INDEX OF SHEETS

Sheet No. 1 Title Sheet

2 Typical Cross Sections

See Sheet 1 of Bridge Plans for Index

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC WORKS

DIVISION OF HIGHWAYS

PLAN AND PROFILE OF

STATE HIGHWAY

In Orange County, at Santiago Creek

Scales { Plan: 1 In. = 50 Ft.
Profile: Hor. 1 In. = 50 Ft. Vert. 1 In. = 10 Ft.

being the detail plans of a portion of the route for the State highway adopted by the California Highway Commission January 4, 1935.

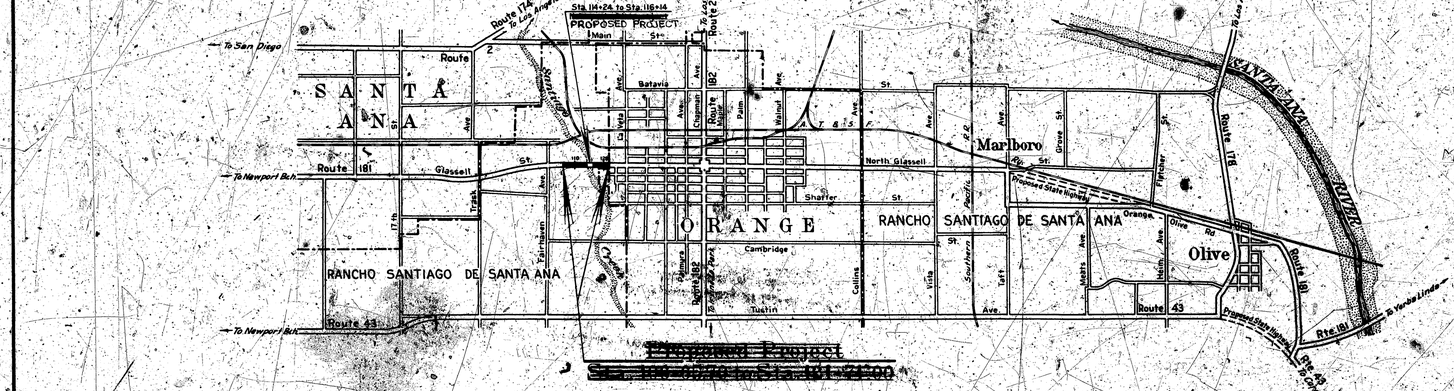
DIST	COUNTY	ROUTE	SEC.	SHEET NO.	TOTAL SHEETS
VII	Ora	181	A	1	

STATE OF CALIFORNIA
KEY MAP
SCALE OF MILES

LEGEND
Numbered Routes
County Boundaries

LOS ANGELES AND VICINITY

SAN FRANCISCO AND VICINITY



CONVENTIONAL SIGNS

County Line	Bank or Retaining Wall
City or Town Limits	Levee
Township Line	Culverts
Section Line (Township, Note whether Township, Section or Grant)	Drop Inlet
Grant Line	Trolley Pole
Fence	Power Pole
Guard Rail	Power Tower
Unfenced Property	Telegraph or Telephone Pole
Right of Way Line	Marsh
Base or Survey Line	
Traveled Way	
Railway Tracks	

Scale in Miles

0 1 2

Bridge # Sc 20
Across Santiago Creek
Sheet 1 of 11
PED 2251 Scale 1"= 50' H
1"= 10' V
Blueprint

J.C.M.
March 10, 1939

19
District Engineer

Approved 19
C. H. Purcell
State Highway Engineer
by
Asst. State Highway Engineer - Civil Engineer License 2084

Director of Public Works

Sheet 1 of 11

FED. ROAD BILL NO.	STATE	PROJECT NO.	SHEET	SHEETS	SHEET NO.
2	CAL.	2778	39	72	67

DIST.	COUNTY	ROUTE	SECTION	SHEET	SHEETS
VII	Ora.	181	A	1	10

April 11, 1938

R. L. Stanley
ASST. STATE HIGHWAY ENGINEER
CIVIL ENGINEER-IN-CHARGE

+ 0.50 %

200' V.C.

Tangent - 0.246 %

150' V.C.

TOTAL LENGTH = 190'-0"

49'-0" | 92'-0" | 49'-0"

Sta. 114+20.00 Elev. 186.22 — Face of Paving Notch

Sta. 116+20.00 Elev. 186.26 — Face of Paving Notch

Roadway Crown Grade

Ground Line 28' East of ℄

Ground Line 28' West of ℄

High Water Elev. 175±

℄ Ground Line

Elev. 178.1

Elev. 166.0

Elev. 162.6

Elev. 158.0

Elev. 150.0

Elev. 148.0

Elev. 146.0

Elev. 198.0

Elev. 176.8

Elev. 172.0

Elev. 166.0

Elev. 156.0

Datum: Elev. 140.0

ABUTMENT NO. 1 | PIER NO. 2 | PIER NO. 3 | ABUTMENT NO. 4

ELEVATION

Note: Exact depth of footings to be determined by conditions in the field

Note: B.M. #9 Lead and nail in Retaining wall 38 Rt. Sta. 7+50 Elev. 187.98

Bridge & Sc. 20 Across Santiago Creek Sheet 2 of 11 RED 22.5:1 Blueprint Scale 1"=50'H 1"=10'V

Existing R.C.C. Flood Control Wall

5° Skew

Creek Flow

Sidewalk

Approximate toe of fill

Shoulder

15' Laminated guard rail. Not part of this contract

Drain

Paving Notch 6"

1:6

Type D Standard Curb Recesses

Invert slab

10"

Sta. 114+24.00 Elev. 186.24

30'-0" ROADWAY

℄ of Roadway = ℄ of Bridge

Sta. 116+14.00 Elev. 186.46

N-0°-04'-W — To Orange

Standard Curb Recesses — Type D

Type C Standard Curb Recesses

Standard 3 Light Clearance Marker

Drain

Date

Paint "Bridge No. 55-104" in neat black letters 2½" high.

New Rubble Masonry Wall

Existing Rock Rip Rap

5'

10'

Sidewalk

Santiago Creek Flow

Old Rubble Wall Removed

Existing Rubble Masonry Wall

New Rubble Masonry Wall

Upper Part of old wall removed and wall Recapped at Elev. 178±

Approximate toe of fill

Paint "Bridge No. 55-104" in neat black letters 2½" high.

Shoulder

Date

Standard 3 Light Clearance Marker

15' Laminated guard rail. Not part of this contract

6" Paving Notch

Drain

Type D Standard Curb Recesses

U.C.M.

PLAN

INDEX TO PLANS

Sheet No. 1 General Plan.
" " 2 Foundation Plan.
" " 3 Abutments No. 1 and No. 4.
" " 4 Details of North Wing Walls.
" " 5 Details of South Wing Walls.
" " 6 Piers No. 2 and No. 3.
" " 7 Typical Section.
" " 8 Girder Details.
" " 9 Grades, Footing Diagram, and Railing Details.
" " 10 Miscellaneous Details.

Note: For General Notes for this set of plans see Sheet No. 2.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

BRIDGE ACROSS SANTIAGO CREEK

0.25 MILE SOUTH OF ORANGE
IN ORANGE COUNTY

GENERAL PLAN

SCALE 1"=10'-0"	FILE NO.
BRIDGE NO. 55-104	DRAWING NO. C-7

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT

AAF 4-38	
AF 4-38	
CH 2-38	
DCD 4-38	
AFK 4-38	
CMC 4-38	
CBL	

C. Wilbur
DRAFTSMAN

Checked

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	PROJECT NO.	SHEET NO.	TOTAL SHEETS
2	CAL.	2778	56	31	47

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
VII	Ora	181	A	2	10

APPROVED April 11, 1938

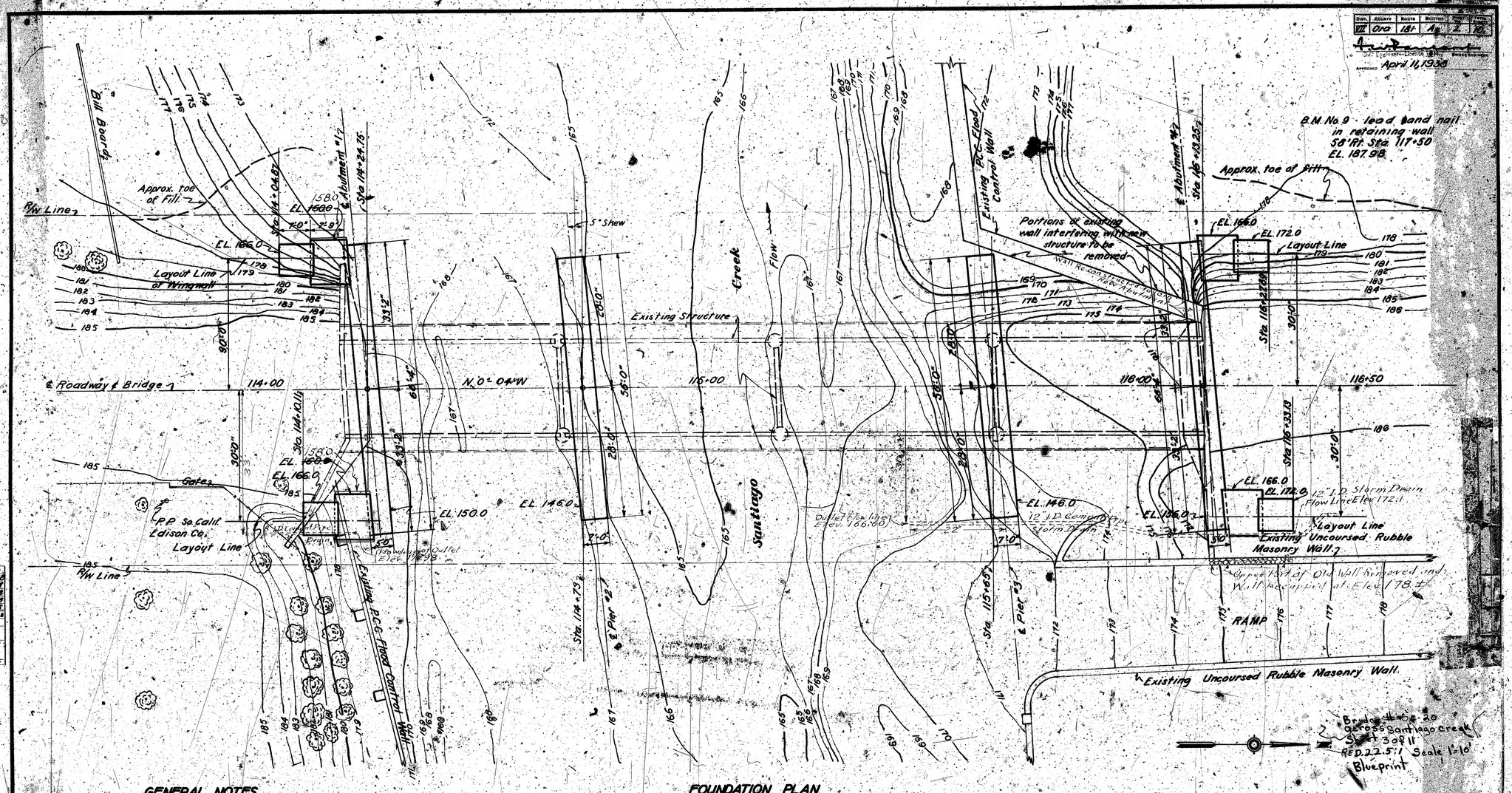
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT

Design Data	Stress	Bars
designed by	AAE	5-38
detailed by	HCH	6-38
given by	CHP	3-38
traced by	RH	5-38
checked by	HEK	6-38
quantities by	CPC	6-38
quantity by	S.B.I.	

Bridge Engineer

Asst. Details Engineer

Chief, Engr. Bridges



GENERAL NOTES

Materials and workmanship shall conform to the Standard Specifications of the State of California Department of Public Works, Division of Highways, dated January 1935, and the Special Provisions accompanying this set of plans.
All concrete shall be Class A Concrete.
All reinforcing shall be structural grade deformed bars & lapped at least 30 diameters at all splices.
Loading - H-15; fs 18000 #; fc 1000 #; n 10.

FOUNDATION PLAN

Scale 1"=10'
All elevations shown are at bottom of Footings.
Data for Contours taken 4/21/37

J.C.M.
3-10-39

BRIDGE ACROSS SANTIAGO CREEK
FOUNDATION PLAN

SCALE 1"=10'	FILE NO.
BRIDGE NO. 55-104	DRAWING NO. C-756-A

Sheet 3 of 11

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	CAL.	277B	36	42

DIST.	COUNTY	ROUTE	POSTMILE	SHEET NO.	TOTAL SHEETS
VII	Ora.	181	A	3	10

DIV. ENGINEER-BRIDGES | APPROVED April 14, 1933

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT

Design Data	Loads	Bars
layout by	AAE	3-38
wings by	HEK	4-37
tests by	CMR	3-38
lines by	RCM	3-38
cost by	HEK	7-37
quantities by	CMR	4-38
prices by	RBA	

approved
C.C. Hellman
state Bridge Engineer

ELEVATION

FRONT FACE REINFORCEMENT

REAR FACE REINFORCEMENT

SECTION B-B ABUT. NO.4

SECTION B-B ABUT. NO.1

SECTION A-A

SECTION C-C

SECTION D-D

Abut #4 shown to scale

Details of bars in Abut #1 are similar except that 4-1¼"x21'-4" (Ka) bars are to be used in place of (Ka) bars & 1¼"x49'-10" (Km) bars are to be used in place of (Ma) bars.

J.C.M. March 10, 1933

Bridge # 55-20 across Santiago Creek
Sheet 4 of 10
Road 22.5-1 Scale ¼"-1'
Blueprint

BRIDGE ACROSS SANTIAGO CREEK	
ABUTMENTS NO. 1 & 4	
SCALE ¼"-1'-0"	FILE NO.
BRIDGE NO. 55-104	DRAWING NO. C-765

Sheet No. 4 of 10 Sheets

DIST.	COUNTY	ROUTE	SECTION	SHEET	TOTAL SHEETS
VII	Ora.	101	A	4	10

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
2	CAL.	2778B	38	47

Approved April 14, 1938

BRIDGE DEPARTMENT
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

Depositor's Mark	Symbol	Date
Steel (A)	A.I.S. 3-38	
Concrete	U.S.C.& G.S.	
Rivets	C.S.M.S.A. 3-38	
Bolts	U.S.N.A. 3-38	
Bolt Nuts	A.S.T.M. A-94	
Structural Steel	A.S.T.M. A-7-38	
Cast Iron	A.S.T.M. A-48-26	

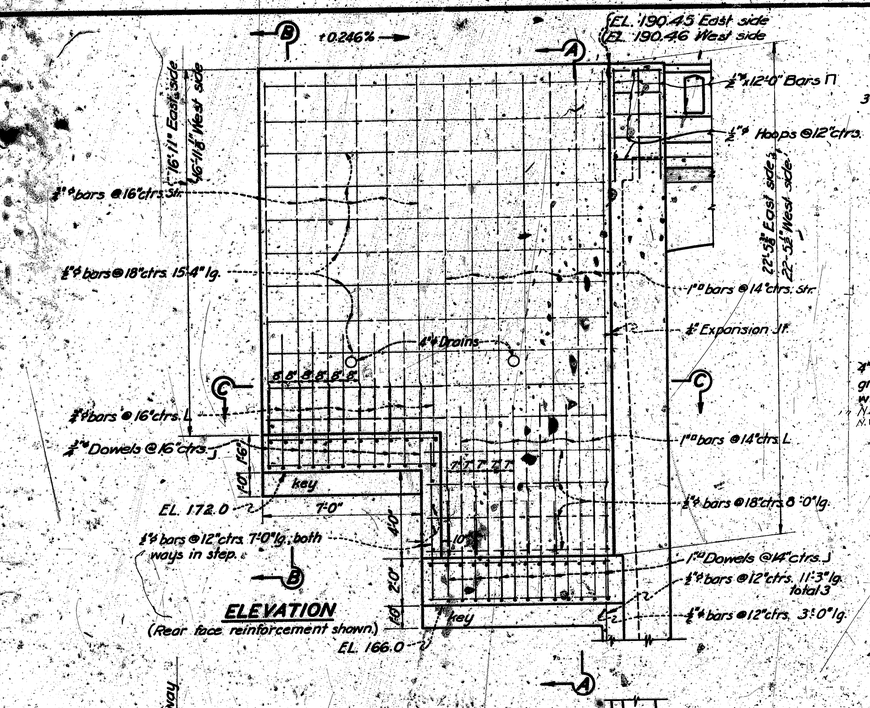
Deposited with the Director of Public Works, Sacramento, California

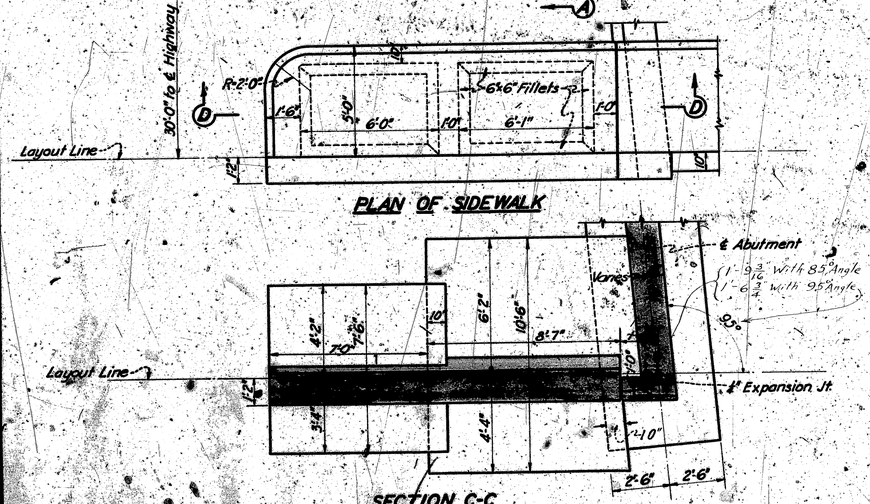
Chief Engineer

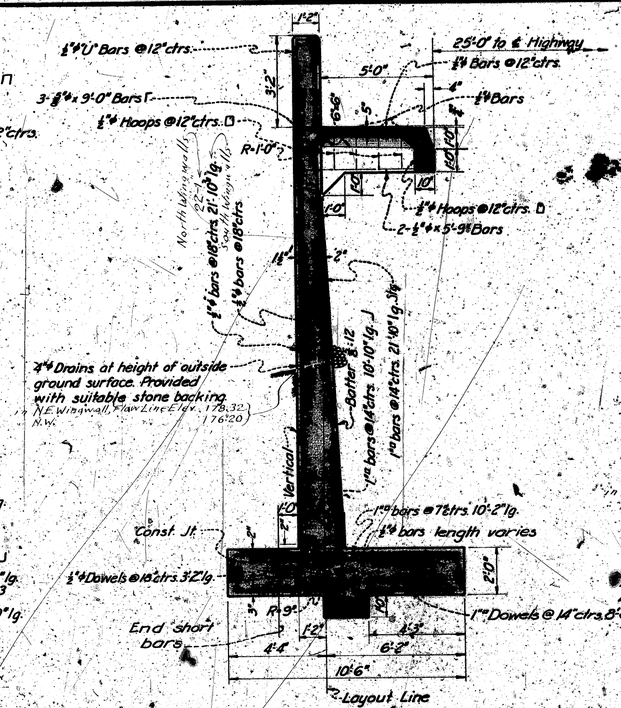
Chief, Bridge Division

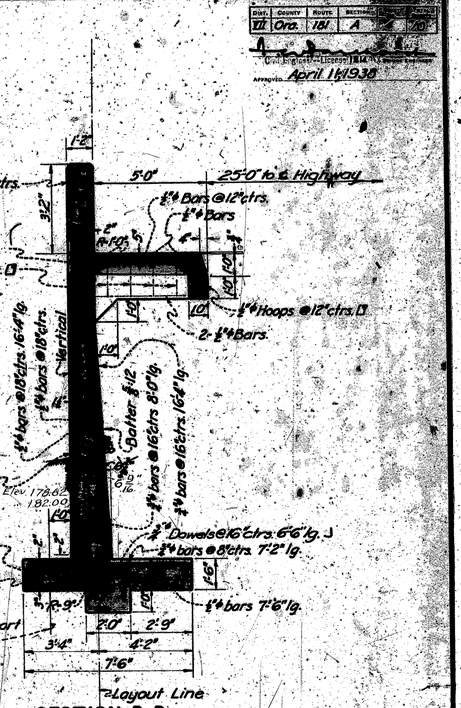
Chief, Engr. Materials & Research

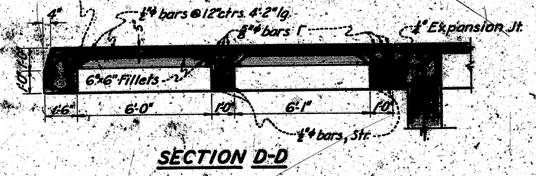
ELEVATION
(Rear face reinforcement shown)











J. C. M.
March 10, 1939.

Bridge # Sc-20
Across Santiago Creek
Sheet 8 of 11
FED 22-A Scale 3/16=1'
Blueprint

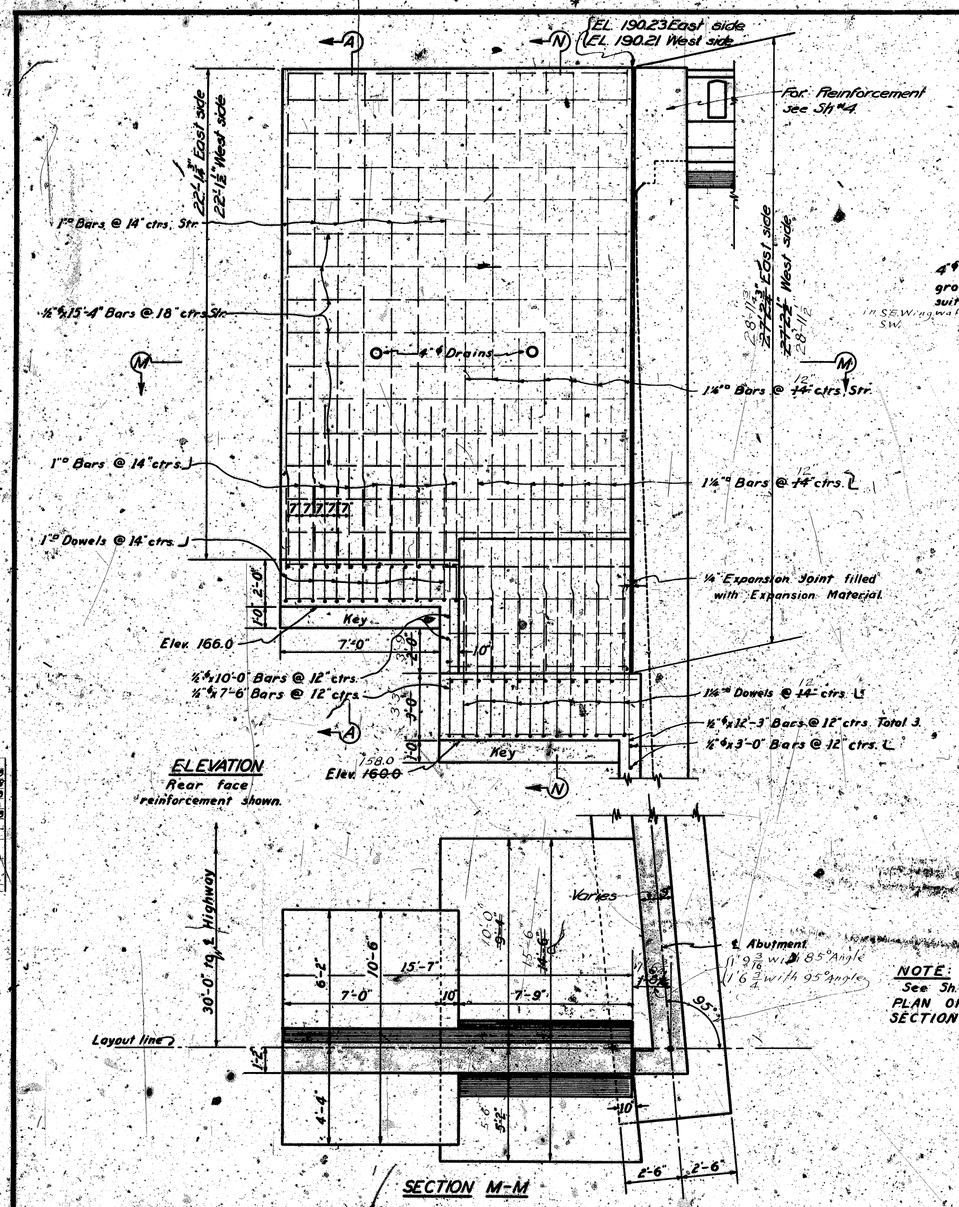
BRIDGE ACROSS SANTIAGO CREEK
DETAILS OF NORTH WINGWALLS

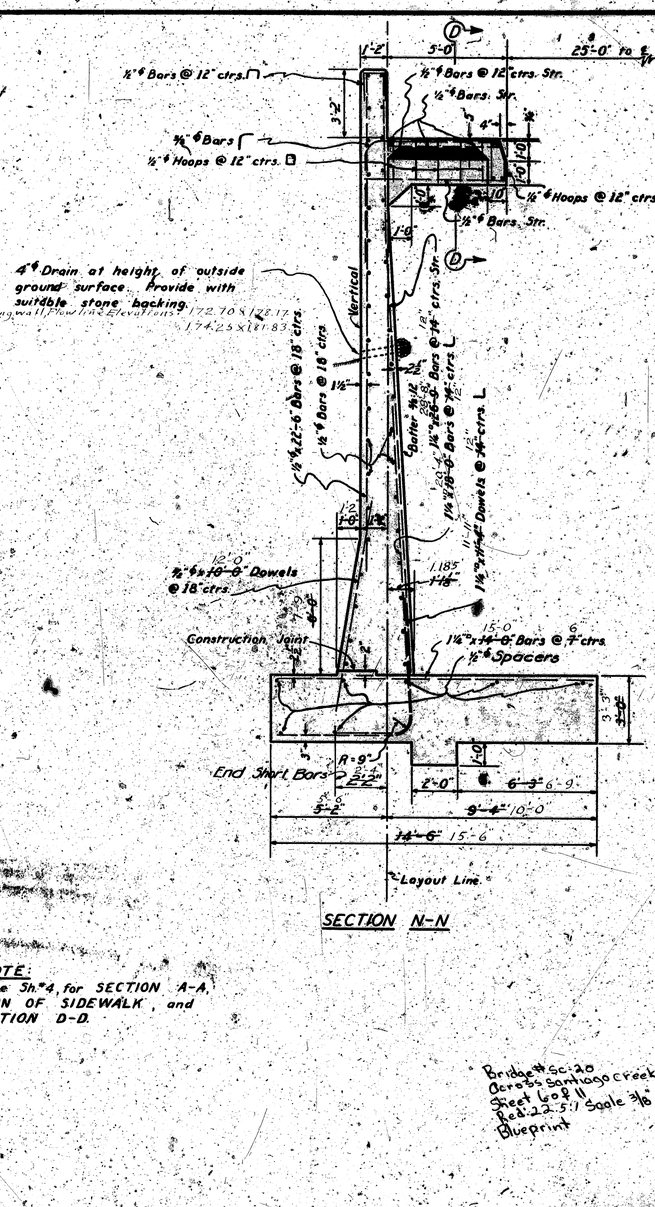
SCALE 3/8"=1'-0"	FILE NO.
BRIDGE NO. 55-104	DRAWING NO. C-778B-4

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT

Designed by	Checked by
computed	HAE 3-39
detailed	HEK 4-39
traced	CHD 3-39
checked	MMH 4-39
approved	MAB 4-39
additions by	CWE 4-39
quantity C.E.	S.B.L.

for Engineer
W. C. Holden
Asst. Engr. in Charge
6th Bridge District
Owner's Engr. project





NOTE:
See Sh.#4, for SECTION A-A, PLAN OF SIDEWALK, and SECTION D-D.

Dist.	County	Route	Section	Sheet	Total Sheets
VII	Ora.	101	A	12	70

Date Engineer's Office Approved
April 11, 1938

J.C.M.
March 10, 1939.

Bridge #Sc-20
Across Santiago Creek
Sheet 6 of 11
Req. 22-5-1 Scale 3/16" = 1'
Blueprint

BRIDGE ACROSS SANTIAGO CREEK
DETAILS OF SOUTH WINGWALLS

SCALE 3/16" = 1'-0"	FILE NO.
BRIDGE NO. 55-104	DRAWING NO. 7/55-51

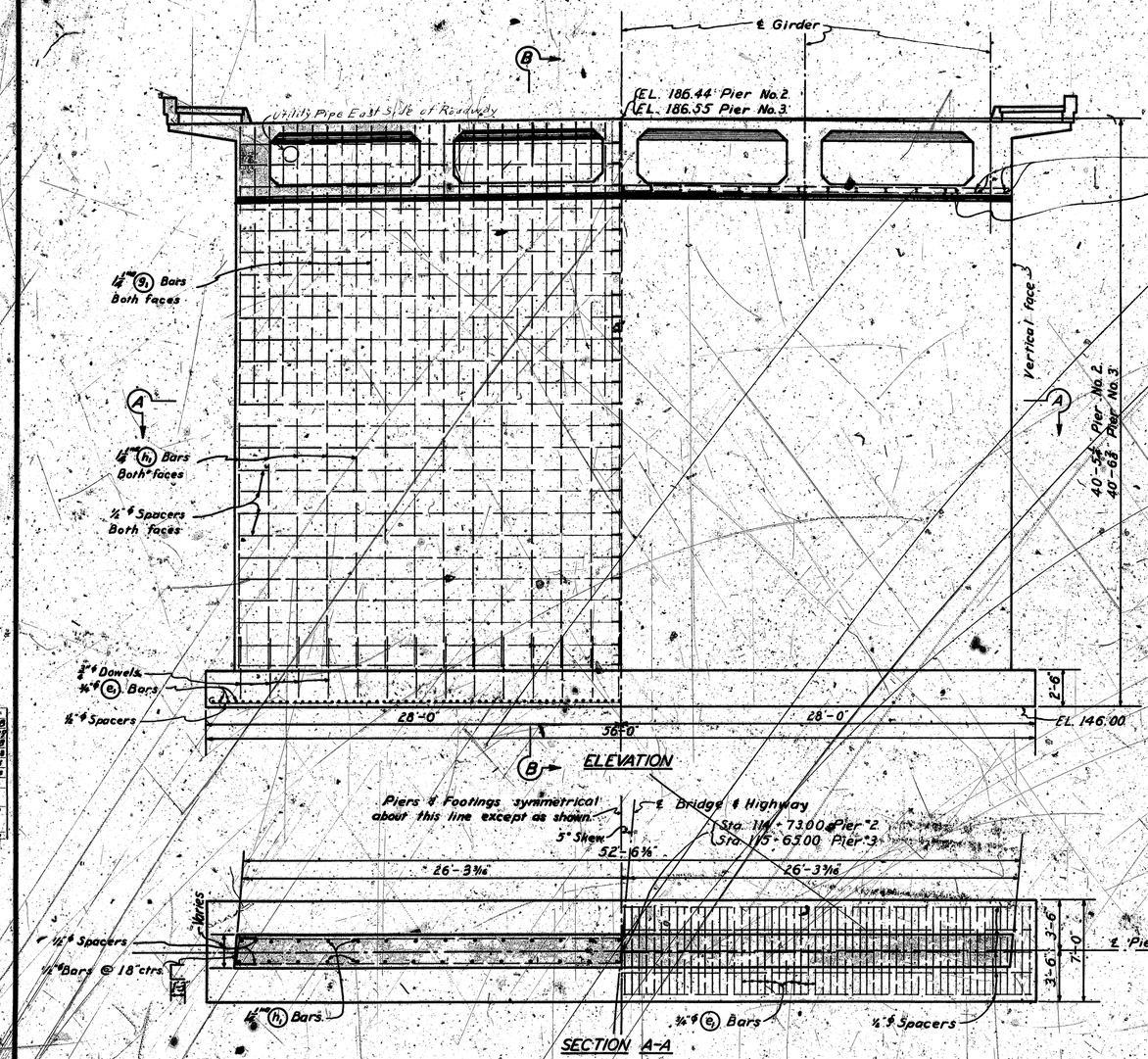
Sheet 6 of 11 Sheets

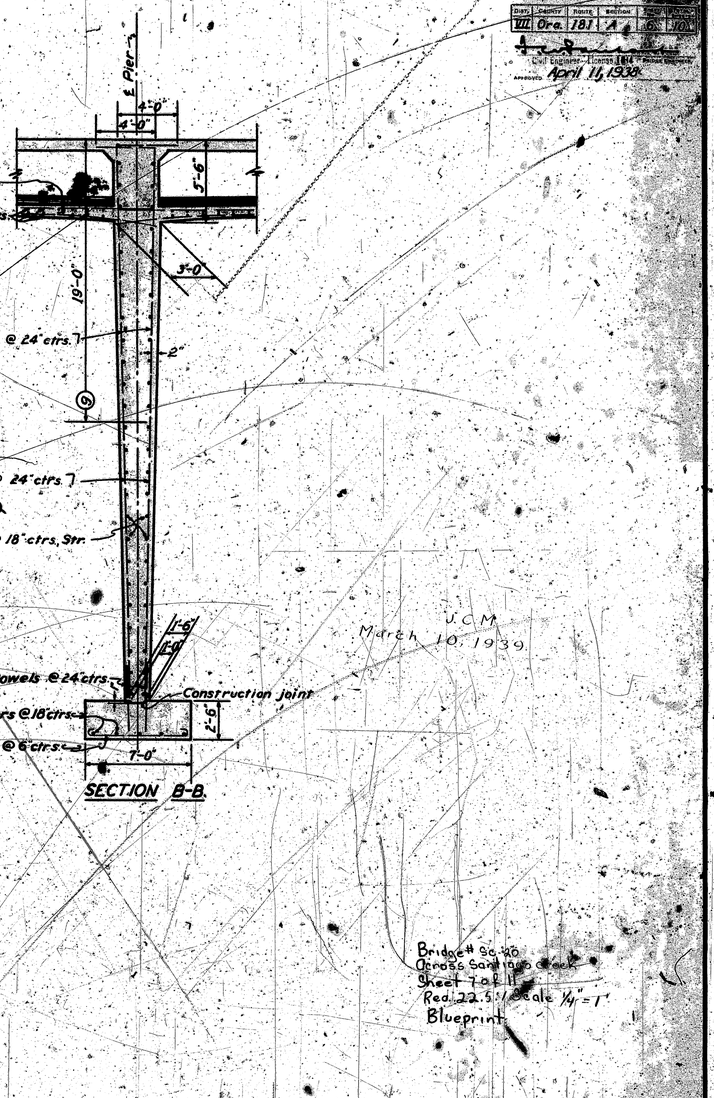
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT

Checked by	Original Date
Detailed by	AAE 3-38
Checked by	HEE 4-38
Traced by	CAR 3-38
Quantities by	WMH 4-38
Structural Design by	HEE 4-38
Quantities Checked by	CAE 4-38
Materials Checked by	DBJ
Approved by	W. Hall C.
Bridge Engineer	
Name, Details Checked	
Others, Engr. Bridges	

Dist.	County	Route	Section	Post Mile	Sheet No.
VII	Ora.	181	A	6	10A

Civil Engineer — Location
Approved April 15, 1938





March 10, 1939 VCM

Bridge # 55-80
Across Santiago Creek
Sheet 7 of 11
Rad. 22.5°
Scale ¼" = 1'
Blueprint

BRIDGE ACROSS SANTIAGO CREEK		
PIERS NO. 2 & 3		7
SCALE ¼" = 1'-0"	FILE NO.	
BRIDGE NO. 55-104	DRAWING NO.	6-1936-6

Sheet 7 of 11

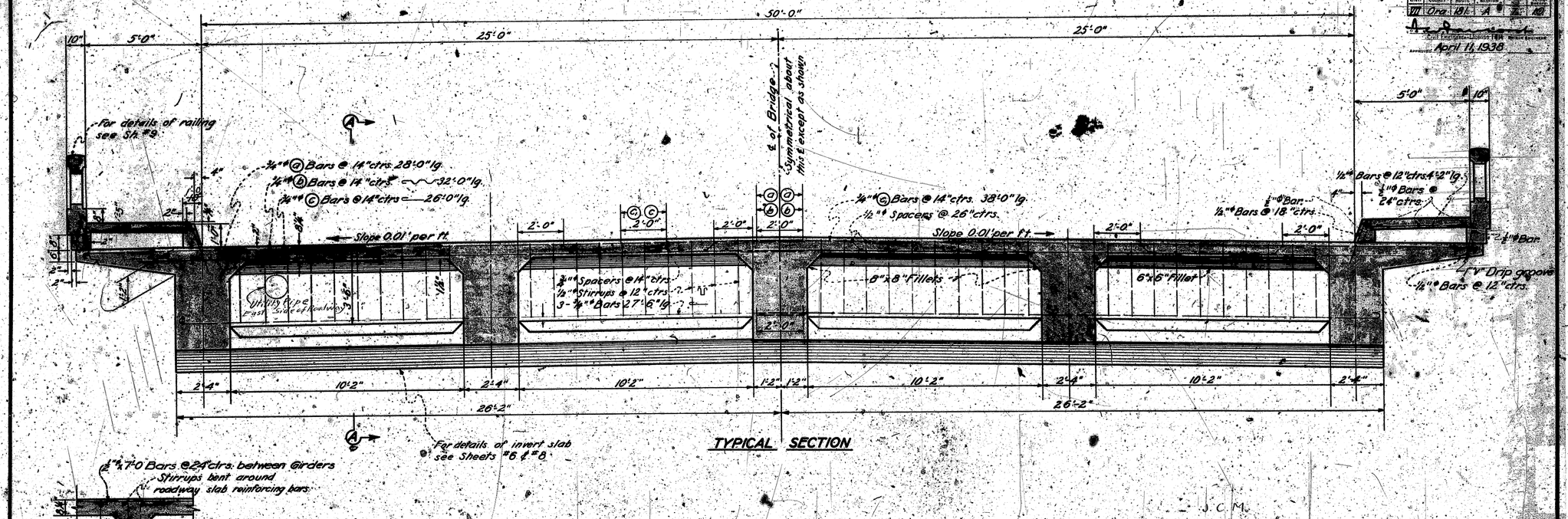
FED. ROAD DIST. NO.	STATE	FISCAL YEAR	TOTAL SHEETS	SHEET NO.
2	CAL.	1940	30	8

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
VII	Ora	101	A	2	10

Approved: April 11, 1938

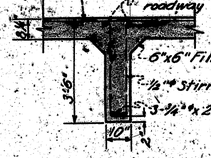
DEPT. OF PUBLIC WORKS — DIVISION OF HIGHWAYS

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT



TYPICAL SECTION

For details of invert slab see Sheets #6 & #8



SECTION A-A

Detail Sheet	Design Data
Designed by	AAE 3-38
Detailed by	HEK 4-38
Checked by	GAP 3-38
Traced by	WAS 3-38
Quantities by	HEK 4-38
Estimated by	CPE 4-38
Quantity Checked by	TBL
Approved	W. C. Hollister
Title: Details Concrete Girder Span Bridge	

J.C.M.
March 10, 1939.

Bridge # 53-104
Across Santiago Creek
Sheet 8 of 10 Sheets
Red 22.5%
Blueprint
Scale ½" = 1'

BRIDGE ACROSS SANTIAGO CREEK
TYPICAL SECTION
SCALE ½" = 1'-0" | FILE NO.
BRIDGE NO. 53-104 | DRAWING NO. C-754-7

Sheet 8

DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
VII	Ora	151	A	36	105

Civil Engineer—Licensed [illegible]
APPROVED April 11, 1938

FED. PROJ. DIST. NO.	STATE	FISCAL YEAR	PROJECT NO.	SHEET NO.
2	CAL.	1937-38	36	9

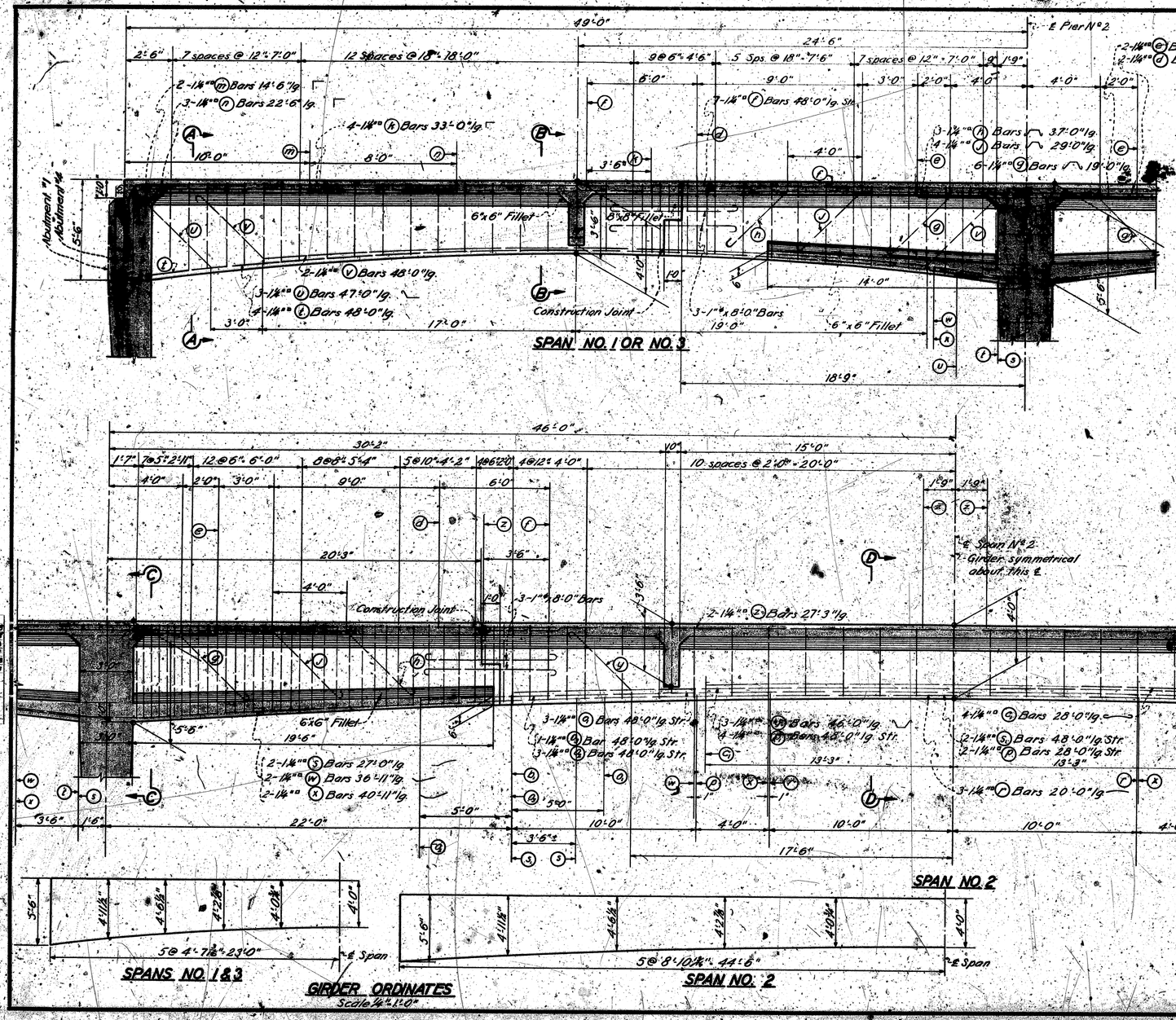
Steel	ASTM A-7-36
Rivets	ASTM A-141-37T
Bolts	C.S.B.D. 35
Nuts	ASTM A-307
Pins	M.B.E. 4-38
Cast Steel	C.S.C. 4-38
Concrete	S.B.I.

Approved: [signature illegible]
Chief Engineer

Bridge Engineer

Quantity Engineer

Checked: [illegible]



℄ Span N°2
Girder symmetrical about this ℄

C.M.
March 10, 1939

Bridge # 55-20
across Santiago Creek
Sheet 9 of 11
Red 22 5/1 Scale 3/8"=1'
Blueprint

BRIDGE ACROSS SANTIAGO CREEK
GIRDER DETAILS

SCALE ½"=1'-0" except as shown	FILE NO.
BRIDGE NO. 55-104	DRAWING NO. C-736-A

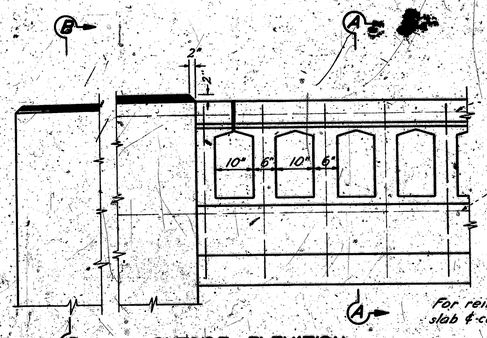
Sheet 9 of 11

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
12	ORA.	181	A	9	10

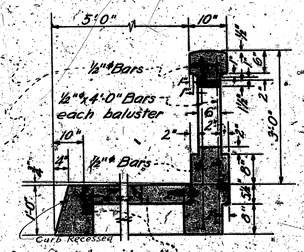
April 1, 1938

PLAN
ROADWAY SLAB GRADES
Scale 1"=20'

Elevations shown are for top of roadway slab

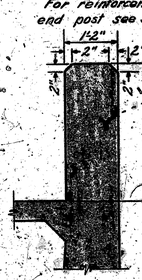


OUTSIDE ELEVATION
Scale ¾"=1'-0"

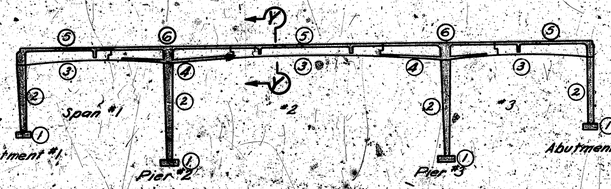


For reinforcement in sidewalk slab & curb, see Sh. 9

SECTION A-A
Scale ¾"=1'-0"



SECTION B-B
Scale ¾"=1'-0"



POURING DIAGRAM
Scale 1"=20'

ORDER OF POURING

1. Footing Blocks.
2. Columns & Walls in Abutments & Piers
3. Girder Ends & Mid-span Sections
4. Girder Haunch Sections at Piers #2 & #3
5. Deck Slab over 3
6. Deck Slab over 4
7. Curbs, Sidewalks, & Railing.

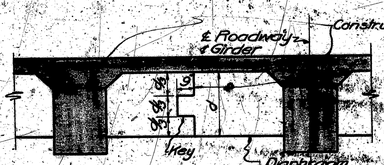
Allow at least 48 hours to elapse before pouring against a previously placed section. Diaphragms are to be poured integral with adjacent sections of girders.

Break may be made in Diaphragm & way between girders with suitable key, as shown in SECT. Y-Y.

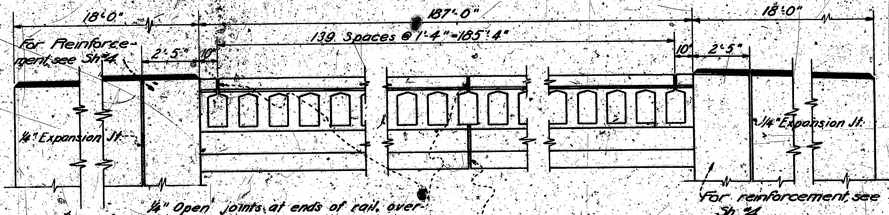
Break may be made between girders and deck slab using keys as shown on Sh. "10

Break may be made in Roadway Slab along & Roadway.

All supporting falsework to be left in place until all girders and slabs have attained a compressive strength of 3000 #/□". Falsework shall be removed before pouring railing.



SECTION Y-Y
Scale: ¾"=1'-0"



½" Open joints at ends of rail, over piers No. 2 & 3, at middle of spans, and at 45'-± ctrs. between.

¼" Joint in curb filled with expansion material over bents #2 & #3 and at middle of spans.

ELEVATION
Scale ½"=1'-0"

RAILING DETAILS

J.C.M.
March 10, 1939.

Bridge across Santiago Creek
Sheet 10 of 11
Dwg. 22.5-1 Scale as shown
Blue Print

DIST.	INITIAL DATE
1	AAP 2-38
2	WEK 2-38
3	CAP 2-38
4	DAL 3-38
5	WEK 4-38
6	CAP 4-38
7	DAL

Revised

Bridge Engineer

Data Control

Assoc. Engr. Bridges

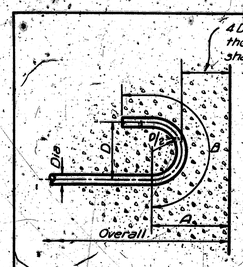
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
BRIDGE DEPARTMENT

BRIDGE ACROSS SANTIAGO CREEK
GRADES, POURING DIAGRAM, AND RAILING DETAILS

SCALE As Shown	FILE NO.
BRIDGE NO. 55-104	DRAWING NO. C-736-9

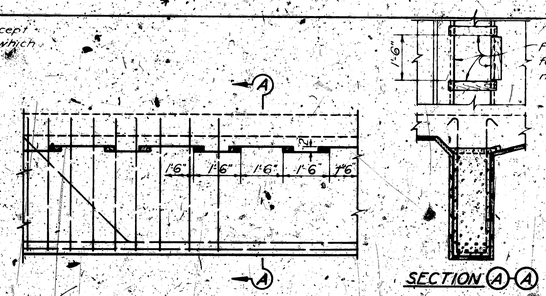
Sheet 10 of 11

1FT 14 15 16 17 18 19 20 21 22 23 24FT 25 26 27 28 29 30 31 32 33 34 35 2FT 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51



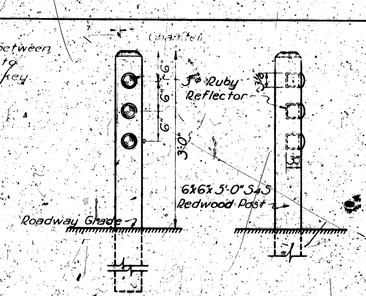
HOOKED BAR DATA							
4-DIA BACKING		ALL HOOKS			2-DIA BACKING		
SIZE OF BAR	OVERALL ⊕	A	B	D	A	OVERALL ⊕	SIZE OF BAR
½"	5½"	3¼"	6"	2½"	2¼"	7½"	½"
⅝"	6"	4"	7"	3"	2¾"	8½"	⅝"
¾"	6¼"	4⅛"	8"	3¾"	3⅜"	9¼"	¾"
⅞"	6½"	5⅛"	9"	4½"	4"	10"	⅞"
1"	8"	6⅛"	10½"	5"	4½"	12"	1"
1⅛"	8½"	7⅛"	11½"	5½"	5"	1'-1"	1⅛"
1¼"	7¾"	8⅛"	12"	6¼"	5⅜"	1'-0⅜"	1¼"

⊕ Amount to be added to overall dimension of concrete member to give the length of the hooked reinforcing bars, hooked at each end.



Where girder stems and slabs are poured separately, raised keys shall be used. The 1'-6" dimension is to be approximated as closely as stirrups will permit. After concrete in stem is poured, key forms of 2"x 4" lumber cut to fit shall be placed immediately and keys poured. Concrete surfaces shall all be thoroughly cleaned by wire brush or air and water pressure jets. This shall be done as soon as the concrete has hardened sufficiently to allow removal of the surface slickings and to expose clean aggregate.

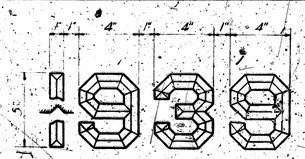
KEYS - SLAB TO GIRDER



Clearance Markers to be set on right hand side of roadway as structure is approached with clearances as shown on Sheet No. 1

STANDARD "B" LIGHT CLEARANCE MARKER

2 Required
Scale 1"=1'-0"



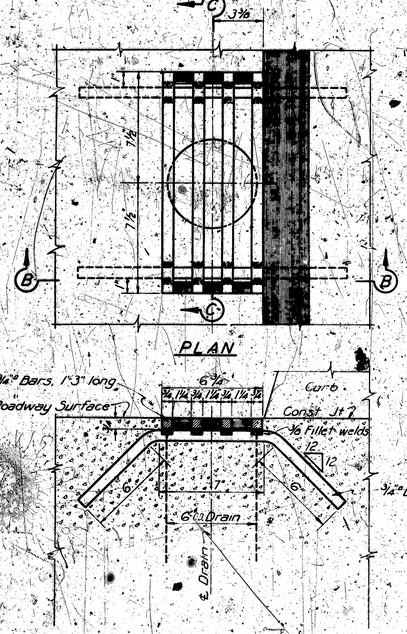
DATE

Scale: 3"=1'-0"

DIST.	COUNTY	ROUTE	SECTION	SHT. NO.	TOTAL SHTS.
VII	Ora.	187	A	10	10

April 11, 1938

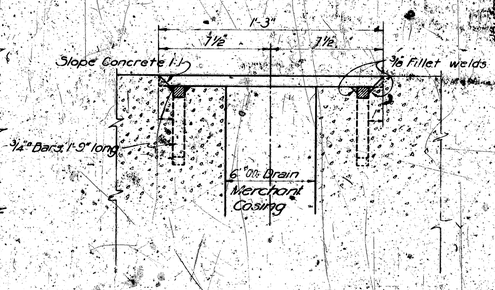
J.C.M.
March 10, 1939



PLAN

Note: Grating to be galvanized after all welding is completed.

SECTION B-B



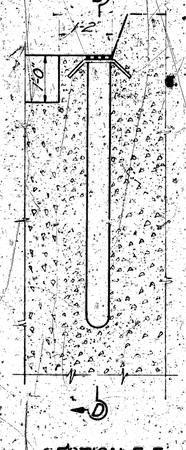
DRAIN DETAIL - TYPE "A"

4 Required
Scale 3"=1'-0"

SECTION C-C

SECTION D-D

Scale 1"=1'-0"



SECTION E-E

Scale 1"=1'-0"

Note for location of drains see Sh.

Bridge #55-20
Across Santiago Creek
Sheet No. 1 of 11
Rel. 22.5 / Scale as noted
Blueprint

BRIDGE ACROSS SANTIAGO CREEK	
MISCELLANEOUS DETAILS	
SCALE: As Noted.	FILE NO.
BRIDGE NO. 55-104	DRWG. NO. C-756 (1).

Sheet No. 1