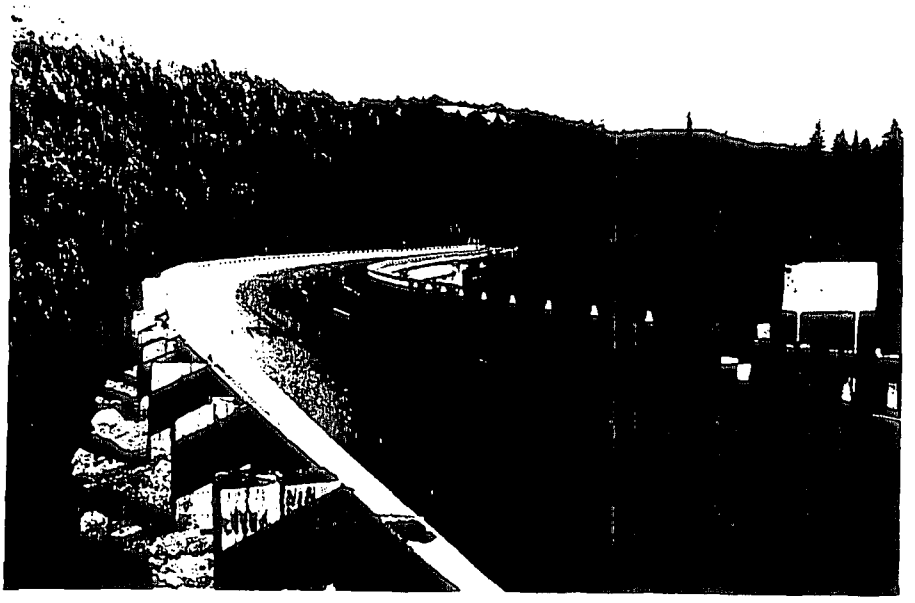
Looking West along centerline bridge
on Route 299



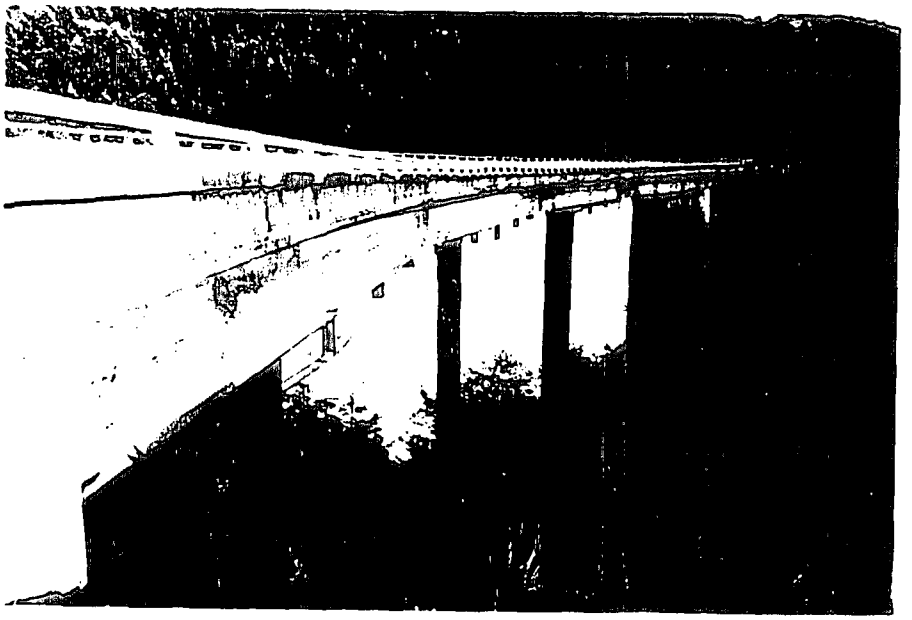
Sideview looking West @
North side of bridge



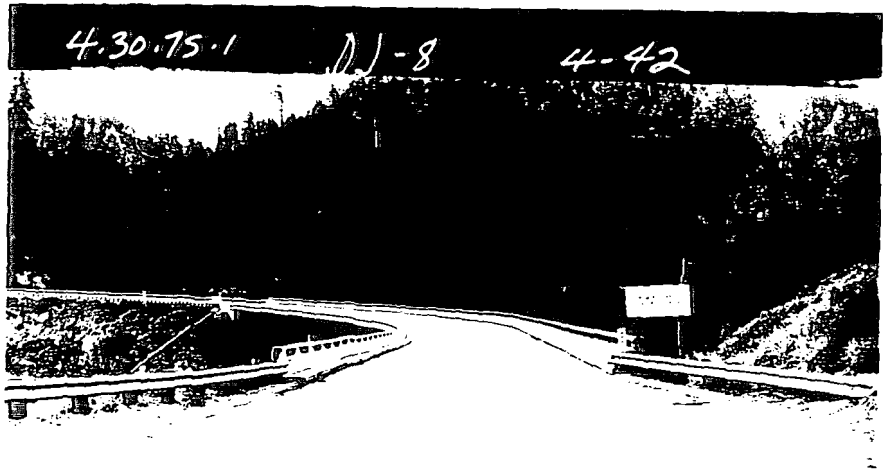
REDWOOD CREEK



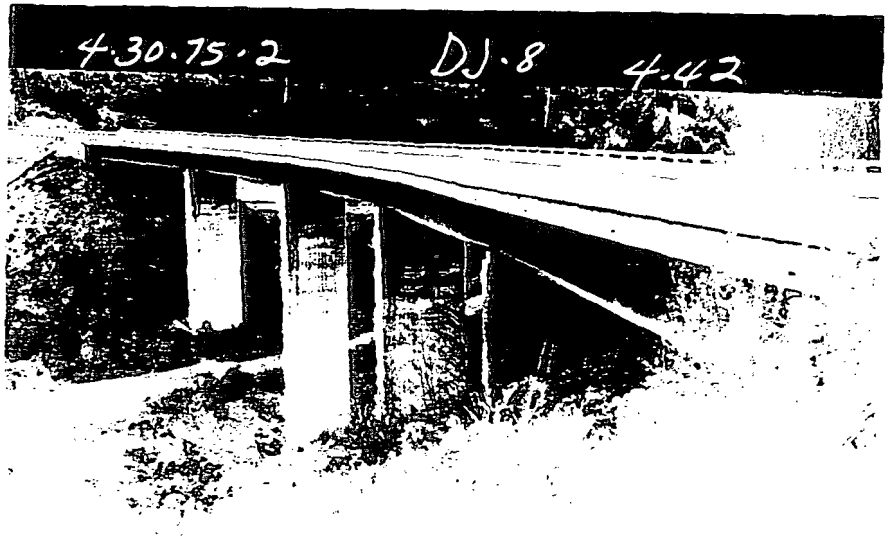
DECKVIEW LOOKING BACK
5-14-87.6
JPH-15

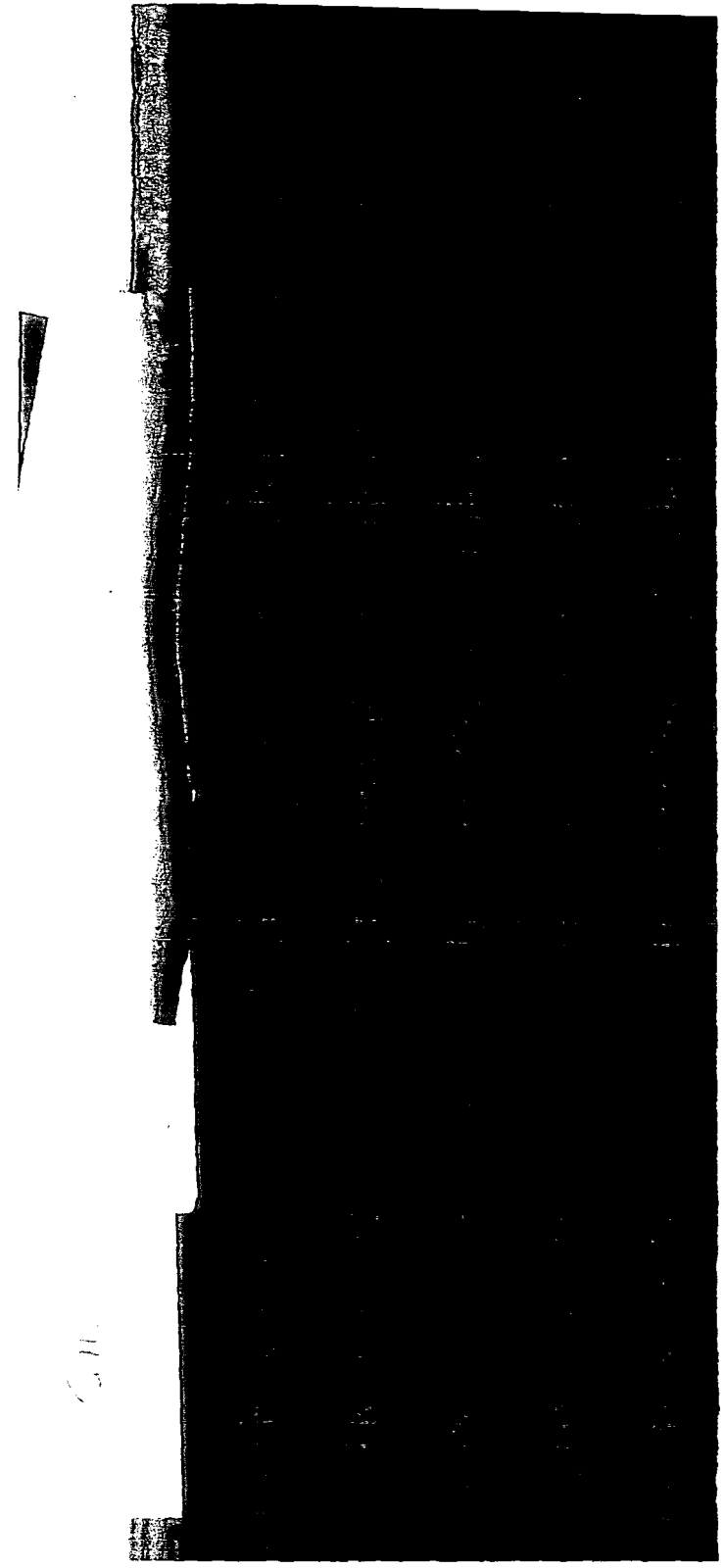


SIDEVIEW LOOKING AT DOWNSTREAM SIDE
5-14-87.7
JPH-15



Roadway view looking ahead





REDWOOD CREEK Br. No. 4-42 01-Hum-299 PM R22.33

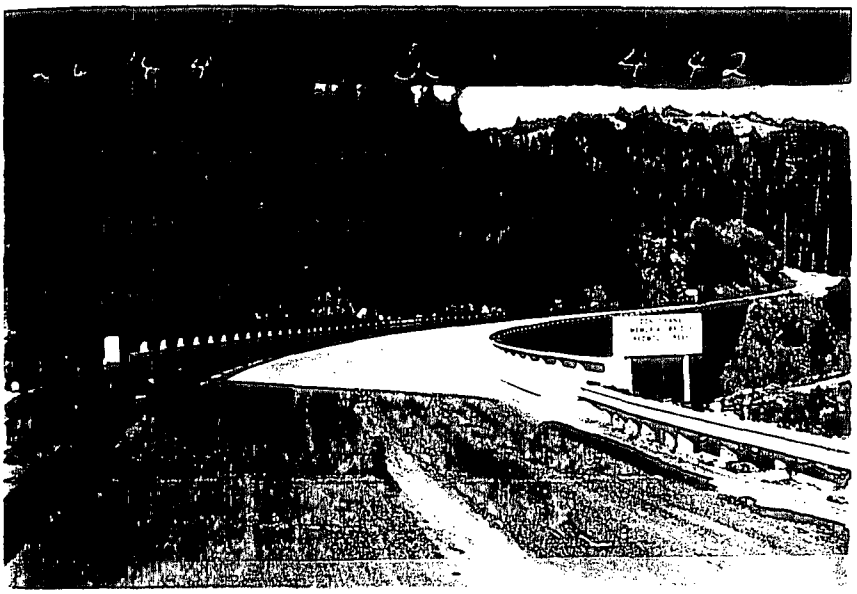
Channel profile measurements taken from upstream top of the concrete rail.

Date measured: 2-3-72 By: D. W. Bruder and H. C. Finch

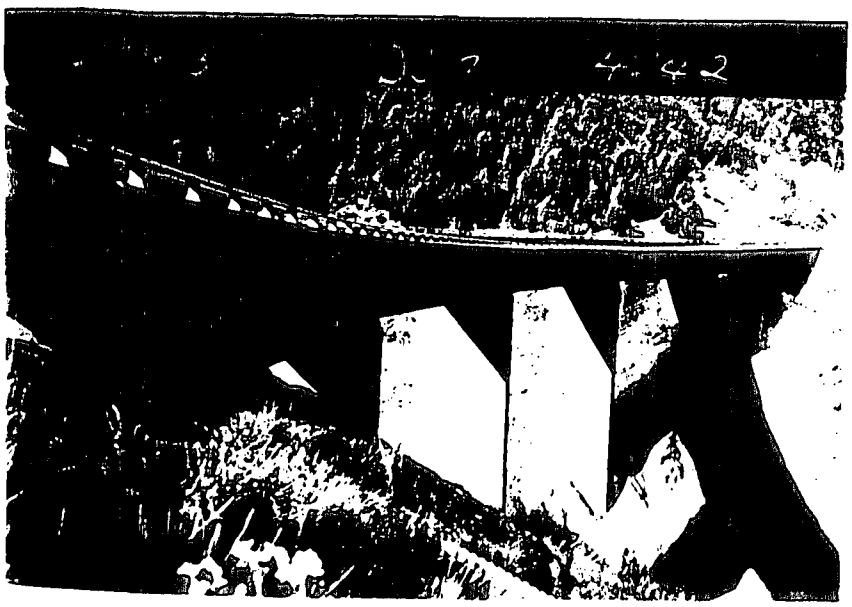
Face of Abut 1:	12'
Bent 2:	33'
55' Ahd Bent 2:	47'
Bent 3:	81'
50' Ahd Bent 3:	116'
60' Ahd Bent 3:	122'
Bent 4:	124'
10' Ahd Bent 4:	124'
60' Ahd Bent 4:	100'
25' Back Bent 5:	101'
Bent 5:	88'
30' Ahd Bent 5:	73'
Face of Abut 6:	13'

01-Hum-299 #4-42

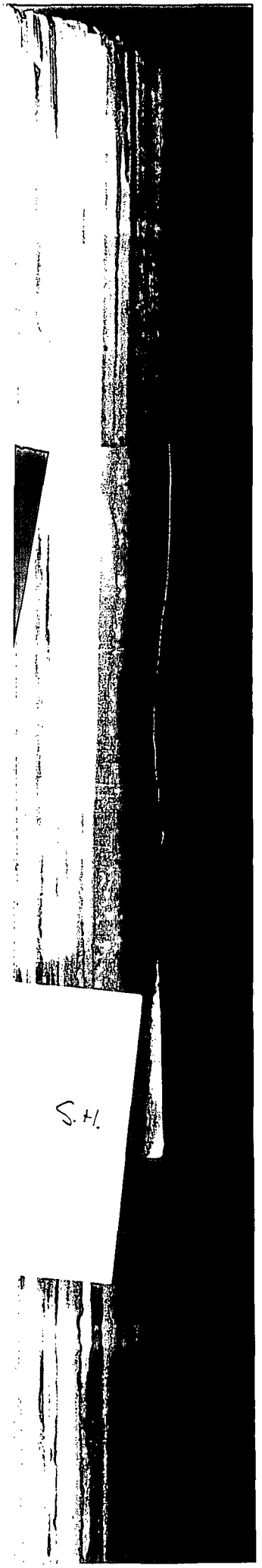
REDWOOD CREEK

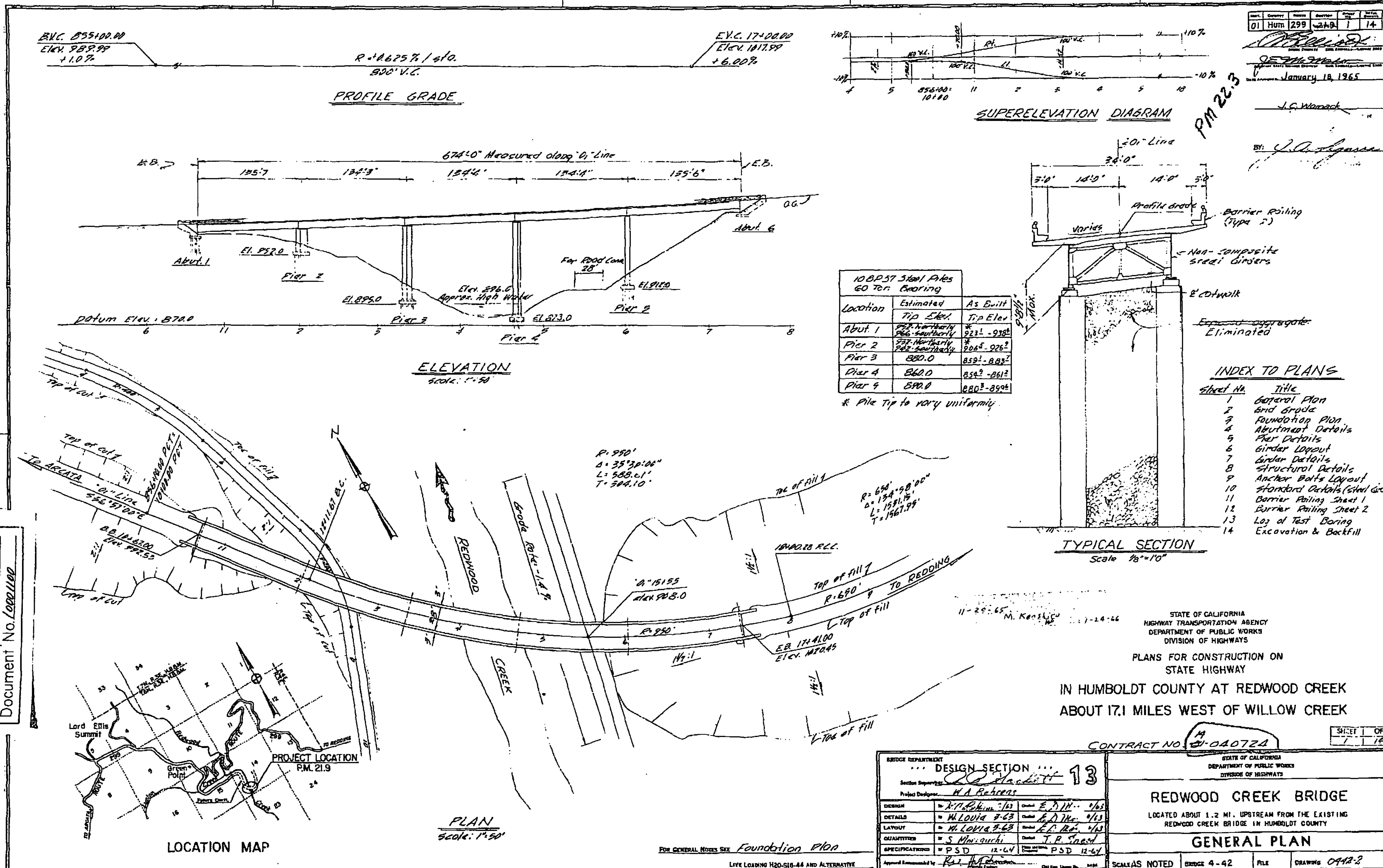


Roadway view looking back



DS side looking back





10 BP 57 Steel Piles 60 Ton Bearing		
Location	Estimated Tip Elev.	As Built Tip Elev
Abut. 1	952-Northerly 966-Southerly	* 923±-938±
Pier 2	937-Northerly 942-Southerly	* 906±-926±
Pier 3	880.0	859±-883±
Pier 4	860.0	859±-861±
Pier 5	890.0	880±-896±

* Pile Tip to vary uniformly

INDEX TO PLANS

Sheet No.	Title
1	General Plan
2	Grid Grade
3	Foundation Plan
4	Abutment Details
5	Pier Details
6	Girder Layout
7	Girder Details
8	Structural Details
9	Anchor Bolts Layout
10	Standard Details (Steel Girder)
11	Barrier Railing Sheet 1
12	Barrier Railing Sheet 2
13	Log of Test Boring
14	Excavation & Backfill

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

PLANS FOR CONSTRUCTION ON STATE HIGHWAY

IN HUMBOLDT COUNTY AT REDWOOD CREEK
ABOUT 17.1 MILES WEST OF WILLOW CREEK

CONTRACT NO. 01-040724

SHEET 1 OF 14

BRIDGE DEPARTMENT — DESIGN SECTION 13

Project Designer: W.A. Rehrens

REDWOOD CREEK BRIDGE

LOCATED ABOUT 1.2 MI. UPSTREAM FROM THE EXISTING REDWOOD CREEK BRIDGE IN HUMBOLDT COUNTY

GENERAL PLAN

SCALE AS NOTED | BRIDGE 4-42 | DRAWING 0942-2

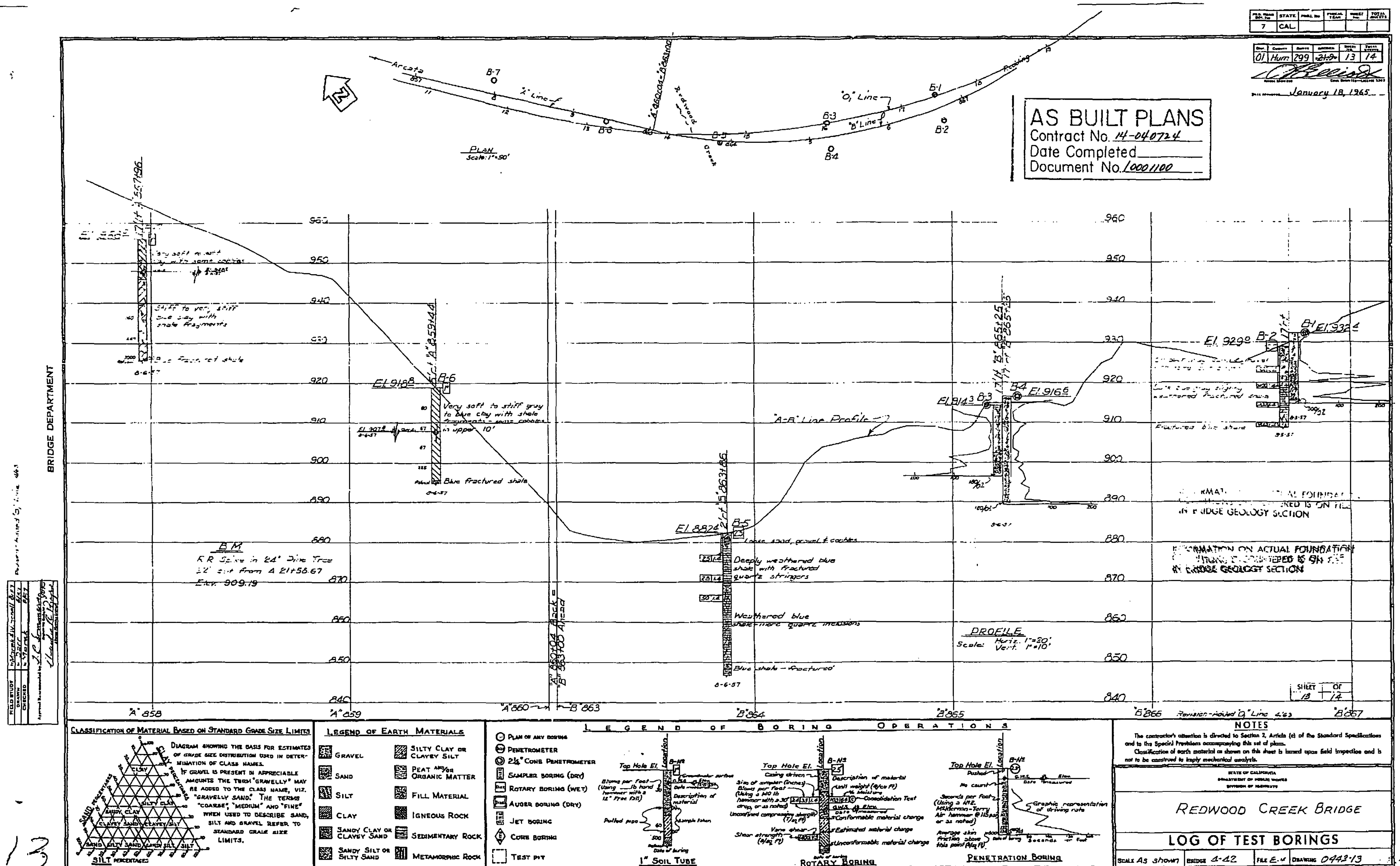
For General Notes See Foundation Plan

Live Loading H20-S16-44 and Alternative

Charge 01201 Exp. Auth. 040721 (57-01T10 H 0407.2)

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.

DATE 2-14-72 SIGNATURE ______ TITLE ______



7 CAL.
01 Hum 299 13 14
January 18, 1965
AS BUILT PLANS
Contract No. 14-040724
Date Completed
Document No. 10001100
Arcata
B-7
"A" Line
"O" Line
"B" Line
B-6
B-5
B-3
B-4
B-1
B-2
Redwood Creek
PLAN
Scale: 1"=50'
BRIDGE DEPARTMENT
960
950
940
930
920
910
900
890
880
870
860
850
840
El. 918.8
El. 888.4
El. 914.3
El. 916.6
El. 929.0
El. 932.4
Very soft to stiff gray to blue clay with shale fragments
Blue fractured shale
Stiff to very stiff blue clay with shale fragments
Loose sand, gravel & cobbles
Deeply weathered blue shale with fractured quartz stringers
Weathered blue shale - more quartz inclusions
Blue shale - fractured
Fractured blue shale
"A-B" Line Profile
B.M.
R.R. Spike in 24" Pine Tree
12' out from A 21+58.67
Elev. 909.19
PROFILE
Scale: Horiz. 1"=20' Vert. 1"=10'
INFORMATION ON ACTUAL FOUNDATION CONDITIONS ENCOUNTERED IS ON FILE IN BRIDGE GEOLOGY SECTION
SHEET 13 OF 14
"A" 858
"A" 859
"A" 860
"B" 863
"B" 864
"B" 865
"B" 866
"B" 867
CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS
DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.
IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.
CLAY
SILTY CLAY
SANDY CLAY
CLAYEY SAND
SILT
SILT PERCENTAGES
LEGEND OF EARTH MATERIALS
GRAVEL
SAND
SILT
CLAY
SANDY CLAY OR CLAYEY SAND
SANDY SILT OR SILTY SAND
SILTY CLAY OR CLAYEY SILT
PEAT AND/OR ORGANIC MATTER
FILL MATERIAL
IGNEOUS ROCK
SEDIMENTARY ROCK
METAMORPHIC ROCK
LEGEND OF BORING OPERATIONS
PLAN OF ANY BORING
PENETROMETER
2½" CONE PENETROMETER
SAMPLER BORING (DRY)
ROTARY BORING (WET)
AUGER BORING (DRY)
JET BORING
CORE BORING
TEST PIT
1" SOIL TUBE
ROTARY BORING
PENETRATION BORING
NOTES
The contractor's attention is directed to Section 2, Article (c) of the Standard Specifications and to the Special Provisions accompanying this set of plans.
Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
REDWOOD CREEK BRIDGE
LOG OF TEST BORINGS
SCALE As shown
BRIDGE 4-42
FILE E-4
DRAWING 0943-13
13

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.

DATE 2-14-72 SIGNATURE [illegible] TITLE [illegible]

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
01	HUM	299	~~21.9~~	3	14

January 18, 1965

GENERAL NOTES

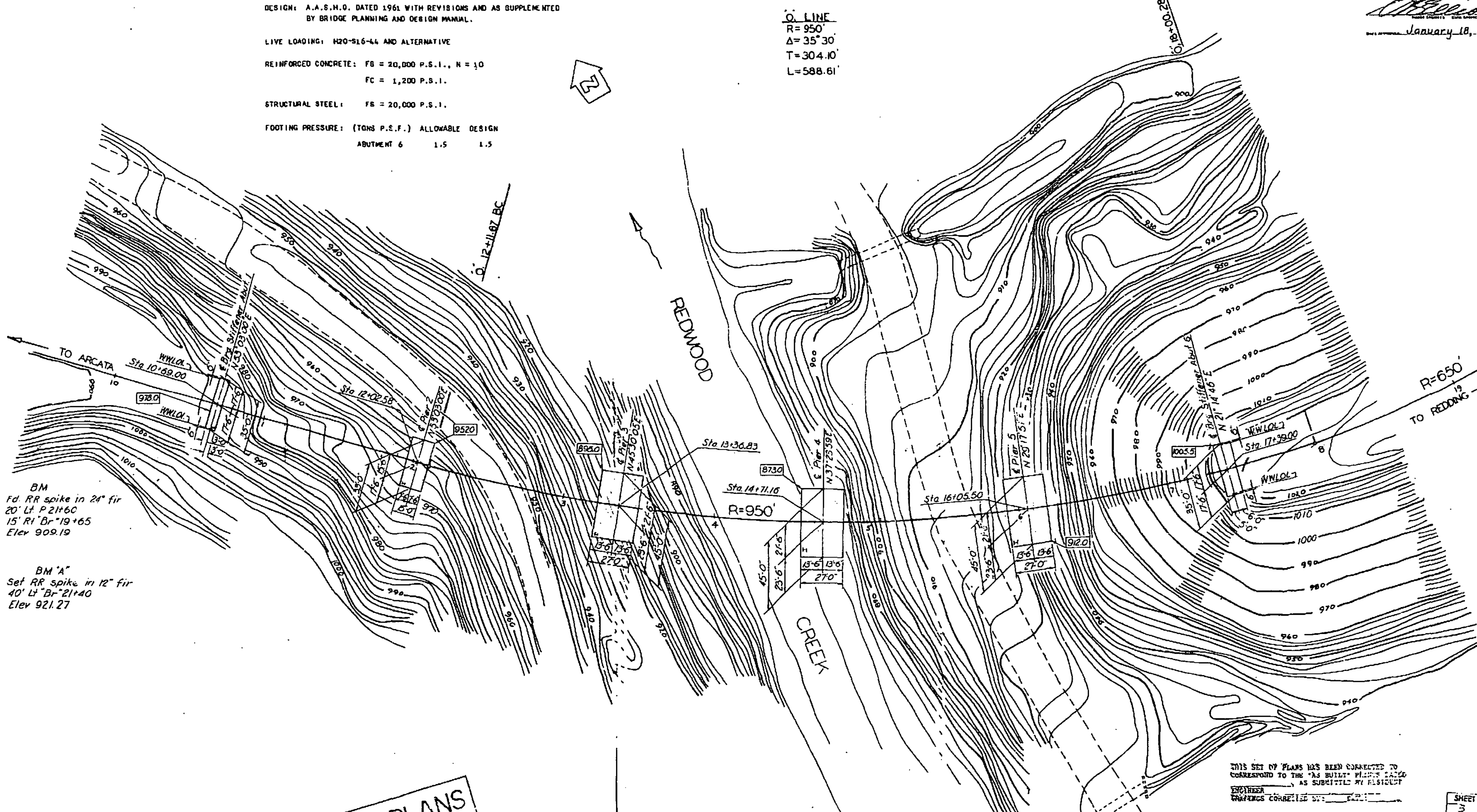
DESIGN: A.A.S.H.O. DATED 1961 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

LIVE LOADING: H20-S16-44 AND ALTERNATIVE

REINFORCED CONCRETE: FS = 20,000 P.S.I., N = 10
FC = 1,200 P.S.I.

STRUCTURAL STEEL: FS = 20,000 P.S.I.

FOOTING PRESSURE: (TONS P.S.F.) ALLOWABLE DESIGN
ABUTMENT 6 1.5 1.5



THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PLANS DATED ________, AS SUBMITTED BY RESIDENT ENGINEER ________
DRAWINGS CORRECTED BY: ________ DATE: ________

SHEET 3 OF 14

AS BUILT PLANS
Contract No. 14-040724
Date Completed
Document No. 10001100

Notes:
[ ] Indicates bottom of footing elevations.
For pile layout see "Abutment Details & Pier Details" sheets.

BRIDGE DEPARTMENT DESIGN SECTION 13		STATE OF CALIFORNIA DEPARTMENT OF PUBLIC WORKS DIVISION OF HIGHWAYS
Section Supervisor	(signature)	REDWOOD CREEK BRIDGE
DESIGN	By W. A. Behrens	
	Checked [illegible] '64	
DETAILS	By E Lee 5/64	FOUNDATION PLAN
	Checked E. D. [illegible] 6/64	
QUANTITIES	By S. Moriguchi	SCALE 1"=30' · BRIDGE 4-42 · FILE · DRAWING 2442-3
	Checked J. B. Sneed	

Disregard prints bearing earlier numbers → PREL. DRAWING NO. P-0442-3

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.
DATE 2-14-72 SIGNATURE [illegible] TITLE [illegible]

3

SETTLEMENT LEVELS

DIST. CO. RTE. P.M. 01 - Hum - 299 - 21.9

		1965 As Built	6-68	Δ	8-68	11-68	2-69	5-69	6-71	1-73	7-75 (80°F)	10-79 (60°F)
	1	995.035	995.035	⊕					995.030 .005		994.975 .060	994.931 .104
ABUT #1	2	995.899	REFER. B.M.						REF. BM		995.035 .060	995.035 .000
¼ PT.	3	996.445	96.435	.010							6.370 .075	996.827 .118
R	4	997.285	97.265	.020							7.170 .115	997.111 .174
¼ PT.	5	998.525	98.505	.02							8.355 .110	998.283 .242
PIER #2	6	999.415	9.405	.01							9.215 .120	999.13 .29
	7	1000.365	0.335	.03							0.180 .185	1,000.109 .161
	8	1001.870	1.775	.045							1.670 .175	1,001.598 .223
	9	1002.905	2.850	.055							2.790 .115	02.740 .165
PIER #3	10	1004.480	4.450	.03					4.465 .015		4.935 .145	04.419 .061
	11	1005.445	5.405	.04							5.405 .04	05.374 .071
	12	1006.960	6.925	.035							6.925 .035	06.898 .062
	13	1008.295	8.265	.03							8.265 .030	08.248 .047
PIER #4	14	1009.650	9.640	.01							9.640 .01	09.638 .012
	15	1011.495	1.470	.025							1.490 .015	11.466 .029
	16	1012.965	2.925	.04							2.945 .02	12.922 .043
	17	1014.895	4.870	.025							4.885 .01	14.867 .028
PIER #5	18	1016.480	6.475	.005					6.460 .020		6.470 .01	16.458 .022
	19	1018.315	8.230	.085					8.230 .085		8.260 .055	18.222 .093
	20	1020.530	0.350	.180					0.375 .155		0.485 .285	20.370 .160
	21	1022.220	1.985	.285					2.020 .200		2.115 .105	22.024 .196
ABUT #6	22	1024.035	3.735	.300	23.740 -.295	24.020 -.015	23.990 -.045	23.975 -.060	3.790 .245	3.70 .33	3.910 .027	23.810 .225
	22A										4.510	24.412
	23	1025.155	1024.855	.300	24.845 -.310	24.775 -.380	24.735 -.42	24.720 -.435	4.270 .855		5.090 .065	1,024.985 .170
	24	994.515	994.530	+.015					994.515 ⊖		994.465 .03	994.437 .078
ABUT #1	25	994.890	4.890	⊖					4.890 ⊖		4.850 .04	4.827 .053
	26	995.500	5.480	.02							5.420 .00	5.390 .110
	27	996.095	6.070	.025							5.975 .12	5.939 .156
	28	996.915	6.895	.02							6.765 .17	6.697 .218
PIER #2	29	997.520	7.505	.015					7.480 .040		7.320 .175	7.259 .161
	30	998.330	8.305	.025							8.170 .16	8.125 .205
	31	999.995	9.425	.02							9.350 .055	999.319 .126
	32	1000.290	0.270	.02							0.235 .055	1,000.212 .078
PIER #3	33	1001.600	1.595	.005					1.595 .005		1.590 .010	01.590 .010
	34	1002.815	2.805	.01							2.810 .005	02.810 .005
	35	1004.050	4.050	⊖							4.060 +.010	04.059 .009
	36	1005.315	5.310	.015							5.320 +.005	05.315 .000
PIER #4	37	1007.055	7.055	⊖					7.060 +.005		7.055 +⊖	07.054 -.001
	38	1008.555	8.555	⊖							8.560 +.01	08.559 +.004
	39	1010.105	0.100	.015							0.115 .01	10.116 -.011
	40	1012.090	2.090	⊖							1.110 +.01	12.104 .014
PIER #5	41	1013.630	3.615	.015					3.620 .010		3.630 +⊖	13.626 -.004
	42	1015.290	5.235	.055					5.235 .055		5.285 .045	15.255 -.035
	43	1017.620	7.495	.125					7.500 .12		7.595 .075	17.545 -.075
	44	1019.365	9.185	.18					9.190 .175		9.320 .045	19.244 -.121
ABUT #6	45	1021.185	0.905	.24	20.960 -.225	21.100 -.085	21.110 -.075	21.110 -.075	0.955 .23	0.88 .30	1.110 .075	21.024 .161
	45A										1.695	
	46	1022.400	1022.185	.215	22.170 -.23	22.110 -.29	22.085 -.315	22.075 -.325	1.910 .49		1022.350 .050	1,022.256 .144

RIGHT SIDE (UPSTR.)

LEFT SIDE (DNSTR.)

E. END GIR @ 9-6 JACKED. UP 9-68

4" JACKING COMPLETE 1-74

REVISED

21.185
21.024
.161

21.11
.024
.086

BRIDGE REPORT

BRIDGE ALTERED
SEE REVISED
ORIGINAL REPORT

Date of Investigation December 1, 1965

General Description

Name REDWOOD CREEK 01-Hum-299
Dist.-Co.-Rt.-Sec.

Location 22.30 Mi East of Jct. Rte 101 PM R22.33

Description Simple welded steel (2) girder spans on elastomeric bearing pads. RC deck. RC open end seat abutments. RC hollow piers. Abut. 1 to Pier 5 inclusive on 10BP57 steel pile footings. Abut. 6 on spread footing. WW's cantilevered from abutments.

Railing Type 2 Barrier Approx. skew None

Spans 1 @ 133.6', 3 @ 134.2', 1 @ 133.5' c/c abutment bearings and centers of piers. Total length 674' pn to pn

Roadway width 28'-0" between RC curbs
Describe medians, shdrs., surf., etc.
Sidewalks None

Width Adequate Alignment 950' radius curve

Design Live Loading H20-S16-44 & Alternative Overload rating Purple

Waterway Loose sand, gravel & cobbles, well-defined streambed.

Other features crossed Dirt access road in span 2, gravel rdwy. in span 4

Vertical clearance Unimpaired

FINAL REPORT FILED "6K" IN VOL 14-077914 Part 2

FINAL REPORT FILED in Vol. UNDER BR. NO. "4H"

History

Date built 1965 By Calif. Div. of Hwys Contract No. 14-040724

Designed by Bridge Department Designer W. A. Behrens

Plans Bridge Department files Bridge R.E. M. Kaneshiro

Contractor Hughes and Ladd and Hughes and Ladd, Inc. Redding

REMARKS No encroachments.

C. E. Collier

CEC mlk

cc: District 01(4)
Maintenance Dept.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Bridge No. 04C-0116

SUPPLEMENTARY BRIDGE REPORT

DS-M19(REV.1-90)

Location 01-Hum-Co.Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 4-10-97

Name REDWOOD CREEK (Bair Road)

RATINGS:

[71] Waterway Adequacy 9 [61] Channel & Channel Protection 6 [72] Approach Rdwy Align 5

TYPE OF INVESTIGATION/REPORT

Biennial	X	Group A		Other	
Damage		Underwater		Office	

WORK DONE

Deck spalls have been repaired.

WORK NOT DONE

Replace broken rail member at Abutment 1 right (southeast side of bridge).

The existing bridge deck should be rehabilitated and restoration of the function of the rockers at the south end of the truss span. Unsound areas of deck concrete should be removed and the entire riding surface overlaid, preferably with polyester concrete. Restoration of the rocker bearings will likely require removal of the deck on one or both sides of the joint sufficiently to plumb the bearings and reconstruct the expansion joint.

The option to do nothing except make minor repairs to the spalling deck will probably allow this structure to function for a few years. Traffic volume is very light, however logging trucks were crossing the bridge on this date.

CONDITION OF STRUCTURE

Riding surface was sounded with a deck chain. There appears to be little change from last report dated 8-22-95 which reported that approximately 20% of the surface has the hollow sound associated with under surface fractures. Considering the site and the appearance of the deck, the cause is believed to be freeze/thaw deterioration. The entire deck surface is very rough and abraded.

Previous reports have noted the trusses longitudinal shift to the south causing the rockers at the southerly support to incline about 15° to 20°. The movement has closed the west end of the joint assembly, the opening measures about 15 mm on the east side. Differential movement of the east and west trusses has caused the deck to spall on the north side of the joint assembly at its east end. The cause of the longitudinal shift is not known, but southerly movement of the north abutment is indicated.

A piece of the timber rail remains broken on the east side at the south end of bridge.

SCOUR
Approximately 3 meters of the footing is exposed at Abutment 3 left. No undermining of the footing is occurring at this time.

PAINT CONDITION
CODE 5: Patchy rust throughout all structural steel.

Scott M. Straub
Registered Civil Engineer

SMS:mst

c: PAskelson - Hydraulics

ELEMENT LEVEL INSPECTION-(ELI)

BRIDGE NUMBER: 04C0116 (1–8) | FRAME: 01 (9) | INSPECTION DATE: 04/10/97 (11–16)

INFORMATION ONLY - NOT FOR UPDATE

SCOUR CRITICAL..... NO
GROUP A INVESTIGATION..... NO
FRACTURE CRITICAL..... NO
ELIGIBLE FOR RAIL UPGRADE.. NO
UNDERWATER INVESTIGATION... NO

DISTRICT: 01
COUNTY: HUM
ROUTE:
POSTMILE:
NAME:

DEL	ELE #	ELEMENT DESCRIPTION	ENV	TOTAL QUANTITY	UNITS	QUANT CONDITION STATE 1	QUANT CONDITION STATE 2	QUANT CONDITION STATE 3	QUANT CONDITION STATE 4	QUANT CONDITION STATE 5
	12	CONCRETE DECK - BARE	3	1	EA				1 ✓	
	110	REINFORCED CONCRETE OPEN GIRDER		50	M	50 ✓				
	113	PAINTED STEEL STRINGER		150	M			150	✓	
	121	PAINTED STEEL THRU TRUSS BOTTOM CHORD		61	M		~~30~~	61	✓	
	126	PAINTED STEEL THRU TRUSS EXCLUDING BOTTOM CHORD		61	M		~~30~~	61	✓	
	152	PAINTED STEEL FLOOR BEAM		42	M		~~30~~	42	✓	
	205	REINFORCED CONCRETE COLUMN OR PILE EXTENSION		10	EA	10 ✓	~~3~~			
	210	REINFORCED CONCRETE PIER WALL		7	M		7 ✓			
	215	REINFORCED CONCRETE ABUTMENT		8	M	8	~~3~~			
	311	MOVEABLE BEARING (ROLLER, SLIDING, ETC.)		2	EA			2	✓	
	313	FIXED BEARING		2	EA			~~2~~		
							2			
	330	METAL BRIDGE RAILING		60	M	~~6~~	60			
	332	TIMBER BRIDGE RAILING		24	M	~~2~~	~~2~~			
							22	2		
	349	OPEN JOINT- SLIDING STEEL PLATES		13	M	~~1~~				
							13			

02/20/97 10A SCOTT STRAUB BY: Scott Straub

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Bridge No. 04C-0116

SUPPLEMENTARY BRIDGE REPORT

DS-M19(REV.1-90)

Location 01-Hum-Co. Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 8/22/95

Name REDWOOD CREEK (Bair Road)

RATINGS:
[71] Waterway Adequacy 9 [61] Channel & Channel Protection 6 [72] Approach Rdwy Align 5

TYPE OF INVESTIGATION/REPORT

Biennial	X	Group A		Other	
Damage		Underwater		Office	

WORK NOT DONE
Deck spalls have not been repaired.

CONDITION OF STRUCTURE
Riding surface was sounded with a deck chain. Approximately 20% of the surface has the hollow sound associated with under surface fractures. Considering the site and the appearance of the deck, the cause is believed to be freeze/thaw deterioration. Entire deck surface is very rough and abraded with several spalled areas as noted previously.

Previous reports have noted the trusses longitudinal shift to the south causing the rockers at the southerly support to incline about 30°. The movement has closed the west end of the joint assembly, the opening measures about 15 mm on the east side. Differential movement of the east and west trusses has caused the deck to spall on the north side of the joint assembly at its east end. The cause of the longitudinal shift is not known, but southerly movement of the north abutment is indicated.

AC is cracked, spalled and sagging near the ends of bridge on both approaches.

A piece of the timber rail is broken on the east side at the south end of bridge.

PAINT CONDITION
Patchy rust throughout all structural steel. Code 5.

WORK RECOMMENDED
The existing bridge can be repaired with a deck rehabilitation, and restoration of the function of the rockers at the south end of the pony truss span. Unsound areas of deck concrete should be removed and the entire riding surface overlaid with polyester concrete. Restoration of the rocker bearings would necessarily include removal of the deck on one or both sides of the joint sufficiently to plumb the bearings and reconstruct the expansion joint.

The cost of these repairs may be so high that replacement would be a preferred alternate.

The option to do nothing except make minor repairs to the spalling deck will probably allow this structure to function for a few years. Traffic volume is very light, however logging trucks were crossing the bridge on this date.

Replace broken rail member.

Level approaches with AC blanket.

BRIDGE NO. 04C-0116	
SHEET 2	DATE 8-22-95

PONTIS INSPECTION

A PONTIS inspection form for this investigation is attached.

William R. Baker
Registered Civil Engineer

WRB/pfa

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION (ATTACHMENT A)

PONTIS DATA FORM - PIA

BRIDGE NUMBER	FRAME	INSPECTION DATE
04C0116		082295
1 8	9	11 16

INFORMATION ONLY - NOT FOR UPDATE	
SCOUR CRITICAL	***
CATEGORY A	***
FRACTURE CRITICAL	***
ELIGIBLE FOR RAIL UPGRADE	***
UNDERWATER INSPECTION	***

DISTRICT 1
COUNTY Hum
ROUTE
POSTMILE
NAME REDWOOD CREEK

DEL	ELE #	ELEMENT DESCRIPTION	ENV	TOTAL QUANTITY	UNITS	QUANT CONDITION STATE 1	QUANT CONDITION STATE 2	QUANT CONDITION STATE 3	QUANT CONDITION STATE 4	QUANT CONDITION STATE 5
	112		3	1	EA				1	
	10			50	M	50				
	13			61	M			61		
	16			61	M			61		
	51			~~3~~ 8	M	8				
	47			10	EA	10				
	101			~~60~~	M		~~60~~			
	103			24	M	12	12			
	96			2	EA			2		
	98			2	EA			2		
	32			42	M			42		
	78			150	M			150		
	308			13	M	13				

18 19 22 23 28 33 38 43 48

9-6-95

BY: WRB

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Bridge No. 04C-0116

SUPPLEMENTARY BRIDGE REPORT

DS-M19(REV.1-90)

Location 01-Hum-Co. Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 8/22/95

Name REDWOOD CREEK (Bair Road)

RATINGS:
[71] Waterway Adequacy 9 [61] Channel & Channel Protection 6 [72] Approach Rdwy Align 5

TYPE OF INVESTIGATION/REPORT

Biennial	X	Group A		Other	
Damage		Underwater		Office	

WORK NOT DONE
Deck spalls have not been repaired.

CONDITION OF STRUCTURE
Riding surface was sounded with a deck chain. Approximately 20% of the surface has the hollow sound associated with under surface fractures. Considering the site and the appearance of the deck, the cause is believed to be freeze/thaw deterioration. Entire deck surface is very rough and abraded with several spalled areas as noted previously.

Previous reports have noted the trusses longitudinal shift to the south causing the rockers at the southerly support to incline about 30°. The movement has closed the west end of the joint assembly, the opening measures about 15 mm on the east side. Differential movement of the east and west trusses has caused the deck to spall on the north side of the joint assembly at its east end. The cause of the longitudinal shift is not known, but southerly movement of the north abutment is indicated.

AC is cracked, spalled and sagging near the ends of bridge on both approaches.

A piece of the timber rail is broken on the east side at the south end of bridge.

PAINT CONDITION
Patchy rust throughout all structural steel. Code 5.

WORK RECOMMENDED
The existing bridge can be repaired with a deck rehabilitation, and restoration of the function of the rockers at the south end of the pony truss span. Unsound areas of deck concrete should be removed and the entire riding surface overlaid with polyester concrete. Restoration of the rocker bearings would necessarily include removal of the deck on one or both sides of the joint sufficiently to plumb the bearings and reconstruct the expansion joint.

The cost of these repairs may be so high that replacement would be a preferred alternate.

The option to do nothing except make minor repairs to the spalling deck will probably allow this structure to function for a few years. Traffic volume is very light, however logging trucks were crossing the bridge on this date.

Replace broken rail member.

Level approaches with AC blanket.

BRIDGE NO. 04C-0116	
SHEET 2	DATE 8-22-95

PONTIS INSPECTION

A PONTIS inspection form for this investigation is attached.

William R. Baker
Registered Civil Engineer

WRB/pfa

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Bridge No. 04C-0116

SUPPLEMENTARY BRIDGE REPORT

DS-M19(REV.1-90)

Location 01-Hum-Co. Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 11/19/93

Name REDWOOD CREEK (Bair Road)

RATINGS:

[71] Waterway Adequacy 7 [61] Channel & Channel Protection 5 [72] Approach Rdwy Align 5

TYPE OF INVESTIGATION/REPORT

Biennial	X	Group A		Other	
Damage		Underwater		Office	

WORK DONE
Segregated concrete in bent 2 has been patched. SUBM

WORK NOT DONE
Deck spalls have not been repaired. DEKL

CONDITION OF STRUCTURE
There has been no significant change in the condition of this structure since the previous investigation.

Small scour hole is present adjacent to Abutment 4. Not serious at this time. In addition, a channel section was taken during this investigation for future reference to scour conditions.

PAINT CONDITION
Paint system has failed. Paint is cracked, faded and peeling, Rust patches are also present in various locations. Code 5

WORK RECOMMENDED
Square up larger deck spalls and patch with rapid setting concrete. DEKL

PONTIS INSPECTION
A PONTIS inspection form for this investigation is attached.

REGISTERED PROFESSIONAL ENGINEER
ERIC E. AKANA
No. C-58733
Exp. 9/30/95
CIVIL
STATE OF CALIFORNIA

Eric E. Akana
Registered Civil Engineer

EEA/wb

cc: Crossett

STATE OF CALIFORNIA - DEPARTMENT TRANSPORTATION (ATTACHMENT A)

PONTIS DATA FORM - PIA

BRIDGE NUMBER	FRAME	INSPECTION DATE
04C0116		11/19/93
1 8	9	11 16

INFORMATION ONLY - NOT FOR UPDATE

SCOUR CRITICAL	***
CATEGORY A	***
FRACTURE CRITICAL	***
ELIGIBLE FOR RAIL UPGRADE	***
UNDERWATER INSPECTION	***

L = 144
W = 23 2 8

DISTRICT 01
COUNTY HUM
ROUTE
POSTMILE
NAME

DEL	ELE #	ELEMENT DESCRIPTION	ENV	TOTAL QUANTITY	UNITS	QUANT CONDITION STATE 1	QUANT CONDITION STATE 2	QUANT CONDITION STATE 3	QUANT CONDITION STATE 4	QUANT CONDITION STATE 5
	112	DECK		1	EA			1		
	10	GIR 4 @ 44		176	L.F	176				
	13	TRUSS		100	L.F		100			
	16	TRUSS		200	L.F		200			
	32	FLOOR BEAM 6 @ 23		138	L.F		138			
	47	COL		4	EA		4			
	49	PIER WALL		23	L.F		23			
	51	ABUT		46	L.F		46			
	101	RAIL		200	L.F	200				
	103	RAIL		80	L.F		80			

18 19 22 23 28 33 38 43 48

NOT IN SMS DATABASE BY: _____

2-19-94

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATIO

Bridge No. 04C-0116

SUPPLEMENTARY BRIDGE REPORT

DS-M19(REV.1-90)

Location 01-Hum-Co. Rd.
Dist.,Co.,Rte.,PM,City

Date of Investigation 8/16/91

Name REDWOOD CREEK (Bair Road)

RATINGS:

[58] Deck 6 [59] Superstructure 6 [60] Substructure 6 [71] Waterway Adequacy 7

[61] Channel & Channel Protection 5 [62] Culvert N [72] Approach Rdwy Align. 5

CODES:

[21] Custodian 02 [22] Owner 02 [26] Functional Classification: Deck 09 Under NA

[41] Str Open, Posted or Closed A [107] Deck Type 1 [108] Wearing Surface/Prot Sys 100

Max Col/Pier Ht. Under 20' [111] Pier/Abut. Prot. NA

[55] Min Lat Underclr on Rt. NA [54] Min Vert Underclr NA [112] NBIS Bridge Length Y

DATA:

[51] Bridge Width (NET) 20.0' [109] Average Daily Trucks (% of ADT): Deck 1 Under NA

[114] Future ADT: Deck 400 Under NA [115] Yr. of Future ADT: Deck 2010 Under NA

Number of Intermediate Joints: @ Hinges 0 @ Bents 1

TYPE OF INVESTIGATION/REPORT

Biennial	X	Category A		Other	
Damage		Underwater		Office	

CONDITION OF STRUCTURE

Deck is heavily abraded throughout and has several popouts and a few minor spalls. Some of the larger spalls have AC patches.

Columns at Bent 2 have existing rock pockets with some exposed steel.

Rockers at south end of pony trusses still inclined back about 15° as noted previously. Joint is closed.

No significant changes were noted.

WORK RECOMMENDED

Chip out segregated concrete, clean steel and patch columns in Bent 2. SUBM

Square up larger deck spalls and patch with rapid setting concrete. DEKL

William R. Baker
Registered Civil Engineer

WRB/cgc-25391

Form BFU-1
July 1989

COUNTY OF HUMBOLT

Bridge File Update

Field Inspection By: L. R. Harvey Date 11-26-90

Stream: Redwood Creek Bridge No. 4C-116

Bridge Description: Steel Thru Truss - Concrete girder approach span

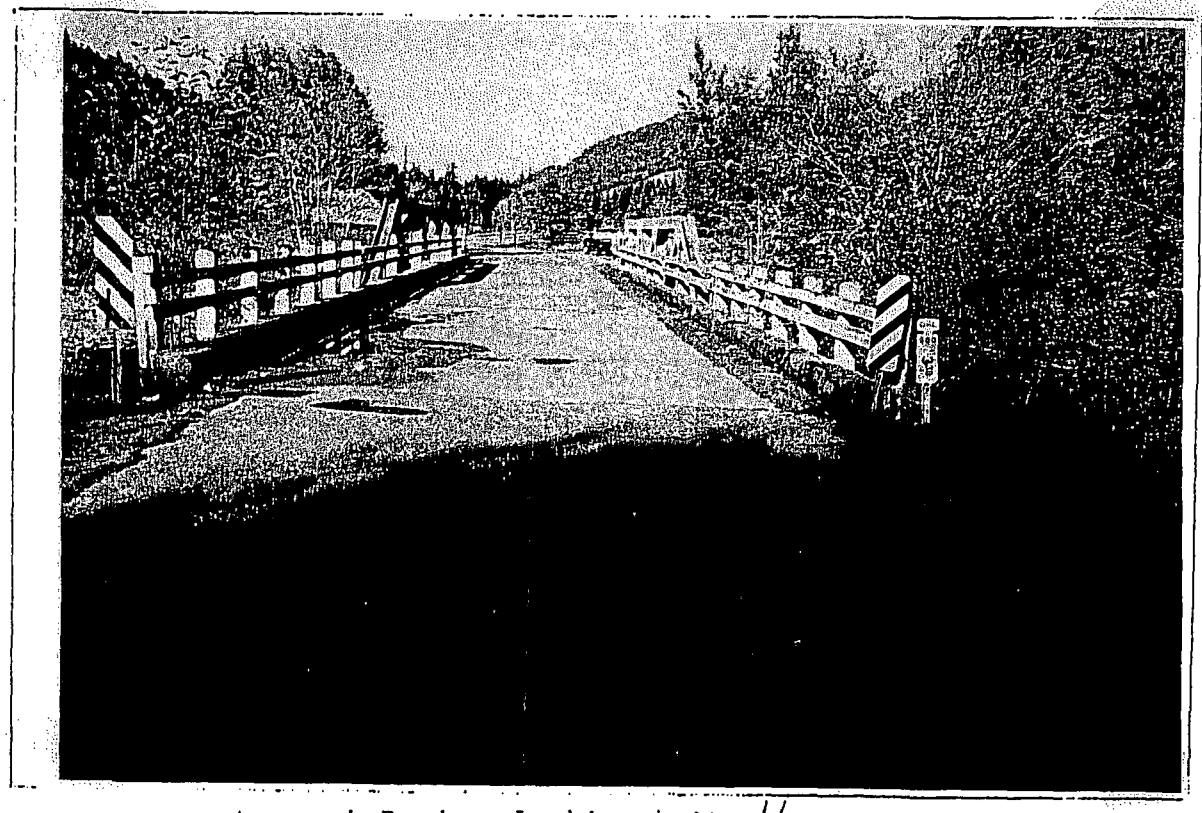
Road Name Bair Road Road No. C62300 PM 3.38

BRIDGE CONDITION: Rock pockets on Columns 1 and 3 of bent #2 (rebar exposed)
Steel Truss needs paint

WATERWAY CONDITION: Top of curb to stream bed = 22° at a point 30' from North Abutment, up stream.

ROADWAY CONDITION: good

Bridge No. C- 110 Date 11-20-



Approach Roadway Looking * North

*Fill in North, South, East or West

Approach Roadway Looking * South

-Gates
ision of Structures
O. Box 942874
ramento, CA
74-0001

SEISMIC RETROFIT INVENTORY FORM

BRIDGE NO. 4C 0116 BRIDGE NAME Redwood Creek

NUMBER OF INTERMEDIATE SUPERSTRUCTURE JOINTS (HINGE) —
(BENT) 1

SUBSTRUCTURE: (CHECK APPROPRIATE BOXES)

COLUMNS:	Y	N
SINGLE COLUMN:		X
MULTI-COLUMN:		X
PIER WALL:	X	
PILE BENT:	X	
OTHER (DESCRIBE):		

ABUTMENTS:		Y	N
SEAT ABUTMENT:	1 -	X	
MONOLITHIC ABUTMENT:	1 -	X	

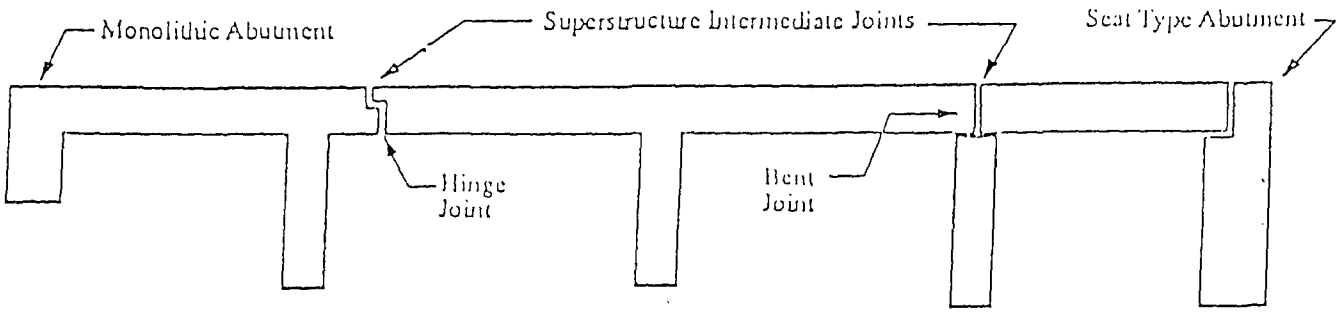
PLANS AVAILABLE?: Y X N

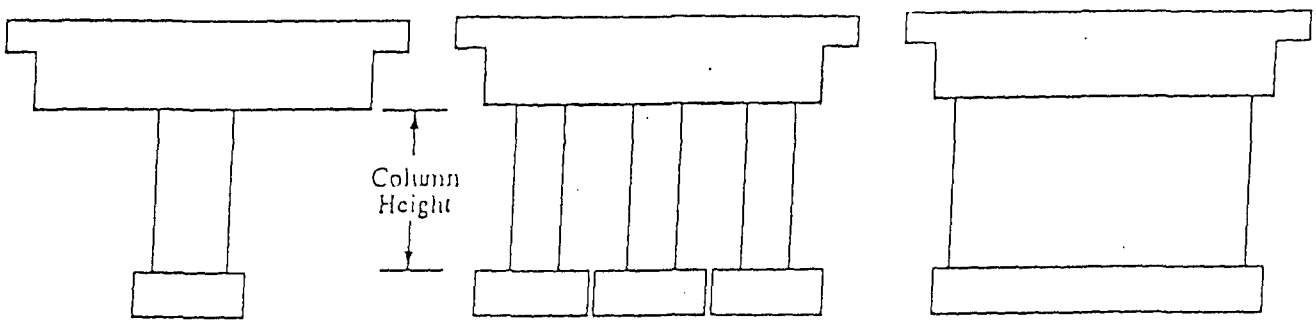
ESTIMATED ADT: 400

MAXIMUM COLUMN / PIER HIEGHT: (CHECK ONE)

0' TO 20':	X
20' TO 30':	
OVER 30':	

DEFINITIONS:





PREPARED BY: L.R. Harvey
DATE: 12-26-89

☐ COMMENTS ON BACK (SKETCHES, ETC.)

CONTACT: John Murray
OWNER/AGENCY: County of Humboldt
ADDRESS: 1106 2nd Street
Eureka Ca. 95501
PHONE: 707- 445- 7493

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DS-M19 (REV. 2/75)

Bridge No. 4C-116

Location 01-Hum-C.R.
Dist - Co - Rte - PM - City

Date of Investigation May 28, 1985

Name REDWOOD CREEK (on Bair Road, 3.4 mi. N. of SR 299)

CONDITION RATING: **APPRAISAL RATING:**

Deck 7 Superstructure 7 Substr. & Pipes 7 Overall 4

Channel & Channel Protection 4 Retaining Walls N

Widenable? Yes ☐ No ☒ Conditional ☐

Action Required by District: Yes ☐ No ☒

CONDITION OF STRUCTURE:

There are rock pockets with exposed rebar in Columns 1 and 2 of Bent 2.

Efflorescence exists in the soffit of spans 1 and 2.

James P.Hunter

by Paul Feinberg

Paul Feinberg

JPH/PF/nlc

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DS-M19 (REV 7/87)

Bridge No. 4C-116

Location 1-Hum-Co.Rd.
Dist-Co-Rte-PM-City

Date of Investigation August 10, 1987

Name REDWOOD CREEK (Bair Road)

CONDITION RATING: **APPRAISAL RATING:**

Deck 7 Superstructure 6 Substr. & Pipes 6 Overall 4

Channel & Channel Protection 4 Retaining Walls N

Widenable? Yes ___ No X Conditional ___

Action Required by County Yes ___ No X

CONDITION OF STRUCTURE:

The rocker at the south end of the west truss is inclined back about 15° and the joint is closed tight. The east side of the joint is open about 1 inch. The condition does not appear to be new but has not been previously noted.

There are patches of rust on most of the truss members.

The upper surface of the top chord has more rusted surface than elsewhere.

There is an old vertical crack in the eastern 1/3 of the north abutment wall. Its presence has not been previously noted.

No other changes were noted. The structure remains in fairly good condition.

REGISTERED PROFESSIONAL ENGINEER
William R. Baker
No. 16500
Exp. 6-30-89
CIVIL
STATE OF CALIFORNIA

William R. Baker

WRB/nlc

File

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DS-M19 (REV. 2/75)

Bridge No. 4 116

Location 01-Hum-Co.Rd.
Dist - Co - Rte - PM - City

Date of Investigation February 9, 1983

Name REDWOOD CREEK (on Bair Road, 3.4 mi. N. of SR 299)

CONDITION RATING: APPRAISAL RATING:

Deck 7 Superstructure 7 Substr. & Pipes 7 Overall 4

Channel & Channel Protection 4 Retaining Walls N

Ratings: Inv. H 16 Opr. H 26 Permit: GGGGG

Widenable? Yes ☐ No ☒ Conditional ☐

Action Required by ~~District~~ County: Yes ☐ No ☒

PREVIOUS INVESTIGATION

January 17, 1980.

PAINT

Condition Code: 4. The paint on the surfaces of the structural steel members is poor. There is rust forming on the edges of the flanges and on the webs.

CONDITION OF STRUCTURE

This structure continues to be in a generally good condition.

James P. Hunter

James P. Hunter
C-14617

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE REPORT
DS-MSB (REV. 10/79)

Bridge No. 4[illegible] 116

Other No. C6L300-3.38

P.U.C. No.

REVISED ORIGINAL

#52

Location 01-Hum-C.R.
Dist - Co - Rte - PM - City

Date of Investigation January 17, 1980

Name REDWOOD CREEK (on Bair Road, 3.4 mi. N of Highway 299)

Lat. 40°-57.7' Long. 123°-50.2'

STRUCTURAL DATA AND HISTORY

Year Built 1951 By Humboldt County Contract No. Unknown

Date of Revisions

Designed by: B.D. ☐ Unknown Plans Avail. @ County

Description: Continuous RC (4) girder approach spans and steel pony Pratt truss main span, both with RC deck. Substructure consists of a 4-column RC abutment (A#1) and bent (B#2), a 2-cylinder RC pier with solid web wall (P#3) and a full-height RC abutment (A#4).

Spans 1 @ 20.0', 1 @ 19.5', 1 @ 100'

Length 144' Skew None Design LL Unknown

Ratings: Inventory H16 Operating H26 Permit GGGGG

DESCRIPTION – ON STRUCTURE

Bridge Width 1.0' tr - 0.2' r - 1.3' cu - 20.0' - 1.3' cu - 0.2' r - 1.0' tr

Total Width 23.0' Lanes 2 Tracks None

Median None Rail Type Spans 1&2: Timber
Span 3: Steel (000(

Vert. Clearance over deck Unimpaired Appr. Rdwy. Width 22'

Wearing Surface None Deck Seal None

Alignment 150'± radius curve north; tangent south.

DESCRIPTION – UNDER STRUCTURE

Roadway Section None

Clearances: Vert. Horiz.: Lt.

Lanes Tracks Pumpplant: None ☐ See Br. No.

Facilities Crossed Redwood Creek

cc:

(1) CC[illegible].

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE REPORT
DS-M 53A (REV. 10/79)

Bridge No. _____

Date January 17, 1980

DESCRIPTION – HYDRAULICS

Channel Gravel and small rocks. Rock riprap protects the approach embankments at both ends of the bridge.

Navigable: Yes ☐ No ☒ Clearances: Vert. _____ Horiz. _____

MAINTENANCE

Custodian County Owner County

ORIGINAL CONDITION RATING

Deck	7
Superstructure	7
Substructure & Pipes	7
Channel & Channel Protection	4
Retaining Walls	N
Approach Rdwy. Alignment	5
Estimated Remaining Life	40

ORIGINAL APPRAISAL

Overall		7
Deck Geometry		3
Underclearances	Vert.	N
	Horiz.	N
Safe Load Capacity		5
Waterway Adequacy		6
Approach Rdwy. Alignment		5

Widenable? Yes ☐ No ☒ Conditional ☐

Average Daily Traffic & Year 300 (1979)

Bypass Detour Length 47 mi.

Seismic Retrofit Not required.

Action Required: Yes ☒ No ☐

Posting Required: None ☒ Load ☐ Speed ☐

HISTORY: This bridge was damaged by the high water which followed both the 1955 and 1964 storms. Final repairs to the flood damage were made in 1967.

W. O. Langenbach's bridge report dated March 22, 1971, is the most recent on file. (Not available in B.D.)

PAINT: The paint on the timber railing is weathered. The steel truss members are starting to rust.

WIDENABLE: No; through-truss.

PLANS AND DIMENSIONS: See sketches.

(2) con't

CONDITION OF STRUCTURE:

Railing: Good condition.

Curbs: Both have minor cracks and light scale.

Deck: The top surface has light scale, small cracks and some rock pockets. It has been patched in five or six places. An expansion joint at the north end of the bridge is filled with debris.

Girders: Good condition.

Trusses: Dirt is accumulating on the webbing of the lower chords. The bolts which fasten the rockers to the top of the pier are working loose.

Pier: The pier has some minor cracks and spalls.

Bent: Good condition.

Abutments: Good condition; some scour at Abutment 2 has exposed footing.

Approaches: Good condition.

LOAD CAPACITY: Calculated, cross beams control at 24.5 ksi (Operating); safe for all legal and green permit loads.

RECOMMENDED POSTING: None.

WORK RECOMMENDED:

1. Remove the dirt from the top of the lower chords and tighten rocker bolts as required.

2. Remove debris at pier and monitor extent of scour annually; provide riprap protection as required.

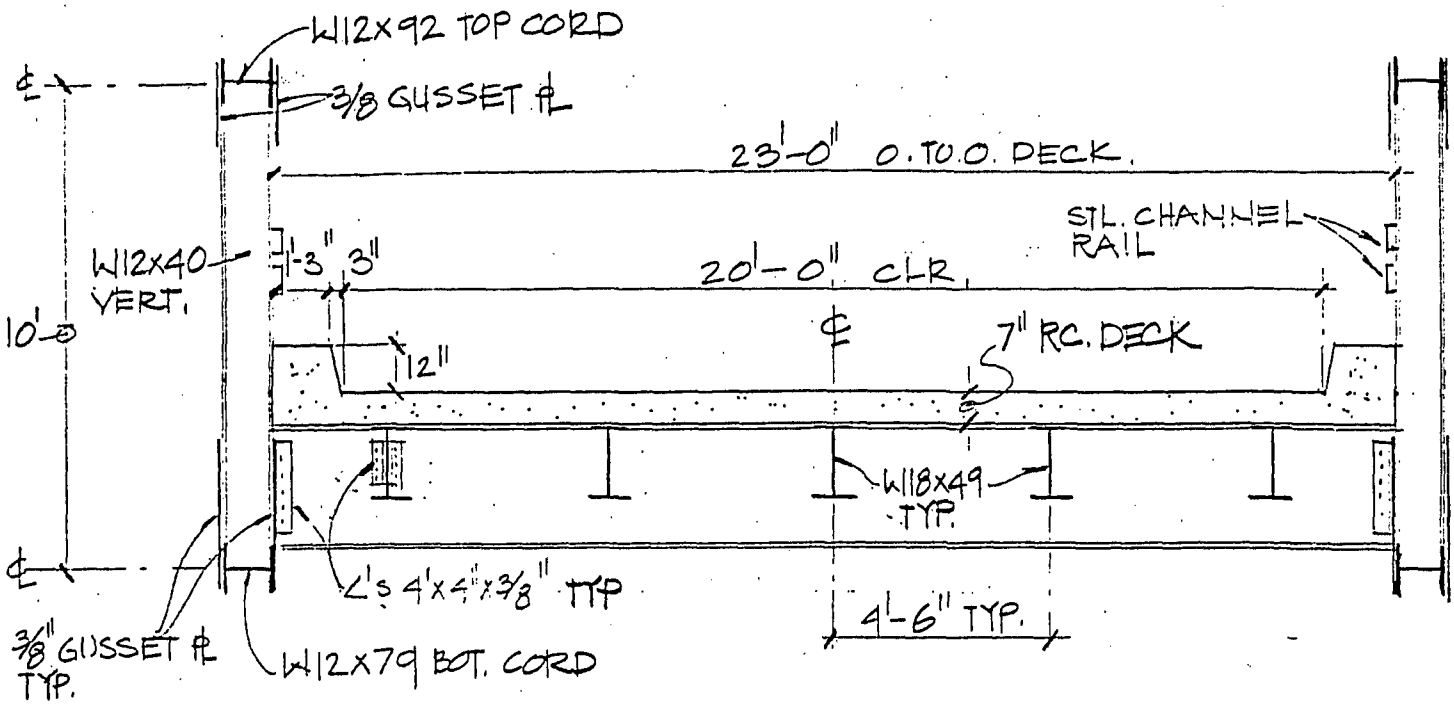
Gregg Schroeder
S.E. #1934

WINZLER & KELLY
CONSULTING ENGINEERS

495 TESCONI CIRCLE
SANTA ROSA, CALIFORNIA 95401
(707) 523-1010

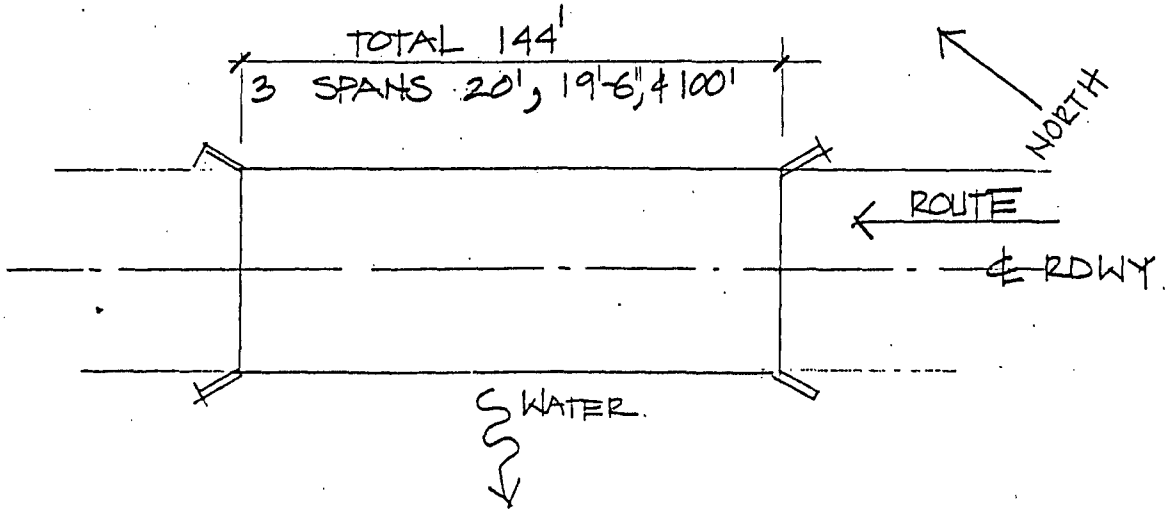
By _____ Date _____ Subject BRIDGE # 52 Sheet No. ___ of ___

Client _____ Job No. _____



TYP. SECTION @ TRUSS

1/4" = 1'-0"



PLAN VIEW

N.T.S.

BRIDGE NO. CGL300-3.38
#52
BAIR RD.

WILLIAM O. LANGENBACH
CIVIL ENGINEERING CONSULTANT

TELEPHONE 707 725-5315

3930 ROHNERVILLE RD.
FORTUNA, CA. 95540

BRIDGE REPORT

Investigation March 22, 1971

REDWOOD CREEK
Humboldt County Rd. C6L300
(Bair Road)

Bridge No. 4C-116
Post Mile 3.38

This report supplements the December 6, 1968 County report.

PLANS

Original plans of this structure and plans of repairs following the damage in December, 1964 are in the County file.

CONSTRUCTION RECORD and HISTORY

The bridge was built in 1951 by Humboldt County.

Some damage was rendered the bridge and/or approaches by the December, 1955 storm. The structure was properly restored following the storm.

In December, 1964 drift carried by the high water battered the upstream steel truss, bending several members. The flow partially washed out the northerly approach embankment, damaged Abutment 4 wingwalls, undermined the footing of Abutment 4 and washed out a portion of the southerly approach embankment.

Temporary repairs consisted of adding a temporary approximately 30' log stringer span at the south end of the bridge and making a minimum of repairs at the northerly end of the bridge.

In 1967 permanent restoration of the structure was made. The log stringer span at the south end of the bridge was removed and approach embankment placed. The northerly approach embankment was built up to permanent cross section after extending the downstream wingwall at Abutment 4 and repairing the upstream wingwall. One half ton class rock slope protection was placed around the new embankment at both ends of the structure. A concrete cut off wall was placed along the channel face of Abutment 4 footing. This

wall may have been extended along the face of the downstream wingwall footing. The damaged members in the steel truss span were replaced.

DIMENSIONS

Type - Steel pony Pratt truss span with RC southerly approach spans.

Skew - None.

Spans - 1 @ 20.2', 1 @ 19.7', 1 @ 100.0' from south to north measured center to center of supports in the concrete spans and center to center of pins in the bearings of the truss span.

Length - 144' end to end of bridge along centerline.

Vertical Clearance - Unimpaired.

Truss Clearance - 22.7' minimum face to face of trusses. The top of the truss is 6.9' maximum above the deck.

Roadway Width - 20.0' between curb bases.

Railing - Approach Spans: 2 each 4" x 6" redwood rails on 8" x 8" redwood posts. The tops of the railing posts are 4' 0" above the RC deck.

Railing - Truss Span: 2 each 6" channels at 12.0 pounds per foot. The distance face to face of railings is 22.4' minimum.

Curbs - RC 12" high with 3" battered face and 1' 3" across the top.

Surfacing - None.

Deck - Approach Spans: 8" RC slab.

Deck - Truss Span: 7" RC slab.

Girders - Approach Spans: 4 each RC "T" continuous girders at 6.0' centers.

Stringers - Truss Span: 5 each steel 18WF50 at 4' 6" centers.

Caps - Approach Spans: RC "T" girder.

Floorbeams - Truss Span: Steel 30WF108 spaced 20' 0" centers.

Trusses - Steel Pratt pony trusses each with 5 panels at 20' = 100'. The trusses are spaced at 24.0' center to center and are 10.0' high center to center of chords. All primary truss members are steel wide flange beams and are rivetted or bolted at joints.

Bents - Approach Spans: 4 each 14" square RC columns on RC spread footing.

Piers - RC 4' 6" diameter cylinder pier with RC web wall. The pier is on an RC spread footing.

Abutment 1 - RC 4 column open bent on RC spread footing.

Abutment 4 - RC wall and seat on RC spread footing. RC backwall monolithic with the abutment. RC flared wingwalls.

Profile - The distances from the ground to the top of the curb along the left (downstream) edge of the bridge are as follows:

A-1	3'
8' from A-1	9'
B-2	11'
P-3 (Panel Point No. 0)	11'
7' from Panel Point No. 0	10'
Panel Point No. 1	15'
Panel Point No. 2	15'
Panel Point No. 3	16'
Panel Point No. 4	16'
A-4 (Face of footing)	19'
A-4 (Top of footing)	15.0'±

The distance from the top of the curb to the bottom of the girders in the approach spans is 3.1' and from the curb top to the bottom of the lower chords in the truss span is 5.1'.

High Water._ High water about March 1, 1972 was to such elevation that drift battered the lower chord of the truss and hit the upstream curb. The embankment in the approach at Abutment 4 was partially eroded away at both edges of the road. However, I do not believe the water level was up to the top of deck elevation.

Probably the high water in December, 1955 or December, 1964 was higher than in the recent storm.

Channel - The channel and its banks are of sand and gravel. A mud or clay bank is visible along the left bank of the stream on a right curve of the channel some 300 yards below the bridge. The banks have a moderate tree growth.

Upstream from the bridge the channel is wide and is funneled in to the bridge waterway by the road approach embankments.

Along its right side the southerly approach embankment has rock slope protection that is continued under the bridge at the abutment and along the downstream side of the approach for about 30'.

Rock slope protection along the upstream side of the northerly approach extends from about 45' north of Abutment 4 and along the channel face of the upstream wingwall to the end of the abutment.

Rock slope protection along the downstream edge of the northerly embankment was displaced by the recent heavy flow in the creek.

Utilities on Structure - None.

CONDITION

Recent heavy flow in Redwood Creek resulted in damage to the steel truss span, erosion of the edges of the northerly approach embankment and degradation of the channel at Abutment 4.

The truss span damage was caused by battering with floating drift. The outer face of the upstream curb is spalled.

Both lower lateral cross bracing members in Panel 4 are bent. One is bent about 6" and the other about 2". In Panel 5 one of the two braces is bent about 3".

The upstream truss member U_3L_2 has a 3/4" kink in the outer flange of the member.

The gusset plates of the upstream truss at Panel Points L_4 and L_5 are bent. The outer plate at L_5 has about a 1 1/2" bend in the lower 5". Both the inner and outer plates at L_4 are bent and battered resulting in about a 3/4" offset of the lower chord below its connection to the floorbeam and vertical member.

The flanges of the steel lower chord member in the upstream truss are bent at several locations.

In Panel 2 the outer flange has a 1/2" kink and in Panel 3 it is kinked between 1" and 3" at 5 locations.

In Panel 4 the outer flange is twisted and bent for the full length of the panel. The top of the flange is upstream from its original position about 1" and the lower is downstream about 2". Besides, it has numerous local kinks of about 1" maximum in the top and 3" maximum in the bottom.

In Panel 5 there are 3 kinks in the bottom part of the outer flange. The maximum bend is about 3".

At Abutment 4 the channel bed is eroded down to about 5' below the top of the downstream half of the abutment footing and to about 4' below the top of the footing for the first 6 linear feet of the downstream wingwall.

Plans do not show the depth to which the cut-off wall was constructed nor whether it was continued to include protection for the wingwall. Therefore it will be necessary to complete investigation of this phase of the storm damage when water has receded sufficiently to permit. If undermining of either footing has occurred, protective measures will be necessary.

Along the upstream edge of the northerly approach some embankment was eroded from behind the abutment wingwall. The rock slope protection effectively prevented erosion but was overtopped and the upper portion of the embankment was lost for a width of about 20' back to the edge of the paved surface.

Along the downstream edge of the northerly approach, the rock slope protection was destroyed and the bank eroded for some 100' from the bridge. The embankment behind the abutment's downstream wingwall was scoured out about 15' wide on a steep slope from the base of the wingwall at its end up to within about 6' of the centerline of the surfaced road.

A few long pieces of drift and a substantial amount of debris remain entangled in the steel members of the truss span.

A condition of long standing is the tilted rockers in the truss bearings on Pier 3. This condition is quite likely caused by movement of Abutment 4. This movement could have occurred when the abutment footing was undermined in 1964.

The rocker under the downstream truss is tilted about 2 1/2" and the other one slightly less. These rockers have about reached the limit of tipping provided in their design. Further rocking will result in bending the anchor bolts.

Also the steel expansion dam assembly in the bridge deck over Pier 3 has reached its limit of movement. The components of the assembly in the truss span and those in the approach span are in contact. No damage to the structure because of these conditions is apparent. Possibly the structure can withstand without damage the forces exerted upon it as the temperature of the bridge rises and the spans expand.

Revision of the structure to eliminate development of those stresses is a rather extensive and costly project. It should not become much more difficult if left as is until signs of distress become evident.

In the two spans of the southerly approach the RC girders have a few small vertical cracks and the deck soffit has a few hair cracks.

In Bent 2 Columns 2 and 4 have several rock pockets. Column 4 is the upstream column.

There are several places in the top of the RC deck in Span 1 that have surface spalls. The loose concrete has scaled off in a couple of locations showing the surface spall thickness to be about 1/2" to 1" thick.

STRESS ANALYSIS and CAPACITY RATING

Analysis of the reinforced concrete girder approach spans south of the truss span is incomplete because the plans failed to state the reinforcing bar sizes in the primary girders. These members were judged to be designed in balance with the deck slab they support.

The design of the deck slabs on these spans and on the steel truss span were checked using HS20-44 live loads including impact and dead load. The maximum stresses due to bending caused by the above loading were about 22,100 psi tension in the reinforcement and about 850 psi compression in the concrete. These stresses are safely within the maximum allowable limits for these deck slabs.

The steel stringers in the truss span were stressed by bending due to dead load, HS20-44 live load and impact to about 14,800 psi. In the floorbeams comparable loading to that in the stringers produced about 22,500 psi. These stresses are within safe working limits for the members.

Truss analysis was made by application of typical full legal load highway vehicles with impact and dead load. The

stresses developed in the primary members by that loading are in tabular form in the Summary of Truss Stresses accompanying this report. The Summary also shows that the stresses developed in the most critically stressed members of the trusses are not overstressed by purple overloads.

In conclusion, the analysis shows that the members analyzed are all safe for legal loads and purple overloads. The RC girders of the two concrete girder spans were not analyzed because the plan does not show the reinforcement sizes. However, only a few small shrinkage cracks can be seen in them even though they have been subjected to numerous very heavy loads for many years. Therefore it is safe to assume they can withstand moderate overloads without risking damage to the structure or jeopardizing the safety of the public.

Green color code should be assigned to the structure for use in issuance of transportation permits.

RECOMMENDATIONS

1. Replace all eroded away northerly approach embankment and repair the approach surfacing.

2. Place rock riprap bank protection along the downstream edge of the northerly embankment as required to prevent recurrence of the approach erosion. One half to three quarter ton class rock riprap will be required. The riprap will have to be placed with its toe in a trench no less than 4' below the stream bed. The top should be carried up to no less than the elevation of the base of the truss bearing shoes at Abutment 4.

3. Remove all drift, debris and silt entangled in and accumulated on the steel truss members.

4. Make the following repairs in the upstream steel truss. Panel point designations used here are numbered consecutively from Panel Point L_0 at the pier to Panel Point L_5 at the northerly abutment.

Replace the lower chord member between Panel Points L_3 and L_4.

Replace the lower chord members between Panel Points L_2 and L_3 and between Panel Points L_4 and L_5. If deemed more economical the bends in these members may be straightened in lieu of replacing them.

Replace the bent gusset plates at Panel Point L_4.

Straighten the minor kinks in the flanges of the members between Panel Points L_1 and L_2 and between Panel Points L_3 and U_2.

Straighten the bend in the gusset plate at L_5.

In order to prevent the truss span from collapsing or developing damaging sag when a primary truss member is disconnected, it is necessary to strategically place underpinning to support the dead load of the structure. By constructing the underpinning adequately strong it will also support the live load on the bridge and thereby eliminate the necessity of a detour. However, all heavy vehicles on the bridge must be restricted to use of the lane along the downstream edge of the structure and must be required to travel not over 10 miles per hour.

Proper positioning of each underpinning support is under the steel floorbeam as near the truss point to be worked on as can be arranged and still leave room for the repair to be made.

Underpinning to be placed near the ends of the floorbeams and capable of supporting the dead load plus the live load developed by full legal loads traveling slowly in the far lane should be constructed no lighter than a single 12" x 12" DF post on a 5' x 6' spread footing. Good construction details require a jacking space be provided so height adjustments can be made during assembly of the truss members. A 50 ton jack is required.

The footing can be composed of 5 each 12" x 6" DF planks 6' long. These planks should be laid side by side on a carefully leveled depression in the gravel, and a 12" x 12" DF sill 5' long placed transversely across them. The vertical post must be centered over the sill and must bear on a 12" x 18" x 1 1/2" thick steel plate. The plate is necessary to distribute the vertical load over enough area to prevent crushing into the horizontal sill. All must be securely fastened together and held at the top so the post cannot slip in any direction.

The underpinning for the floorbeam at L_5 can be blocking bearing on the bridge abutment seat.

5. Straighten the bent lower lateral cross bracing in the steel truss span in the third and fourth panels from the south end. One or all of these bent members may be replaced if that is a more economical procedure.

6. Determine whether erosion along the face of Abutment 4 and the downstream wingwall footing has dropped below the bottom of the footings or their concrete cutoff walls.

It may be possible to determine this by probing. If positive results cannot be determined that way it will be necessary to excavate with a back hoe or other suitable equipment. The channel bed was about 5' below the top of the abutment footing and 4' below the top of the wingwall footing at the date of this investigation.

If the cutoff wall or footing has been undermined a new cutoff wall must be constructed to fill any void below the footing and to protect the footing from future undermining.

The footing for the new wall, if the wall is required, should be about 3' below the lowest point of channel erosion. If bedrock is encountered the base should be no less than one foot into the rock. The bottom of the cutoff wall should be in a trench between one and two feet wide and the concrete should be poured against undisturbed earth or rock.

7. When convenient chip out all rock pocket concrete in the columns of Bent 2 and replace it with concrete mortar. Use epoxy, State Specification 681-80-43, to bond the mortar to the existing concrete.

8. When convenient chip off all loose surface concrete in the deck of the southerly approach spans and patch the deck with epoxy mortar to return it to a smooth grade matching the deck grade at all edges of the patch. The epoxy for the mortar and bonding of the mortar in place must be State Specification 681-80-46.

Prior to placing the new mortar after removing all loose concrete, thoroughly blast clean the area to be patched so as to expose clean concrete and remove all rust from any exposed reinforcing bars.

9. When convenient patch the spalled area on the outer face of the upstream concrete curb near Abutment 4. Blast clean the surface and then patch with Portland cement mortar bonded with State Specification epoxy 681-80-43.

10. When repairs to all steel members are complete, blast clean all the new members and spot blast clean all the surface of other steel members where paint is damaged. Paint all the cleaned areas with paint formulation matching that on the remainder of the bridge.

The capacity rating assigned to this structure is based on conditions found during this investigation. Any changes in condition such as further deterioration or damages, or existing deterioration that is not evident by customary surface inspection of the structure will alter the capacity rating.

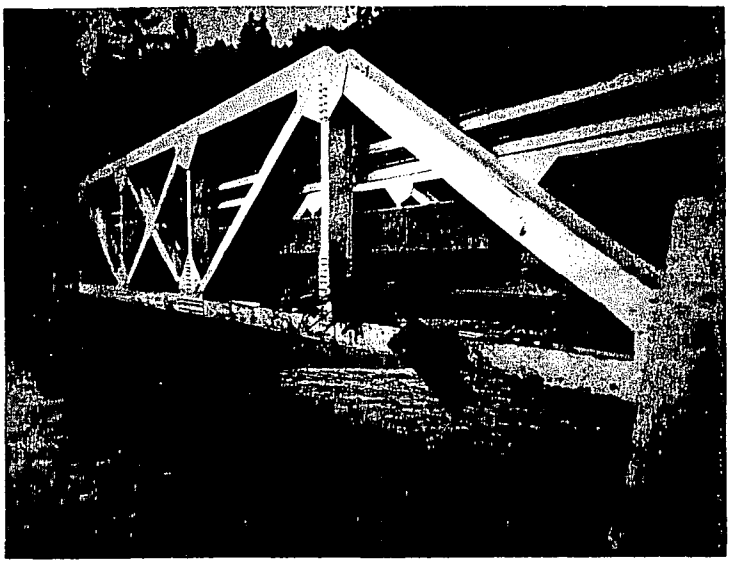
William O. Langenbach

William O. Langenbach
Professional Engineer C5944

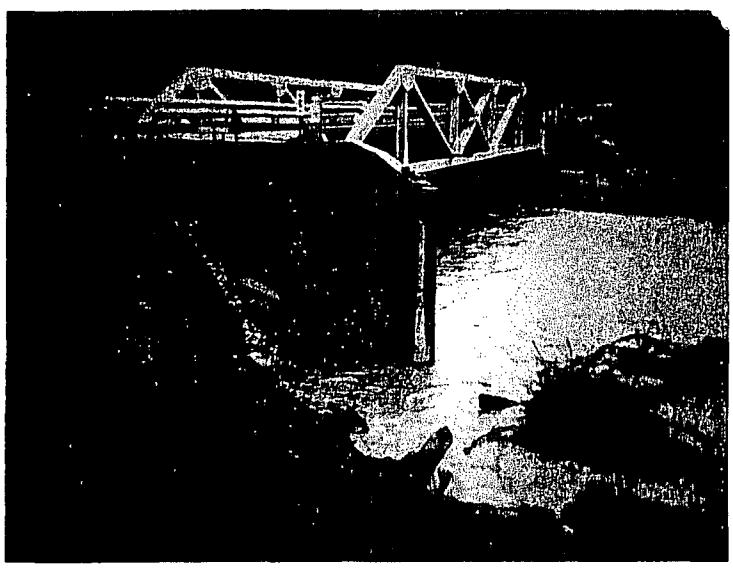
WOL:ewl

Redwood Creek Br. No. 4C-116

To accompany report
March 22, 1972



US side.
Note drift on truss, and bends in truss lower chord.



DS side.
Note drift at lower chord in truss.
Also note embankment erosion and displaced rock riprap.

Bair Rd. C6L100, 3.38

Analysis -

Summary of Truss Span Stresses

[To accompany report dated Mar. 22, 1972]

4/8/72

Mem.	Desc.	Effective Area "A"	Loads in Kips DL	LL	Imp	Total	Unit Stresses Actual	Allowable
L_0U_1	12WF92	27.06	-152.0	-108.5	-23.9	-284.4	-10,510	-13,600
U_1U_3	12WF92	27.06	-204.0	-112.2	-24.7	-340.9	-12,600	-16,200
L_0L_2	12WF79	20.22	+136.0	+97.0	+21.3	+254.3	+12,580	+24,500
L_2L_3	12WF79	20.22	+204.0	+112.2	+24.7	+340.9	+16,860	+24,500
U_1L_1	12WF40	9.77	+25.9	+35.2	+7.7	+68.8	+7,040	+24,500
U_1L_2	12WF40	9.77	+76.0	+73.6	+16.2	+165.8	+16,970	+24,500
U_2L_2	12WF40	11.77	0	-8.7	-1.9	-10.6	-900	-17,600
U_2L_3	12WF40	11.77 Comp.	0	-19.4	-4.3	-23.7	-2,010	-15,300
		9.77 Tens.	0	+19.4	+4.3	+23.7	+2,430	+24,500
U_3L_2	12WF40	11.77 Comp.	0	-19.4	-4.3	-23.7	-2,010	-15,300
		9.77 Tens.	0	+19.4	+4.3	+23.7	+2,430	+24,500

LL stresses are those produced by typical full legal load vehicles.

All truss members safe for full legal load. L_0U_1 and U_1U_3 govern the truss capacity. Purple Over Loads (No Impact) stress these 2 members to 11,630 psi and 13,760 psi respectively. These stresses are both within the allowable limits for those members so the truss members are all safe for Purple OL.

MGL

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA

Certified copy of portion of proceedings, Meetings of June 22, 1965

IN THE MATTER OF CONDUCTING FOUNDATION AND GEOLOGICAL INVESTIGATION FOR PROPOSED REDWOOD CREEK BRIDGE ON BAIR ROAD No. P-541.

The Director of the Department of Public Works reported that he had received an invoice from Moore & Taber, Engineers-Geologists, for conducting foundation and geological investigations for the proposed Redwood creek bridge on Bair road No. P-541 as authorized by a contract between said firm and the County of Humboldt dated February 2, 1965, and that the work had been satisfactorily completed. He recommended payment for the aforesaid services in the amount one thousand four hundred and fifty dollars ($1,450).

Upon the motion of Supervisor Landis, seconded by Supervisor Mitchell, the Auditor is hereby directed to draw a warrant payable to Moore & Taber in the amount of one thousand four hundred and fifty dollars ($1,450) as full payment for the aforesaid work in accordance with invoice No. 4124 from said firm. (budget item 300-2-118)

AYES: Supervisors— Lindley, Bareilles, Robertson, Mitchell, Landis
NOES: Supervisors— None
ABSENT: Supervisors— None

STATE OF CALIFORNIA, County of Humboldt } ss.

I, FRED J. MOORE, JR., County Clerk of the County of Humboldt, State of California, and ex-officio Clerk of the Board of Supervisors of the County of Humboldt, do hereby certify the foregoing to be full, true and correct copies of the original orders made in the above entitled matters by said Board of Supervisors, at a meeting held in Eureka, California, on June 22, 1965 and as the same now appears of record in my office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Seal of said Board of Supervisors this 23rd day of June, 1965

FRED J. MOORE, Jr.

County Clerk and ex-officio Clerk of the Board of Supervisors of the County of Humboldt, State of California

By Fay L. Bowman

Deputy Clerk.

Invoice No. 4124

May 10, 1965

Job No. 3521 F-2

Foundation Investigation - Bair Road - Redwood Creek Bridge

1) Drill Rig & Crew	33 hrs	21.00/hr	$ 693.00
2) Engineering Geologist	30 hrs	10.00/hr	300.00
3) Registered Civil Engineer-Staff Engineering Geologist	17 hrs	14.00/hr	238.00
4) Per Diem-Field Expenses:			
Drill Crew	4 days	20.00/day	80.00
Geologist	4 days	12.00/day	48.00
5) Mileage-Geologist	390 miles	.10/mi	39.00
6) Drafting	6 1/2 hrs	8.00/hr	52.00
			$ 1,450.00

MOORE & TABER • Engineers • Geologists
714-525-0241 • 1125 E. TRUSLOW AVE. • FULLERTON, CALIF. 92631

DATE May 10, 1965

INVOICE № 4124

Mr. C. H. Shaller
Director of Public Works
1106 Second Street
Eureka, California

CLIENT ORDER NO. Per Contract	JOB NO. 3521 F-2
PROJECT: Redwood Creek Bridge Bair Road	FOR PROFESSIONAL SERVICES RENDERED

DESCRIPTION	UNIT	RATE	AMOUNT
FOUNDATION INVESTIGATION - complete -			$1,450.00

PLEASE RETURN ONE COPY WITH REMITTANCE

Fees are due and payable on presentation. A service charge of 1% of the unpaid balance per month will be made for accounts due over 30 days.

CHARLES H. SHALLER
DIRECTOR

PHONE 443-4871
AREA CODE 707

COUNTY OF HUMBOLDT

DEPARTMENT OF PUBLIC WORKS
1106 SECOND STREET
EUREKA, CALIFORNIA

June 22, 1965

Honorable Board of Supervisors
County of Humboldt
Eureka, California

Gentlemen:

The work of Moore & Taber, Engineers-Geologists, for conducting a foundation and geological investigation for the proposed Redwood Creek Bridge on Bair Road No. P-541, has been satisfactorily completed and the report is on file in this office. Said work was authorized by a contract between said firm and the County of Humboldt dated February 2, 1965.

It is recommended that payment be made in the amount of $1,450.00 in accordance with the attached invoice in full payment thereof, with payment to be made from Budget Item No. 300-2-118.

Respectfully submitted,
ORIGINAL SIGNED BY
C. H. Shaller

CHARLES H. SHALLER
Director

CHS:ht
Enc.

(13)

BRIDGE REPORT
COUNTY OF HUMBOLDT

1
Sheet No.

12-6-68
Date of Investigation

BRIDGE DESCRIPTION

STREAM NAME Redwood Creek — L. Harvey Inspected By

ROAD NAME Bair ROAD NO. C6L300

LOG MILE POST 3.38 TYPE ST & T.B.

OVERALL LENGTH 144'-0" SPANS Truss - 100'-0" approach - 41'-0" (Bent in center)

DESIGN LOAD _____ POSTED LOAD LIMIT none

VERTICAL CLEARANCE unlimited POSTED SPEED LIMIT none

WIDTH 20'-0" BETWEEN Curbs R/W _____

RAILING: MATERIAL Truss - metal / appro. wood SIZE 2-6" channel / 2-4"x6" Redwood POSTS Part of Truss / 8"x8" Redwood

CK: MATERIAL Concrete SIZE 8"

STRINGERS: (5) MATERIAL Steel SIZE 18" I beam SPACING C.C. 4'-6"

FLOOR BEAMS: MATERIAL Steel SIZE 2'-6" SPACING C.C. 20'-0"

GIRDERS: appro. MATERIAL Concrete SIZE 13"x17" SPACING C.C. 6'-3"

TRUSSES: MATERIAL Steel SPAN 100'-0" HEIGHT C.C. CHORDS 10'-0"

PIERS: MATERIAL Concrete FOUNDATION: (Piles) _____ (Spread Footing) _____

ABUTMENTS: MATERIAL Concrete FOUNDATION: (Piles) _____ (Spread Footing) _____

LING: TYPE _____ AVERAGE LENGTH _____

DATE LAST PAINTED when constructed

HISTORY

DATE BUILT appro. - 1950 Truss - 1951 BY: County (Agency) STATE BRIDGE NO. _____

DESIGNED BY: FRF PLANS on File

BRIDGE R.E. Abut Repair L. Harvey CONTRACTOR approach - Tom Hull Truss - Tom Hull Abut Repair A. Tonk

Legend of Bridge Types:

C.S. = Concrete Slab	T.S. = Timber Stringer	S.T. = Steel Truss
T.B. = "T" Beam	T.T. = Timber Truss	S = Suspension
B.G. = Box Girder	S.W.F. = Steel Wide Flange	F.C. = Flat Car
A = Arch	S.W.G. = Steel Welded Girder	L = Log

REMARKS: Bridge Damaged in 1964 Flood, repair made in 1967. Steel repair was painted, the remaining steel should be cleaned and painted in the near future. Wood posts & guard rail need paint. South end of truss span and approach span are bearing together with no space for expansion. Concrete shows no spalling at this time.

2
Sheet No.

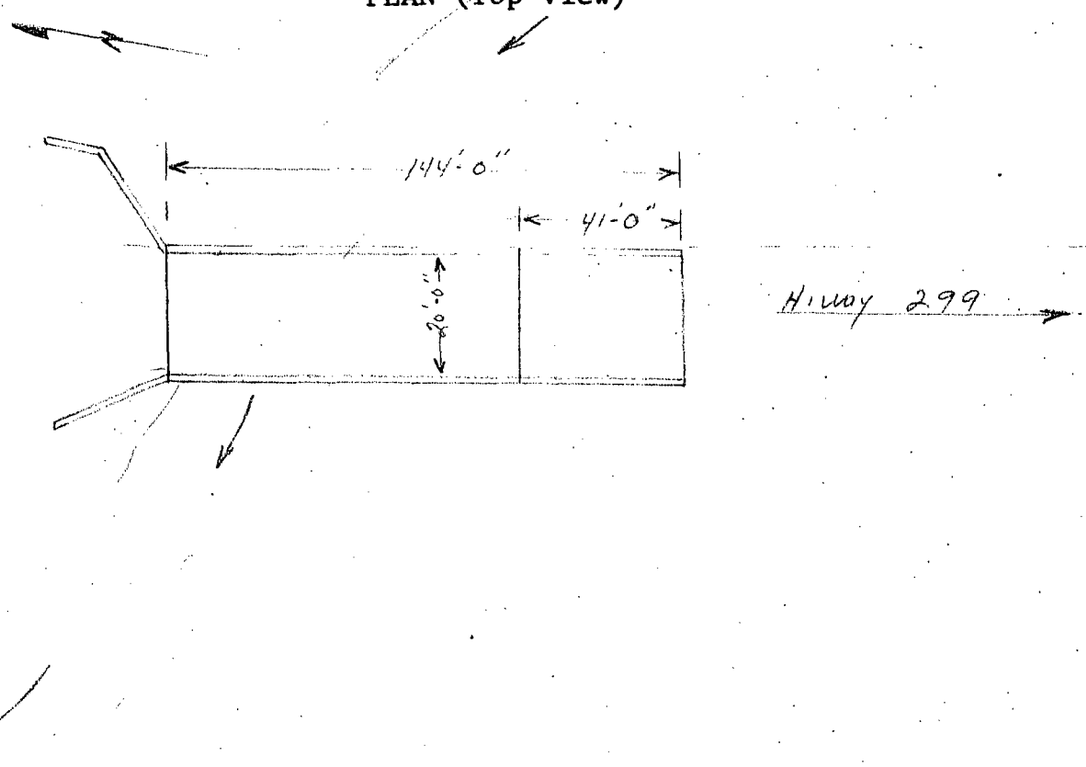
S K E T C H

BRIDGE NAME Redwood Creek

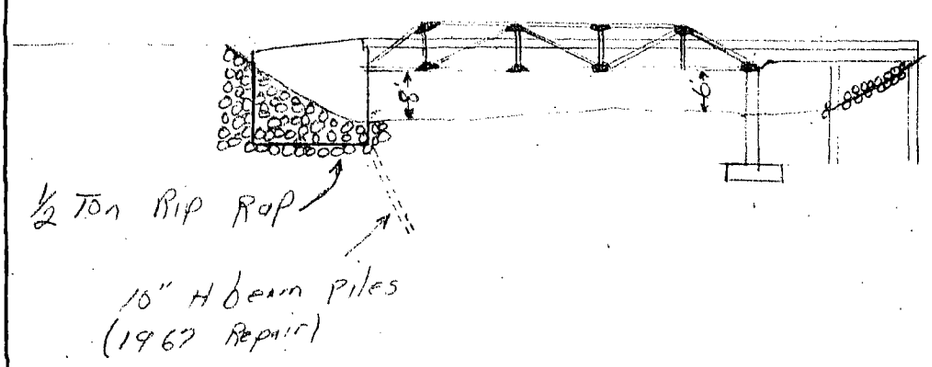
DATE 12-18-68

DRAWN BY: L. Harvey

PLAN (Top View)



ELEVATION (Side View)

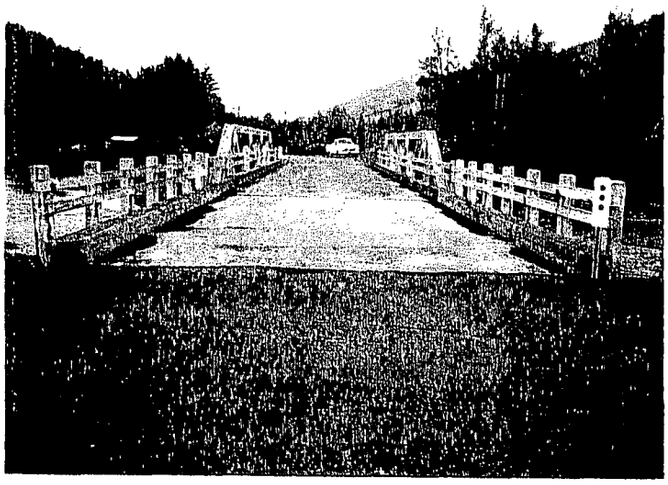


PICTURE LOG

BRIDGE NAME Redwood Creek

DATE 12-6-69

TAKEN BY: L. Harvey

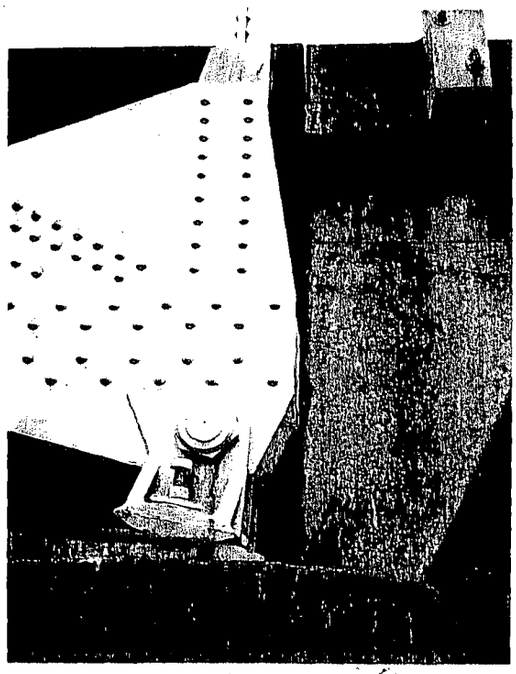


CENTER LINE, LOOKING No. Td

SPAN, LOOKING East

(upstream, ~~downstream~~)

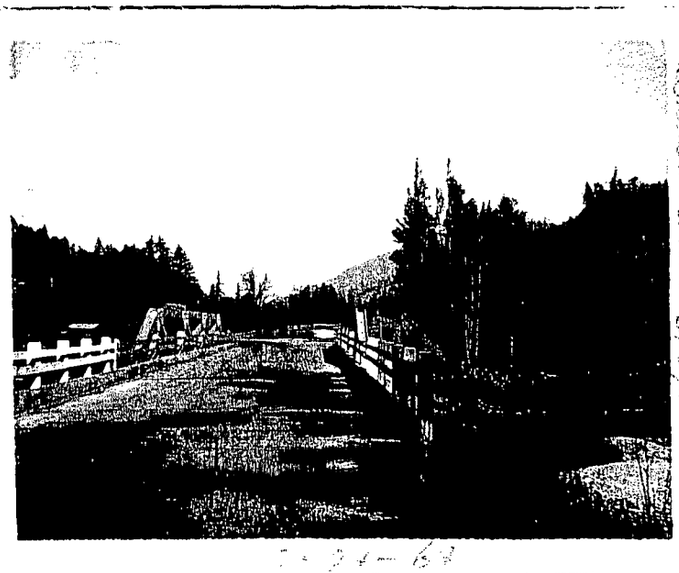
COPY
EAST
Photo



Redwood Creek Bridge #1

2-24-67

COPY TWO LOWER PHOTO



Redwood Creek Bridge #1

2-24-67

C. Connections

1. Rivet Condition: good

2. Bolt Condition: good

3. Weld Condition:

D. Comments

PAINTING

A. Estimated Time of Last Painting 1951

B. Is Any Rust Showing No Rust, but Prime coat
1. Where Showing on Top Chord,

C. Estimated Time for Next Painting 1965

D. Comments

[illegible]

A. Loading
1. Is bridge posted? No
2. If so what posting?

B. Erosion
1. Is there any stream erosion? Some
2. Where? upstream on N end Next to footing block of Wing wall & upstream on South Next to Abutment & Wing wall
3. Causes of erosion: Flood waters

4. Is there any debris? yes

5. Where? against Pier # 2. South Pier

6. Is there any bank erosion? yes

7. Where? South end, upstream. Next to Abut & Some Slipout opposite side, down stream

8. Causes of bank erosion: Flood Water

C. General Safety

1. Are approaches adequate? yes

2. Is bridge wide enough? yes

D. Alignment

1. Is the substructure plumb? yes

2. Is general alignment of the compon[illegible] parts of the superstructure satisfactory yes

E. Comments

the wooden Bulkhead at Abut #1 (South end) shows Some Rot will Need ReBracing Sometime in the future

Redwood Creek
Bair Rd.

C O N T R A C T

The County of Humboldt, State of California, hereafter referred to as the County and Moore & Taber, a California corporation with offices in West Sacramento, California, hereafter called the Engineer, hereby agree as follows:

1. EMPLOYMENT OF ENGINEER

The County, intending to construct a bridge approach structure for highway purposes across Redwood Creek at Bair Road, hereby employs the Engineer to perform the services described in Paragraph 2 hereof; and the County agrees to pay the Engineer for such services in the amount and at the time and in the manner specified in Paragraph 6 hereof.

2. ENGINEER'S SERVICES

The Engineer agrees to render the following professional services in connection with the planning for the construction of said bridge approach structure:

a. He will conduct a foundation survey of the earth materials at the place where said bridge is to be located; such survey will be made by means of test borings with soil samples and tests for the purposes of determining the character and strength of the foundation materials at the site. Borings will be made in a manner which is in accordance with the standard procedures used by the State of California in making foundation surveys.

b. He will make an analysis of such test borings and any other field studies made by him and will present written recommendations for the foundation design of the bridge. He will also furnish a summary of the findings of his studies including a "Log of Test Borings" drawing suitable for inclusion in the contract plans.

3. SITE PLAN

The County agrees to furnish at its own expense site surveys, plans, or plots, showing the location of proposed bridge piers and abutments with reference to established monuments in the immediate vicinity and giving at least one point of established or assumed elevation.

4. ACCESS

The County further agrees to obtain or provide rights of way whereby the Engineer can gain access for himself and his equipment to the site, and the County will obtain all necessary clearances and consents for the Engineer to perform the work which he is to do hereunder at the site.

5. PROSECUTION OF WORK

The execution of this agreement shall constitute the Engineer's authority to proceed immediately with the performance of this contract. The Engineer will be required to complete the performances of his services hereunder within ten (10) weeks from the date this contract is executed and transmitted to him; provided, however, that if the performance of the Engineer's work is delayed by earthquake, flood, high water or other Act of God or by strike, lockout or similar labor disturbances or by the Engineer's inability to move his equipment to the site because of muddy ground or otherwise, the time for the Engineer's performance of this contract shall be extended by a number of days equal to the number of days the Engineed has been so delayed.

6. PAYMENT

For his services hereunder, the Engineer shall be paid a sum to be determined by him, but not to exceed One-Thousand Four-Hundred Fifty and no/100ths Dollars ($1,450.00) which monies will be paid to the Engineer by the County within thirty (30) days after the Engineer has delivered to the County his recommendations and findings as called for by Paragraph 2 of this contract.

7. TERMINATION UPON DEFAULT OF ENGINEER

If the Engineer should fail to perform any of its obligations hereunder, within the time and in the manner herein provided or otherwise violate any of the terms of this agreement, the County may terminate this agreement by giving the Engineer written notice of such termination, stating the reason for such termination. In such event, the Engineer shall be entitled to receive as full payment for all his services satisfactorily rendered and expenses incurred hereunder, an amount which bears the same ratio to the total fee specified in the agreement as the services satisfactorily rendered hereunder by the Engineer bear to the total services otherwise required to be performed for such total fee; provided, however, that there shall be deducted from such amount the amount of damage, if any, sustained by the County by virtue of the breach of the agreement by the Engineer.

8. SUCCESSORS AND ASSIGNMENTS

The County and the Engineer each binds himself, his partners, successors, executors, administrators and assigns to the other party to this agreement, and to the partners, successors, executors, administrators and assigns of such other party in respect of all covenants of this agreement.

Except as above, neither the County nor the Engineer shall assign, sublet, or transfer his interest in this agreement without the written consent of the other; however, the Engineer reserves the right to assign the proceeds due under this agreement to any bank or person.

In the case of the death of one or more members of the firm of the Engineer, the surviving partner, or partners, shall complete the engineering services covered by this agreement.

IN WITNESS WHEREOF, the County has caused its name to be subscribed hereto by duly authorized member of the Board of Supervisors, in its behalf, and Moore & Taber has subscribed its name, the day and the year first above written.

COUNTY OF HUMBOLDT

(SEAL)

By /s/ MELVIN J. BAREILLES
Chairman, Board of Supervisors

First Party

FRED J.MOORE, Jr.
ATTEST: County Clerk

By /s/ W. E. SCHUSSMAN
Deputy Clerk

Date February 2, 1965

MOORE & TABER

By W. R. Taber
R. R. Taber, Secretary-Treasurer

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA

Certified copy of portion of proceedings, Meetings of February 2, 1965

IN THE MATTER OF AUTHORIZING EXECUTION OF CONTRACTS WITH MOORE & TABOR FOR FOUNDATION AND GEOLOGICAL INVESTIGATIONS AT VARIOUS BRIDGE SITES.

WHEREAS, by an order dated December 22, 1964, this Board of Supervisors adopted resolution No. 2035 proclaiming the existence of a disaster in Humboldt county due to excessive rains and flooding; and

WHEREAS, as a result of said disaster, certain of the County owned bridges were severely damaged and are in need of immediate repair and restoration; and

WHEREAS, the Director of the Department of Public Works has determined it to be most advantageous to the County to proceed on its own behalf with the work of restoration of said bridges under the provisions of Public Law 875 and applicable State flood relief laws;

NOW, THEREFORE, upon the motion of Supervisor Mitchell, seconded by Supervisor Robertson, Melvin J. Bareilles, Chairman of this Board of Supervisors, is hereby authorized to execute for and in behalf of the County of Humboldt those certain contracts, dated this date and by and between the County of Humboldt and Moore & Tabor, a California Corporation with offices in Sacramento, California, wherein said corporation agrees to perform the work of making foundation and geological investigations at the following listed bridge sites, in accordance with the terms and conditions of said contracts:

Klamath river at Martin's Ferry
Larabee creek on Alderpoint road P-222
Redwood creek on Bair road P-541
North Dobbyn creek on Alderpoint road P-222
Mad river on Butler Valley road P-309A
Bear river at Lowry's
Larabee creek at Holmes

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA

Certified copy of portion of proceedings, Meetings of February 2, 1965

AYES: **Supervisors**— Lindley, Barellles, Robertson, Mitchell, Landis
NOES: **Supervisors**— None
ABSENT: **Supervisors**—None

STATE OF CALIFORNIA, }
County of Humboldt } ss.

I, **FRED J. MOORE, JR., County Clerk of the County of Humboldt,** State of California, and ex-officio **Clerk of the Board of Supervisors of the County of Humboldt,** do hereby certify the foregoing to be full, true and correct copies of the original orders made in the above entitled matters by said **Board of Supervisors, at a meeting held in Eureka, California, on** February 2, 1965 **and as the same now appears of record in my office.**

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Seal of said Board of Supervisors this 5th **day of** February, 1965.

FRED J. MOORE, Jr.

County Clerk and ex-officio Clerk of the Board of Supervisors of the County of Humboldt, State of California

By Fred J. Moore

Deputy Clerk.