
Bridge Inspection Records Information System

The requested documents have been generated by the BIRIS.

The documents provided are considered confidential and may only be released outside of the department of transportation upon proper execution of the confidentiality agreement.

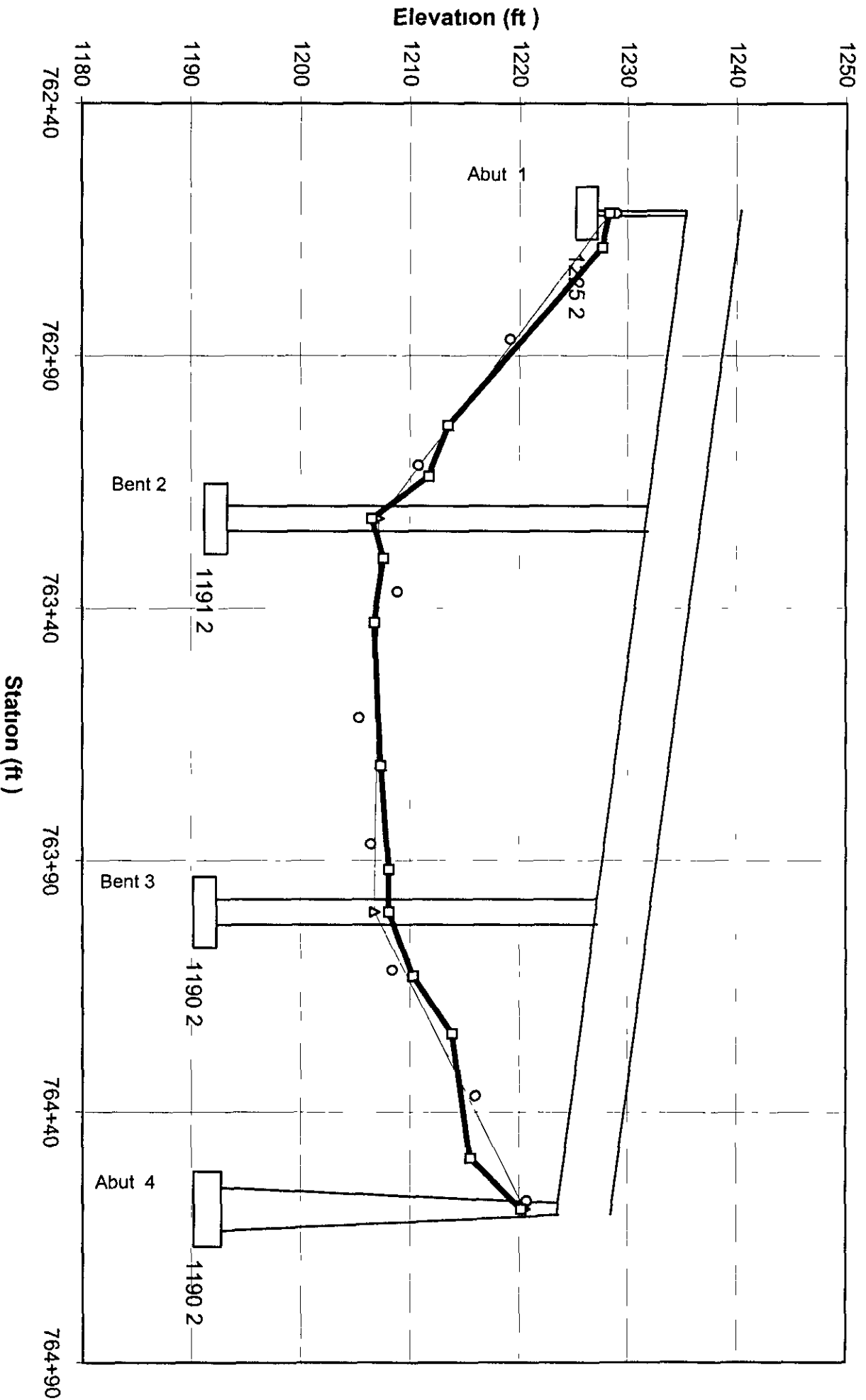
State of California
Department of Transportation

**Division of Maintenance
Structures Maintenance & Investigations**

Bridge ID. 55C-0049

Santiago Creek - Upstream

07-Ora-FAS 1279-14 4



55C-0049 xlu

By JoAnne Shingledecker on 10/12/01



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0049
Facility Carried: SANTIAGO CANYON RD
Location : 0.3 MI S/O MODJESKA RD
City :
Inspection Date : 08/15/2001

Bridge Inspection Report

Inspection Type

Routine	Group A	Underwater	Special	Other
☐	☐	☐	☐	☒

Name : SANTIAGO CREEK

CONSTRUCTION INFORMATION

Year Built : 1967	Skew (degrees): 18
Year Widened : N/A	No. of Joints : 0
Length (m) : 60	No. of Hinges : 0

Description of Structure : Continuous three span CIP/RC T-beam (5 each) with RC single column bents and RC open end seat abutments, all supported upon spread footings.

Span Configuration : (S) 18.0 m, 24.8 m, 18.0 m (N) c/c

LOAD CAPACITY AND RATINGS

Design Live Load : MS - 18 OR HS - 20	
Inventory Rating : 40.8 metric tons	Calculation Method : LOAD FACTOR
Operating Rating : 68 metric tons	Calculation Method : LOAD FACTOR
Permit Rating : PPPPP	
Posting Load : Type 3 N/A english tons	Type 3S2 N/A english tons Type 3-3 N/A english tons

DESCRIPTION ON STRUCTURE

Bridge width : (W) 0.1 m br, 2 @ 4.9 m, 0.1 m br (E)	
Total Width : 10.1 m	Net Width : 9.80 m No. of Lanes : 2
Rail Description : Metal Railing	Rail Code : 0000
Min. Vertical Clearance : Unimpaired	

DESCRIPTION UNDER STRUCTURE

Channel Description : Natural earth trapezoidal.

HISTORY

Previous Bridge Inspection Reports do not indicate any history of scour at this structure with the exception of the June 16, 1976 Supplementary Bridge Report which noted erosion at the southerly abutment slope at the southwest corner due to street overflow.

REVISIONS

The National Bridge Inventory Item 113 Code has been revised from 6 to 8.

SCOUR

This report addresses hydraulic issues only. The structure's scour potential has been assessed in accordance with the Federal Highway Administration Technical Advisory T5140.23, "Evaluating Scour at Bridges". The National Bridge Inventory Item 113 Code, "Vulnerability to Scour", has been changed to Code 8: "Bridge foundations determined to be stable for the assessed or calculated scour conditions. Scour is determined to be above top of footing by assessment, by calculation or by installation of properly designed countermeasures."

Structures-Hydraulics conducted a field investigation at the time of this report and obtained an upstream channel cross-section. The channel bed was composed of gravel, small boulders and cobbles. The channel had a moderate to steep slope. There was no scour, exposed footings, hydraulic skew, or channel migration observed during the field investigation. Moderate vegetation was observed in the channel upstream and downstream and at both Bents. No drift was observed at any of the upstream pier faces. Based on the field investigation, hydraulic analysis and calculated scour evaluations from the preliminary review, it was concluded that this structure is not scour critical.

Bridge No.: 55C0049

Location: 0.3 MI S/O MODJESKA RD

Inspection Date: 15-AUG-2001

Inspected By : Diana Campbell

*Diana Campbell**J. Panuschka*
Registered Civil Engineer

CC : Tom Rut: Maintenance
Steve Jaques: Hydraulics
Gerhard Panuschka: Hydraulics
Mak Ogata: ABME South
Orange County

Bridge No.: 55C0049

Location: 0.3 MI S/O MODJESKA RD

Inspection Date: 15-AUG-2001

CHANNEL X-SECTION

Side : Upstream

X-Section Date : 15-AUG-01

Measured From : Channel Bed to Girder Soffit

<u>Location</u>	<u>Horiz(m)</u>	<u>Vert(m)</u>	<u>Comments</u>
Abutment 1	0.00	2.16	Face of Abutment 1
	2.09	2.24	Top of Slope
Bent 2	-5.63	5.91	Toe of Slope
	-2.54	6.28	Top of Slope
Bent 2	0.00	7.70	Toe of Slope, Centerline of Bent 2
	2.40	7.24	
	6.29	7.26	
	14.93	6.56	
Bent 3	-2.57	5.95	
Bent 3	0.00	5.80	Thalweg, Centerline of Bent 3
	3.87	4.90	Toe of Slope/Top Rock Slope Protection
	7.35	3.60	Break Point
Abutment 4	-3.11	2.64	Top of Slope
Abutment 4 Face	0.00	1.04	Face of Abutment 4



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0049
Facility Carried: SANTIAGO CANYON RD
Location : 0.3 MI S/O MODJESKA RD
City :
Inspection Date : 29-MAY-01
Inspection Type

Bridge Inspection Report

Routine ☒ Group A ☐ Underwater ☐ Special ☐ Other ☐

Name : SANTIAGO CREEK

CONSTRUCTION INFORMATION

Year Built : 1967 Skew (degrees): 18
Year Widened : N/A No. of Joints : 0
Length (m) : 60 No. of Hinges : 0

Description of Structure : Continuous three span CIP/RC T-beam (5 each) with RC single column bents and RC open end seat abutments, all supported upon spread footings.

Span Configuration : (S) 18.0 m, 24.8 m, 18.0 m (N) c/c

LOAD CAPACITY AND RATINGS

Design Live Load : MS - 18 OR HS - 20
Inventory Rating : 40.8 metric tons Calculation Method : LOAD FACTOR
Operating Rating : 68 metric tons Calculation Method : LOAD FACTOR
Permit Rating : PPPPP
Posting Load : Type 3 N/A english tons Type 3S2 N/A english tons Type 3-3 N/A english tons

DESCRIPTION ON STRUCTURE

Bridge width : (W) 0.1 m br, 2 @ 4.9 m, 0.1 m br (E)
Total Width : 10.1 m Net Width : 9.80 m No. of Lanes : 2
Rail Description : Metal Railing Rail Code : 0000
Min. Vertical Clearance : Unimpaired

DESCRIPTION UNDER STRUCTURE

Channel Description : Natural earth trapezoidal.

CONDITION OF STRUCTURE

Unsealed cracks exist in the concrete deck which are of moderate size and density. (0)

Otherwise, the structure is in good condition.

MISCELLANEOUS

The abutments have been retrofitted seismically.

ELEMENT LEVEL INSPECTION RATINGS

F#	Elem	Element Description	Env	Total Units Quantity	Qty in each Condition State				
No.					St. 1	St. 2	St. 3	St. 4	St. 5
01 12		Concrete Deck - Bare	2	590 sq.m.	590	0	0	0	0
01 110		Reinforced Conc Open Girder/Beam	2	300 m.	300	0	0	0	0
01 205		Reinforced Conc Column or Pile Extension	2	2 ea.	2	0	0	0	0
01 215		Reinforced Conc Abutment	2	22 m.	22	0	0	0	0
01 301		Pourable Joint Seal	2	12 m.	12	0	0	0	0
01 312		Enclosed/Concealed Bearing	2	1 ea.	1	0	0	0	0
01 337		Metal Railing (W6X25 Posts)	2	146 m.	146	0	0	0	0
01 358		Deck Cracking	2	1 ea.	0	0	1	0	0

WORK RECOMMENDATIONS - NONE

Bridge No.: 55C0049

Location: 0.3 MI S/O MODJESKA RD

Inspection Date: 29-MAY-01

Inspected By : M. Ogata

M. Ogata

Registered Civil Engineer



CC : TMRut
Orange County

Bridge No.: 55C0049

Location: 0.3 MI S/O MODJESKA RD

Inspection Date: 29-MAY-01

STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME - CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0049
 (5) INVENTORY ROUTE (ON/UNDER) - ON 1 40 0L0300
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 059 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED - SANTIAGO CREEK
 (7) FACILITY CARRIED - SANTIAGO CANYON RD
 (9) LOCATION - 0.3 MI S/O MODJESKA RD
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK - NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 42 MIN 46 SEC
 (17) LONGITUDE 117 DEG 38 MIN 42 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

***** STRUCTURE TYPE AND MATERIAL *****

(43) STRUCTURE TYPE MAIN: MATERIAL - CONCRETE CONT
 TYPE - TEE BEAM CODE 2 04
 (44) STRUCTURE TYPE APPR: MATERIAL -
 TYPE - CODE
 (45) NUMBER OF SPANS IN MAIN UNIT 3
 (46) NUMBER OF APPROACH SPANS 0
 (107) DECK STRUCTURE TYPE CIP CONCRETE CODE 1
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:
 A) TYPE OF WEARING SURFACE - CONCRETE CODE 1
 B) TYPE OF MEMBRANE - NONE CODE 0
 C) TYPE OF DECK PROTECTION - NONE CODE 0

***** AGE AND SERVICE *****

(27) YEAR BUILT 1967
 (106) YEAR RECONSTRUCTED 0000
 (42) TYPE OF SERVICE: ON - HIGHWAY 1
 UNDER - WATERWAY 5
 (28) LANES: ON STRUCTURE 02 UNDER STRUCTURE
 (29) AVERAGE DAILY TRAFFIC 9000
 (30) YEAR OF ADT 1999 (109) TRUCK ADT 3%
 (19) BYPASS, DETOUR LENGTH 2 KM

***** GEOMETRIC DATA *****

(48) LENGTH OF MAXIMUM SPAN 23.8 M
 (49) STRUCTURE LENGTH 60 M
 (50) CURB OR SIDEWALK: LEFT 0 M RIGHT 0 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 9.8 M
 (52) DECK WIDTH OUT TO OUT 10.1 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 12.5 M
 (33) BRIDGE MEDIAN - CLOSED (NO BARRIER) 2
 (34) SKEW 18 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 9.8 M
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M
 (54) MIN VERT UNDERCLEAR REF - NOT H/RR 0 M
 (55) MIN LAT UNDERCLEAR RT REF - NOT H/RR 0 M
 (56) MIN LAT UNDERCLEAR LT 0 M

***** NAVIGATION DATA *****

(38) NAVIGATION CONTROL - NOT APPLICABLE CODE N
 (111) PIER PROTECTION - NOT REQUIRED CODE 1
 (39) NAVIGATION VERTICAL CLEARANCE 0 M
 (116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR 0 M
 (40) NAVIGATION HORIZONTAL CLEARANCE 0

***** SUFFICIENCY RATING = 88.1 *****

STATUS =

HEALTH INDEX = 100

***** CLASSIFICATION ***** CODE

(112) NBIS BRIDGE LENGTH - YES Y
 (104) HIGHWAY SYSTEM - NOT ON NHS 0
 (26) FUNCTIONAL CLASS - LOCAL URBAN 19
 (100) DEFENSE HIGHWAY - NOT STRAHNET 0
 (101) PARALLEL STRUCTURE - NONE EXISTS N
 (102) DIRECTION OF TRAFFIC - 2 WAY 2
 (103) TEMPORARY STRUCTURE -
 (105) FEDERAL LANDS HIGHWAY - NOT APPLICABLE 0
 (110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0
 (20) TOLL - ON FREE ROAD 3
 (21) MAINTAIN - COUNTY HIGHWAY AGENCY 2
 (22) OWNER - COUNTY HIGHWAY AGENCY 2
 (37) HISTORICAL SIGNIFICANCE - NOT ELIGIBLE 5

***** CONDITION ***** CODE

(58) DECK 5
 (59) SUPERSTRUCTURE 7
 (60) SUBSTRUCTURE 7
 (61) CHANNEL & CHANNEL PROTECTION 8
 (62) CULVERTS N

***** LOAD RATING AND POSTING ***** CODE

(31) DESIGN LOAD - MS - 18 OR HS - 20 5
 (63) OPERATING RATING METHOD - LOAD FACTOR 1
 (64) OPERATING RATING - 68
 (65) INVENTORY RATING METHOD - LOAD FACTOR 1
 (66) INVENTORY RATING - 40.8
 (70) BRIDGE POSTING - Equal to or above legal loads 5
 (41) STRUCTURE OPEN, POSTED OR CLOSED - A
 DESCRIPTION - OPEN, NO RESTRICTION

***** APPRAISAL ***** CODE

(67) STRUCTURAL EVALUATION 7
 (68) DECK GEOMETRY 4
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
 (71) WATER ADEQUACY 9
 (72) APPROACH ROADWAY ALIGNMENT 8
 (36) TRAFFIC SAFETY FEATURES 0000
 (113) SCOUR CRITICAL BRIDGES 6

***** PROPOSED IMPROVEMENTS *****

(75) TYPE OF WORK - CODE
 (76) LENGTH OF STRUCTURE IMPROVEMENT M
 (94) BRIDGE IMPROVEMENT COST
 (95) ROADWAY IMPROVEMENT COST
 (96) TOTAL PROJECT COST
 (97) YEAR OF IMPROVEMENT COST ESTIMATE
 (114) FUTURE ADT 18000
 (115) YEAR OF FUTURE ADT 2019

***** INSPECTIONS *****

(90) INSPECTION DATE 05/01 (91) FREQUENCY 24 MO
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
 A) FRACTURE CRIT DETAIL - NO -1 MO A)
 B) UNDERWATER INSP - NO -1 MO B)
 C) OTHER SPECIAL INSP - NO -1 MO C)

Bridge Number 55C-49

TYPE OF INVESTIGATION/REPORT

BIENNIAL X DAMAGE
CATEGORY A OTHER
UNDERWATER OFFICE

Location 12 - Ora - FAS L030-CR
Dist.-Co.-Rte.-City

Date of Investigation July 5, 1995

Name SANTIAGO CREEK (Santiago Canyon Road, 0.3 mile south of
Modjeska Canyon Road)

CONDITION RATINGS:

Condition ratings of all bridge elements are
shown on the PONTIS DATA FORM (Attachment A).

Channel & Channel Protection

8

SCOUR CRITICAL:

A scour rating of A-3 is appropriate.

CONDITION OF STRUCTURE:

There is moderate transverse and random cracking on deck, yet no signs
of distress was noted on soffit.

Condition of structure is good.

WORK RECOMMENDED:

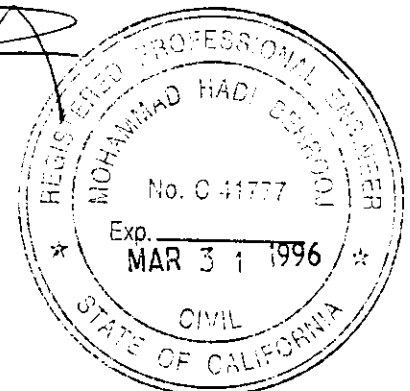
None.

ENCROACHMENT:

One 0.20 m diameter welded steel pipe suspended under 2nd girder from
east.

By M. Hadi Behrooj ¹¹⁴¹⁷
G. P. Balinghasay

GPB:cd
cc: CDHarris
Orange County
WLindsey



INFORMATION ONLY - NOT FOR UPDATE

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

DISTRICT	12
COUNTY	ORA
ROUTE	
POSTMILE	
NAME	

07/17/95

BY:

Bridge No. 55C-49

Name SANTIAGO CREEK (Santiago Canyon
Road, 0.3 mile south of Modjeska
Canyon Road)

Location 12-Ora-FAS L030-CR
Dist.-Co.-Rte.-City

SUMMARY OF ENCROACHMENTS

Permit No. and Permittee	Date	Description & Location on Bridge
	Prior to 7-5-95	1 - 0.20 m diameter welded steel pipe suspended under 2nd girder from east.

HBD M 30

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF STRUCTURES
SUPPLEMENTARY BRIDGE REPORT
DS-M19 (REV. 8/92)

Bridge Number 55C-49

TYPE OF INVESTIGATION/REPORT

BIENNIAL X DAMAGE
CATEGORY A OTHER
UNDERWATER OFFICE

Location 12 - Ora - FAS L030-CR
Dist.-Co.-Rte.-City

Date of Investigation April 22, 1993

Name SANTIAGO CREEK (Santiago Canyon Road, 0.3 mile south of
Modjeska Canyon Road)

CONDITION RATINGS:

Condition ratings of all bridge elements are
shown on the PONTIS DATA FORM (Attachment A).

Channel & Channel Protection

(8)

CONDITION OF STRUCTURE:

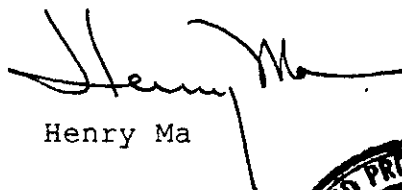
A minor concrete spall is noted at north abutment diaphragm near
girder bearing seat of the west exterior girder.

Condition of the structure is good.

REVISION:

Condition Ratings: Channel and Channel Protection - 8

(There is no deterioration in condition of channel from the previous
report, the above rating change indicates the nature of the earth
channel to reflect more closely to the current Federal Coding Guide.)


Henry Ma

HM:cd
cc: INagai (2)
County of Orange



(ATTACHMENT A)

INFORMATION ONLY - NOT FOR UPDATE

BRIDGE NUMBER	FRAME	INSPECTION DATE
55C0049	01	042293
1 8	9	11 16

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

DISTRICT	12
COUNTY	ORA
ROUTE	***
POSTMILE	*****
NAME	

[illegible]

H. MA

BY:

BRIDGE REPORT

DS-MSB (REV. 1/91)

14W14

Bridge No. 55C - 49

Location 12 - Ora - FAS L030-CR
Dist Co Rte City

REVISED ORIGINAL REPORT

Date of Investigation April 17, 1991

Name SANTIAGO CREEK (Santiago Canyon Road, 0.3 mile south of
Modjeska Canyon Road)

Lat. 33° - 42.9'N Long. 117° - 38.8'W

Custodian County of Orange Owner County of Orange

STRUCTURAL DATA AND HISTORY

Year Built 1967 By County of Orange Contract No. 07-177204

Designed by: County Plans Avail. @ County

Description: 3 span continuous CIP RC "T" beam (5 each) supported by
single RC column bents and open end RC seated abutments,
all on spread footing.

Spans (S) 59', 78', 59' (N)

Length 197' NBIS Bridge Length Yes Skew 18° Right

Number Of Intermediate Joints: @Hinges None @Bents None

Maximum Column/Pier Height: (Less than 20') X (20'-29') (30' & Over)

Design Live Load H20-S16-44 Design Method Unknown

DESCRIPTION - ON STRUCTURE

Bridge Width (W) 0.3'br, 32', 0.3'br (E)

Total Width 33' Net Width 32' Lanes 2 Tracks None

Median None Rail Type Metal tube

0000

Vert. Clearance over deck Unimpaired Appr. Rdwy. Width 41'

Deck Type 1 Wearing Surface/Prot. Sys. 100 Concrete/none

Alignment R = 1180'

DESCRIPTION - UNDER STRUCTURE

Roadway Section None

Clearances: Road: Vert. Horiz. Lt. ; Rt.

Lanes Tracks

Facilities Crossed Santiago Creek (E 08)

April 17, 1991

DESCRIPTION - HYDRAULICS

Channel Natural gravel bottom channelNavigable: Yes ☐ No ☒ Clearances: Vert. _____ Horiz. _____Pier/Abutment Protection (For Navigation) ☐

TRAFFIC INFORMATION

	DECK	YEAR	UNDER	YEAR
Average Daily Traffic & Year :	14,000	1989	N	
Average Daily Traffic (Future) :	16,000 Est	2010	N	
Average Daily Trucks (% OF ADT) :	3% Est		N	
Bypass Detour Length	1 mile		N	
Shell Route:	No		No	
Functional Classification :	07		N	
LOAD RATINGS:	Inventory	HS 25	Operating	HS 42
	Permit	PPPPP	Computation Method	Load Factor

CONDITION RATINGS:

Deck	6	Superstructure	8	Substructure	8
Channel & Channel Protection	9	Culvert	N	Widenable	Yes

APPRAISAL RATINGS:

Waterway Adequacy	9	Approach Roadway Alignment	8
-------------------	---	----------------------------	---

Date of Revisions _____

CONDITION OF STRUCTURE:

East steel bridge rail about 40' from north end is bent from traffic damage.

There is moderate transverse and random cracking in the concrete bridge deck.

Condition of the structure is good.

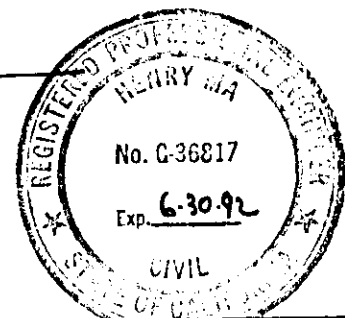
ENCROACHMENT:

8" welded steel pipe suspended under 2nd girder from east.

Henry Ma
Henry Ma

HM:ms

cc: INagai (2)
County of Orange



Bridge No. 55C-49
Location 12-Ora-FAS L030 - CR
Dist. Co. Rte. City
Date of Investigation 4-11-89

Name SANTIAGO CREEK (Santiago Canyon Road, 0.3 mile S.
of Modjeska Canyon Road)

CONDITION RATING:

Deck 6 Superstructure 8 Substr.&Pipes 8
Channel & Channel Protection 6 Culvert N Widenable? Yes

TYPE OF INVESTIGATION/REPORT

BIENNIAL X DAMAGE
CATEGORY A OTHER
UNDERWATER OFFICE

CONDITION OF STRUCTURE:

Condition of the structure is fair.

REVISIONS:

Location: 12-Ora-FAS L030-CR
Name: SANTIAGO CREEK (Santiago Canyon Road, 0.3 mile south
of Modjeska Canyon Road)

ADT: 13,000 (1988)

WORK RECOMMENDED:

None.

RECOMMENDED POSTING:

None.

SUBSTRUCTURE CODING UPDATE:

2 RC open end seated abutments on spread footing.

2 single column bents on spread footing.


Henry Ma

HM:ms

cc: INagai (2)
County of Orange (2)



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DM-OS MIS (REV. 1/74)

Bridge No. 55C-49
Location 7-Ora-FAS L030-CR
Dist - Co - Rte - PM - City
Date of Investigation April 21, 1987

Name SANTIAGO CREEK (Santiago Canyon Rd., 0.3 mile S. of Modjeska Rd.)

CONDITION RATING:		APPRAISAL RATING:	
Deck 6	Superstructure 8	Substr. & Pipes 8	Overall 6
Channel & Channel Protection 6	Retaining Walls N		

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required By County Yes ☐ No ☒

PRIORITY

A - Immediate Action
B - Early Scheduling
C - Routine Maint.
O - For Record Only

REVISION:

Average Daily Traffic - 6,000 (1985)

CONDITION OF STRUCTURE:

Overall condition of the structure is good.

RECOMMENDED POSTING:

None

WORK RECOMMENDED:

None

HM:pht
cc: INagai (2)
Orange County (2)

Henry Ma



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DN-OS M18 (REV. 1/74)

Bridge No. 55C-49
Location 7-Ora-FAU L030-CR
Sta. 6+70.00 - 72+00.00 (On Deck)
Date of Investigation January 9, 1986

Name SANTIAGO CREEK (Santiago Canyon Rd., 0.3 mile S. of Modjeska Road)

CONDITION RATING:

APPRAISAL RATING:

Deck (6) Superstructure 8 Substr. & Pipes 8 Overall (6)
Channel & Channel Protection 6 Retaining Walls N

Widenable? Yes ☒ No ☐ Conditional ☐
Action Required by County Yes ☐ No ☒

PRIORITY

A - Immediate Action
B - Early Scheduling
C - Routine Maint.
O - For Record Only

REVISION:

Condition Rating - Deck 6
Appraisal Rating of Overall - 6

CONDITION OF STRUCTURE:

There are numerous transverse deck cracks (up to 1/8") and some connecting block cracking.

Otherwise, the overall condition of the structure is good.

RECOMMENDED POSTING:

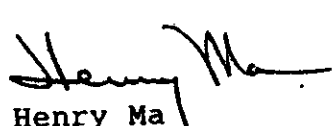
None

WORK RECOMMENDED:

None

HM:pdh

cc: INagai (2)
Orange County (2)


Henry Ma
C-36817

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DH-05 M19 (REV. 1/74)

Bridge No. 55C-49
Location 7-Oran-FAU L030-CR
Dist - Co - Rte - Pkg - City (On Deck)
Date of Investigation October 26, 1983

Name SOUTH BRANCH SANTIAGO CREEK (Santiago Canyon Rd., 0.3 mile S. of Modjeska Road)

CONDITION RATING:

APPRAISAL RATING:

Deck 7 Superstructure 8 Substr. & Pipes 8 Overall 7
Channel & Channel Protection 6 Retaining Walls N

Widenable? Yes ☒ No ☐ Conditional ☐
County
Action Required by DRH Yes ☐ No ☒

PRIORITY

A - Immediate Action
B - Early Scheduling
C - Routine Maint.
O - For Record Only

CONDITION OF STRUCTURE:

The overall condition of the structure is good.

RECOMMENDATION:

None

RECOMMENDATION:

None

E. L. Neff

E. L. Neff
C-28703

ELN:pdh
cc: DRHiggins (2)
Orange County (2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DH-QS M19 (REV. 1/74)

Bridge No. 55C-49
Location 07-Orange-FAS L030-CR
Dist - Co - Rte - PM - City (On deck)
Date of Investigation October 19, 1981

Name SANTIAGO CREEK (South Branch) (Santiago Canyon Road, 0.3 mile south of Modjeska Road)

CONDITION RATING:

APPRAISAL RATING:

Deck 7 Superstructure 8 Substr. & Pipes 8 Overall 7
Channel & Channel Protection 6 Retaining Walls N

Widenable? Yes ☒ No ☐ Conditional ☐

County: Orange
Action Required by District Yes ☐ No ☒

WORK DONE:

The previously recommended work has been done.

CONDITION OF STRUCTURE:

The overall condition of the structure is good.

RECOMMENDED POSTING:

None.

E. L. Neff
E. L. Neff
C 28703

ELN:cd
cc: DRHiggins (2)
Orange County (2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE REPORT
DS-M58 (REV. 1/75)

550-49

SEE REPORT
ORIGINAL REPORT

Bridge No. _____
Other No. _____
P.U.C. No. 07-000-745 1200-01

REVIEWED

Location _____
Dist - Co - Rte - PM - City
July 24, 1979

Date of Investigation _____

SANJUAN CREEK (South Branch) (Bentley Canyon Road 0.3 mi.
South of Highway Road)

Name 121°-42.9' 121°-38.8'

Lat. _____ Long. _____

STRUCTURAL DATA AND HISTORY
1907 Orange County 07-277204

Year Built _____ By _____ Contract No. _____

Date of Revisions _____ Orange County 2.2.

Designed by: R.D. []
24 y-beam (continuous) on single column pier abutts and 20

Description: diaphragm abutments, all on spread footings.

1 @ 38.5', 1 @ 78', 1 @ 38.5'

Spans 197' 15' 20' 190-016-04

Length 1212/12 1212/12 Design LL 19000/12

Ratings: Inventory _____ Operating _____ Permit _____

DESCRIPTION - ON STRUCTURE

Bridge Width 38.50' 2 None

Total Width _____ Lanes 2 Total Deck (0000)

Median _____ Rail Type 20'

Vert. Clearance over deck _____ Appr. Rwy. Width _____

Wearing Surface 1212' radius curve Deck Seal _____

Alignment _____

DESCRIPTION - UNDER STRUCTURE

Roadway Section _____

Clearances: Vert. _____ Horiz.: _____ Lt. _____ Rt. _____

Lanes _____ Tracks _____ See Br. No. _____

Facilities Crossed _____

cc: _____ (1) CONT.

Bridge No. 990-49

Date 7-24-79

DESCRIPTION - HYDRAULICS

Channel Poorly defined, unimproved

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

MAINTENANCE

Custodian Orange County Owner State

**ORIGINAL
CONDITION RATING**

Deck	<u>7</u>
Superstructure	<u>8</u>
Substructure & Pipes	<u>8</u>
Channel & Channel Protection	<u>6</u>
Retaining Walls	<u>8</u>
Approach Rdwy. Alignment	<u>4</u>
Estimated Remaining Life	<u>40</u>

**ORIGINAL
APPRAISAL**

Overall	<u>7</u>
Deck Geometry	<u>7</u>
Underclearances	Vert. <u>8</u>
	Horiz. <u>8</u>
Safe Load Capacity	<u>9</u>
Waterway Adequacy	<u>6</u>
Approach Rdwy. Alignment	<u>4</u>

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by County District: Yes ☒ No ☐

AVERAGE DAILY TRAFFIC: 4000 + (1979)

NEAREST MAJOR HIGHWAY: 36 miles

REMARKS: 1" x 6" steel pipe attached beneath the second girder from the east side of the bridge.

CONDITION OF STRUCTURE:

There are cracks in the top deck concrete. There are minor vertical cracks in the superstructure concrete. The north paving notch is eroded from the upstream pavement an average of about 1" (0 at the west side and 2" at the east side of the bridge). There are minor spalls of the concrete in the north paving notch. Otherwise the structure is in good condition.

LOAD CAPACITY:

The inventory, operating, and permit ratings shown were obtained through the "Furness Rule" program using the Load Factor (LF) method of analysis.

RECOMMENDATIONS:

1. Repair concrete spalls at the north paving notch.
2. Bring approach pavement grade up to the grade of the bridge deck at the north paving notch.

Original signed by
Frank J. Walliser

FJW:MR
cc:MR Higgins
Dist. C, Local Ag's
Orange County (2)

pra - 0

DIST 07 ROUTE CO RD COUNTY 55 C STRU. NO 0049 POSTMILE . RATING WIDTH-FT 032.6 STRU TYPE CBC YR ORIG CONST 67

JUN. 14, 1979

	RATING FACTOR	PT	SPAN	ULT MOM CAP TOP IN COM	ULT MOM CAP BOT IN COM	POS HS20 MOMENT	NEG HS20 MOMENT	POS PURP MOMENT	NEG PURP MOMENT	DEAD LOAD MOMENT	SECONDARY MOMENT
INV	1.28	4	1	7888.9	0.0	2069.9	-471.8	3111.5	-913.0	1614.9	0.0
OPER	2.13	4	1	7888.9	0.0	2069.9	-471.8	3111.5	-913.0	1614.9	0.0
PURP	1.11	10	2	0.0	9784.9	315.0	-1639.0	515.0	-4149.0	-2915.0	0.0

THE NUMBER OF AXLES ON THE TRUCK THAT CAUSES THE PURPLE RATING FACTOR IS 13.
FC = 1.20 FY = 40.

IF THE REPORTED ULTIMATE MOMENT CAPACITY IS 0, IT WAS DETERMINED NOT TO BE CRITICAL

2 SANTIAGO CREEK BRIDGE ON SANTIAGO CANYON ROAD SO-8
3 NO AC

PPPPP

C

DIST 07 ROUTE CO RD COUNTY SS C STRU. NO 0049 POSTMILE . RATING WIDTH-FT 032.6 STRU TYPE C0C YR ORIG CONST 67

JUN. 14, 1979

INFLUENCE LINE FOR CRITICAL INVENTORY RATING POINT SPAN 1 10TH POINT 4

MEM NO	LEFT	.1	.2	.3	.4	.5	.6	.7	.8	.9	RIGHT
1	0.0	2.829	5.699	8.652	11.728	9.120	6.718	4.564	2.699	1.164	0.0
2	0.0	-1.064	-1.725	-2.047	-2.090	-1.919	-1.593	-1.177	-0.731	-0.318	0.0
3	0.0	0.160	0.269	0.334	0.389	0.351	0.314	0.255	0.180	0.093	0.0

THE CRITICAL OPERATING RATING POINT IS THE SAME AS THE CRITICAL INVENTORY RATING POINT

INFLUENCE LINE FOR CRITICAL PURPLE RATING POINT SPAN 2 10TH POINT 10

1	0.0	0.365	0.708	1.006	1.238	1.382	1.415	1.316	1.062	0.630	0.0
2	0.0	-1.243	-2.046	-4.571	-6.180	-7.432	-8.090	-7.914	-6.667	-4.108	0.0
3	0.0	-1.819	-3.064	-3.798	-4.086	-3.990	-3.575	-2.905	-2.043	-1.053	0.0

2 SANTIAGO CREEK BRIDGE ON SANTIAGO CANYON ROAD SC-8
3 NO AC

Bridge No. 55C-49
Location 07-Ora-FAS 1279-14.4
Dist - Co - Pte - Pst - City
Date of Investigation June 16, 1976

Name SANTIAGO CREEK (South Branch)

CONDITION RATING:

APPRAISAL RATING:

Deck 7 Superstructure 8 Substr. & Pipes 7 Overall 7
Channel & Channel Protection 7 Retaining Walls -

Widenable? Yes ☒ No ☐ Conditional ☐

County XXXX
Action Required by District: Yes ☒ No ☐

CONDITION OF STRUCTURE:

The southerly abutment slope is eroded at the SW corner where AC downdrain overflows.

Otherwise, the structure is in good condition.

RAIL RATING:

(1100)

RECOMMENDATIONS:

Backfill south abutment slope erosion and modify AC downdrain at angle point to prevent overflow.

A. L. Clemence
A. L. Clemence

ALC:ic

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DH-OS M19 (REV. 1/74)

Bridge No. 55C-49
Location 7-Oran-FAS 1239-14.4
Dist - Co - Rte - PM - City
Date of Investigation July 16, 1974

Name SANTIAGO CREEK

CONDITION RATING:

APPRAISAL RATING:

Deck 7-F7 Superstructure 8-F8 Substr. & Pipes 7-F7 Overall 7-F7
Channel & Channel Protection 7-F7 Retaining Walls NA

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by District: Yes ☐ No ☒

CONDITION OF STRUCTURE:

The overall condition is good. No changes were noted.

CAPACITY RATING:

Unchanged. P-13

RECOMMENDATIONS:

None.

Original signed by

W. R. Baker

WRB:ah

cc: Orange County (2)

BRIDGE NO. 55C-049

7-ORA-FAS1279
DIST. CO. RTE.

P.M. 14.38

BRIDGE Santiago Canyon Creek

PROFILE RT SIDE MEASURED FROM : Top of RC deck . DATE 3/29/72

[illegible]

STATE OF CALIFORNIA
BRIDGE REPORT

BRIDGE ALTERED
SC-8
ORIGINAL REPORT

Sheet 1 of 3
Bridge No. 55C-049
Date of Investigation 3/28/72
Location 7-ORA-FAS 1279-14.4
DIST-CO-RTE - CITY - P.M.

Name Santiago Creek (South Branch)

Location On Santiago Canyon Rd. 0.3 mi Sly of Modjeska Rd.

Latitude 33°-42.9' Longitude 117°-38.8' DOD Rd SECTION Br. LETTER

Custodian County Owner County

CLASSIFICATION

Federal Aid System 07 Administrative 4 Functional 3

STRUCTURAL DATA AND HISTORY

Year Built 1967 By County Cont. No. 07-177204 FAP No. 64

Designed by County Plans Avail Yes at State (BD)

Spans 1@ 58.5', 1@78.0', 1@58.5' Length 197' Skew 18°

Description RC T-beam (continuous) on single column RC piers and RC diaphragm abutments
all on spread footings.

On Structure

Roadway Section 2@16' Total Width 32'-7"

Rail Type Lt. Steel tube Rt. Steel tube Median None Lanes 2 Tracks -
NO. NO.

Clearances: Vert. Unimpaired Horiz. 32'-0" PUC No. -

Design LL H20-S16-44 Capacity Rating P-13

Under Structure

Roadway Section - Lanes - Tracks -
NO. NO.

Clearances: Vert. - Horiz. - PUC No. -

HYDRAULIC STRUCTURE

Report? Yes ☒ No. ☐ Nav. Control Yes ☐ No. ☒ Clear. Diag. Yes ☒ No ☐

Relief Structures Orange County Flood Control District

APPRAISAL OF NON-STRUCTURAL FACTORS

Deck Geometry 6 Approach Alignment 6

Waterway Adequacy 7 Clearances: Vert. 9 Horiz. 6

STATE OF CALIFORNIA
BRIDGE REPORT

Sheet2..... of3.....

Bridge No. 55C-049.....

Date of Investigation 3/28/72.....

ADT 1000..... Year 1971.....

RATING OF CONDITION:

Deck 7

Substructure 7

Superstructure 8

Overall 7

PREVIOUS REPORTS:

Office report dated, February 1, 1967.

EXISTING POSTING:

None.

CONDITION OF STRUCTURE:

The deck has longitudinal and transverse cracks at approximately 1 foot centers.

The deck soffit is cracked with some signs of leaching.

The girder stems have vertical hairline cracks at 1 to 2 foot centers..

Abutment 1 has vertical cracks under girder stems.

The girder seats in Abutment 4 are not aligned with the girders.

CHANNEL:

The channel has been improved and has a sand and gravel bed. The side slopes at the structure have some rock protection. There are angled concrete wingwalls at the abutments.

BRIDGE No. 55C-049
SHEET 3-28-72
DATE 3 of 3

CAPACITY:

The structure is considered safe for legal loads by design and inspection,
and it will carry a P-13 overload.

POSTING RECOMMENDATION:

None.


W. R. SCHOTT
C.E. Lic. No. 13592

Safe Load Calculations - AASHTO Maintenance Manual 1970

RC T-beam continuous #4/L, L=78', #4/L

Good for legal loads by design (H20-516-44)

Design stress: $f_s = 20,000$, $f_c = 1200$ psi, $n = 10$

Overload stress: $f_s = 25,000$, $f_c = 1650$ psi, $n = 10$

LL Distribution

Interior girder: $7.0 / 6.0 = 1.17$ wheels/girder ← controls

Exterior girder: $(1 + 7) / 7 = 1.14$ wheels/girder

Impact: $(L = 78') = 1.246$ $(L = 28.5') = 1.272$

Dead Load

Deck	$7.0 \times 0.51 \times 0.150$	$= 0.535$ k/ft
Fillets		0.016
Girder	$1.00 \times 4.49 \times 0.150$	0.727
Diaphragm	$0.85 \times 3.92 \times 4.00 \times 0.150 / 58.5$	0.052
		1.330 k/ft

DL Moments using influence lines

0.4 Span 1 : $1.33 \times 78^2 \times 0.0359 = 290$ k-ft

@ Bent 2 : $1.33 \times 78^2 \times 0.0709 = 638$ k-ft

0.5 Span 2 : $1.33 \times 78^2 \times 0.0461 = 372$ k-ft

LL Moments P-13 Unit & influence lines

0.4 Span 1 : $1.272 \times 1.17 \times 24 \times 78 (0.034 + \overset{.252}{.157} + .061) = 702$ k-ft

@ Bent 2 : $1.246 \times 1.17 \times 24 \times 78 (.024 + \overset{.341}{.067} + .026 + .066 + .090 + .066 + .023) = 985$ k-ft

(P-9 max) 0.5 Span 2 : $1.246 \times 1.17 \times 24 \times 78 (0.004 + .069 + \overset{.315}{.166} + .069 + .007) = 860$ k-ft

Resisting Moments

+M Span 1 (Neglect stress in stem)
 $A_s = 6.41 = 9.36 \text{ in}^2$ $d = 60 - 3.27 = 56.73"$

$$K = \frac{\frac{10 \times 9.36}{84 \times 6.12} + \frac{1 \times 6.12}{2 \times 56.7}}{\frac{10 \times 9.36}{84 \times 6.12} + 1.000} = \frac{0.182 + 0.054}{1.182} = 0.200$$

from table 9 $J = 0.96$

$$M_r = \frac{25,000}{12,000} \times 0.96 \times 56.7 \times 9.56 = \underline{1062 \text{ K-ft}}$$

$$f_c = \frac{25,000}{10} \times \frac{0.2}{0.8} \approx 625 \text{ psi OK}$$

+ M Span 2

$$A_s = 8\#11 = 12.48 \text{ in}^2, d = 60 - 4.50 = 55.50''$$

$$k = \frac{\frac{10 \times 12.48}{84 \times 6.12} + \frac{1 \times 6.18}{2 \times 55.5}}{\frac{10 \times 12.48}{84 \times 6.12} + 1.000} = \frac{0.242 + 0.056}{1.242} = 0.240$$

$$J = 0.95$$

$$M_r = \frac{25,000}{12,000} \times 0.95 \times 55.5 \times 12.48 = \underline{1373 \text{ K-ft}}$$

- M Bent 2

$$A_s = 8\#11 + 1\#7 = 12.48 + 0.60 = 13.08'', A_s' = 4\#11 + 2\#7 = 6.24 + 1.20 = 7.44 \text{ in}^2$$

$$d = 60 - 2.81 = 57.19 \text{ in}, d' = 3.18''$$

$$m = \frac{10 \times 13.08}{13 \times 57.19} + \frac{19 \times 7.44}{13 \times 57.19} = 0.176 + 0.191 = 0.367$$

$$e = 0.176 + 0.191 \times \frac{0.056}{3.18/57.19} = 0.176 + 0.010 = 0.186$$

$$k = 0.34 \quad 0.056/0.34 = 0.16 \quad 0.191/0.34 = 0.56$$

$$e = 0.25 \quad J = 0.92$$

$$M_r = \frac{25,000}{12,000} \times 0.92 \times 57.19 \times 13.08 = \underline{1433 \text{ K-ft}}$$

$$f_c = 2500 \times 0.34/0.66 = 1290 \text{ psi OK}$$

$$\underline{LL+I \text{ Capacity}} = M_r - M_{OL} \geq M_{UL1}$$

$$@ 0.4 \text{ Span 1} = 1062 - 290 = \underline{772 \text{ K-ft}} > 702 \text{ K-ft}^{\text{OK}}$$

$$@ 0.5 \text{ Span 2} = 1373 - 372 = \underline{1001 \text{ K-ft}} > 860 \text{ K-ft}^{\text{OK}}$$

Santiago Creek
55C-049

WRS
WRK

3-28-72
7/72

3 p 3

@ Bent 2 - DL & LL+I moments will be adjusted to reflect moments @ face of cap

$$DL\ M\ @\ L = 638\ K-ft$$

$$M\ @\ face = 638 \times 73.5/78 = 567\ K-ft$$

$$LL+I\ M\ @\ L = 985\ K-ft$$

using envelope curve from BR&DM

$$DL\ M / LL+I\ M = 638 / 985 = 0.65\ \text{use } 0.75$$

$$2'-3"/78 \sim 3\%$$

$$M\ @\ face \sim 0.87\%\ M\ @\ L = 0.87 \times 985 = 857\ K-ft$$

LL+I Capacity

$$567 + 857 = \underline{1424\ K-ft} < \underline{1433\ K-ft}\ \text{OK}$$

T-beams adequate in bending for R13 overload

BRIDGE REPORT
SUPERSEDEDOffice Report
Date of ~~XXXXXX~~ Feb. 1, 1967

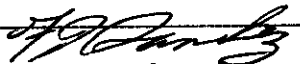
General Description

Name SANTIAGO CREEK (South Br) 07-Oran-Co. Rd.
 Location On Santiago Canyon Road Near Modjeska FAS #S-1279 (4) Dist.-Co. Rt.
 Description RC continuous (5 girder) T-Beam on modified diaphragm
 abutment (S), RC (1 column) bents, and RC diaphragm abutment (N)
 on 2 buried RC rectangular columns; all supported on spread footings
 Railing Metal tube Approx. skew 30°
 Spans (S) 1 @ 58.5'; 1 @ 78.0'; 1 @ 58.5' (N)
 Total length 197.6'
 Roadway width 32.0' between railing
 Describe median, shoulders, surf., etc.
 Sidewalks none
 Width Adequate Alignment R=1182'
 Design Live Loading H20-S16-44 Overload rating purple
 Waterway Improved, earth trapezoidal with rock riprap
 Other features crossed None
 Vertical clearance Unimpaired for Santiago Canyon Road

History

Date built 1967 By Orange County Road Dept. Contract No. 07-177204
 Designed by Orange County Road Department Designer C. Boyce
 Plans in Bridge Dept. files ~~XXXXX~~ Bridge R.E. R. Voien
 Contractor Griffith Company

REMARKS Office report for filing purposes only.


 F. J. Sanchez

FJS:mb

cc: District
Maintenance Dept.

THIS COPY FOR

Br Book

FROM BRIDGE DEPARTMENT

07-Orn-Co.Rd.

February 10, 1966

Mr. R. A. Wagner:

The following will confirm the identity assigned to proposed structures today on an FAS project in Orange County.

Br. 55C-48 ~~SANTIAGO CREEK (N. bridge)~~ FAS 1279

Br. 55C-49 SANTIAGO CREEK (S. bridge) FAS 1279

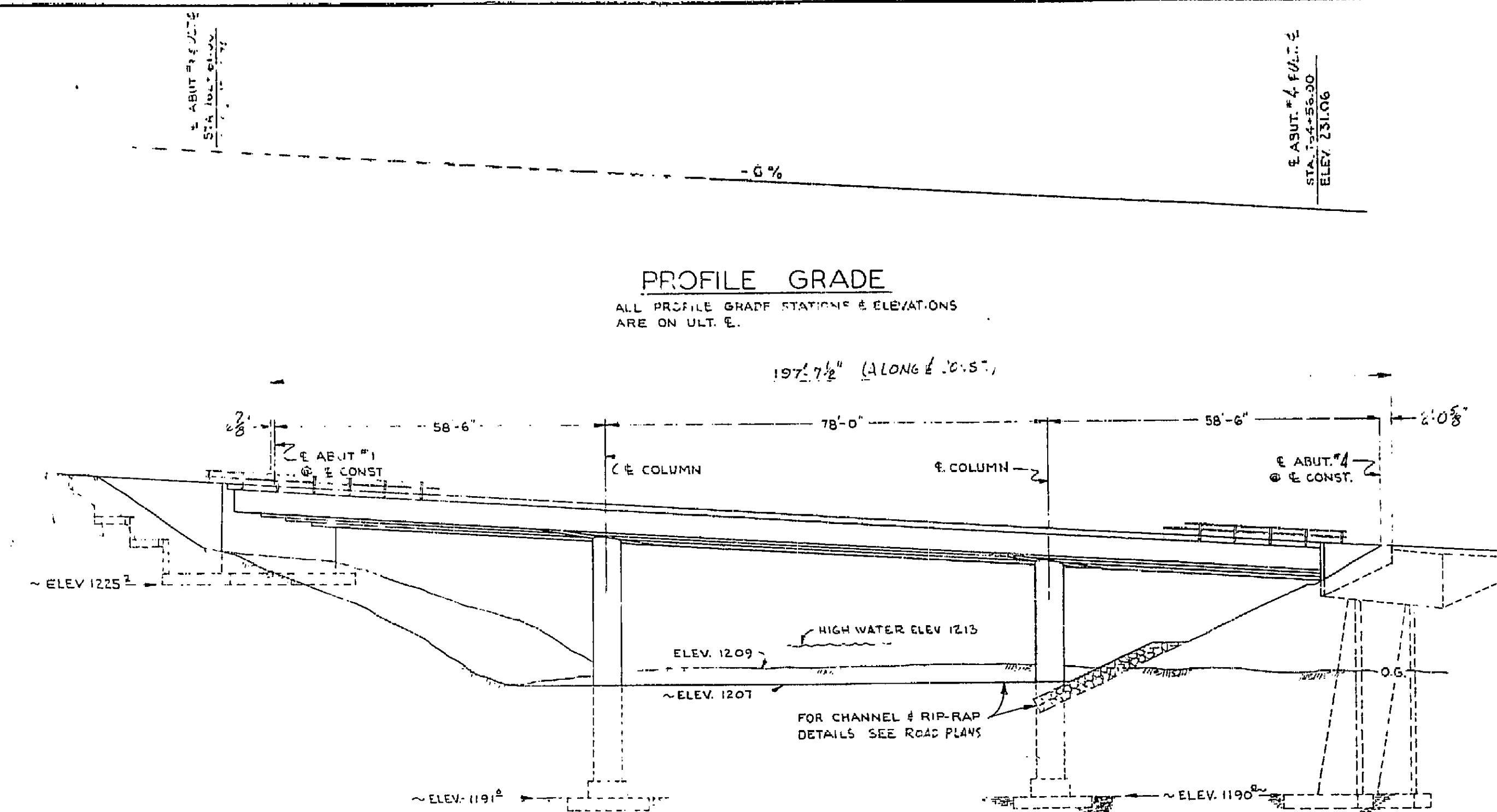
Construction is tentatively proposed for 1966-67.

Location is near Medjeska on the realignment of Santiago Canyon Road.

**ORIGINAL SIGNED BY
T. W. RODGERS**

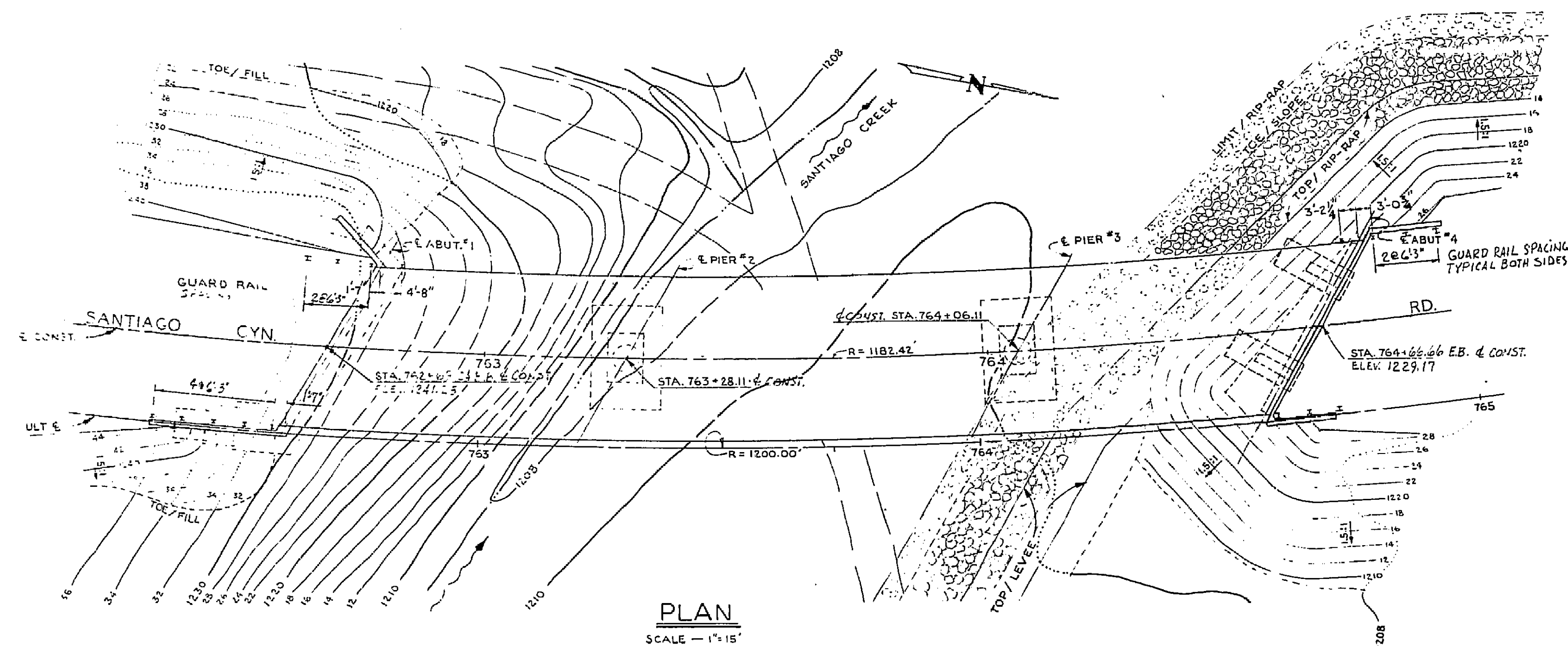
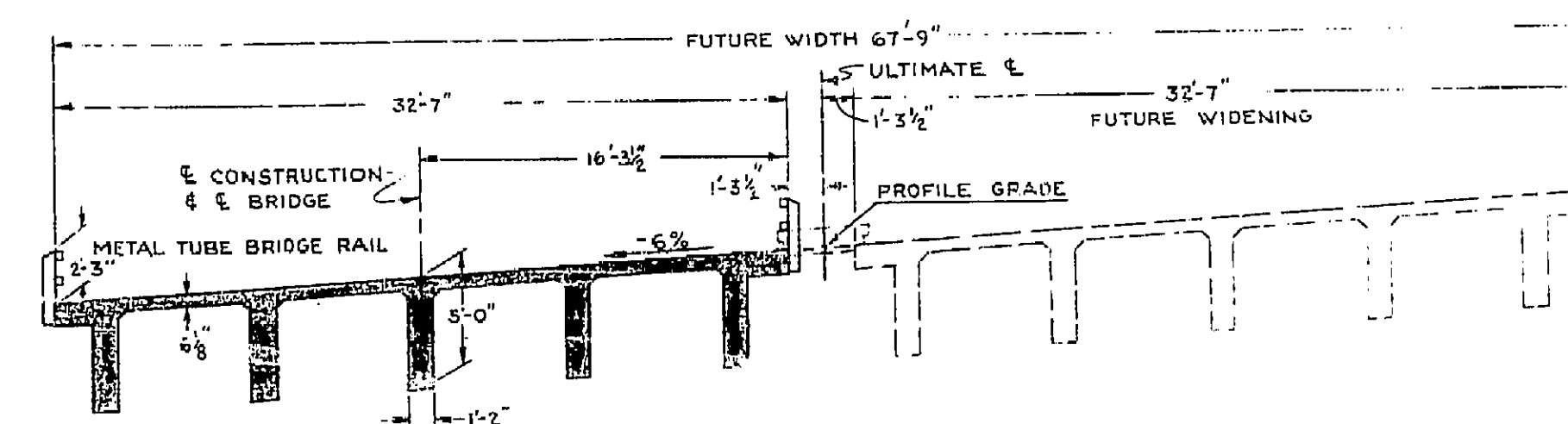
T. W. Rodgers

**TWR of
cc: WCKiednisch
BrBook**



APPROXIMATE QUANTITIES	
STRUCTURE EXCAVATION (BRIDGE)	960 CY
STRUCTURE BACKFILL (BRIDGE)	710 CY
CLASS "A" CONCRETE (BRIDGE)	650 CY
BAR REINFORCING STEEL (BRIDGE)	163,000 LBS
METAL TUBE BRIDGE RAILING	462 LF

*FINAL QUANTITIES

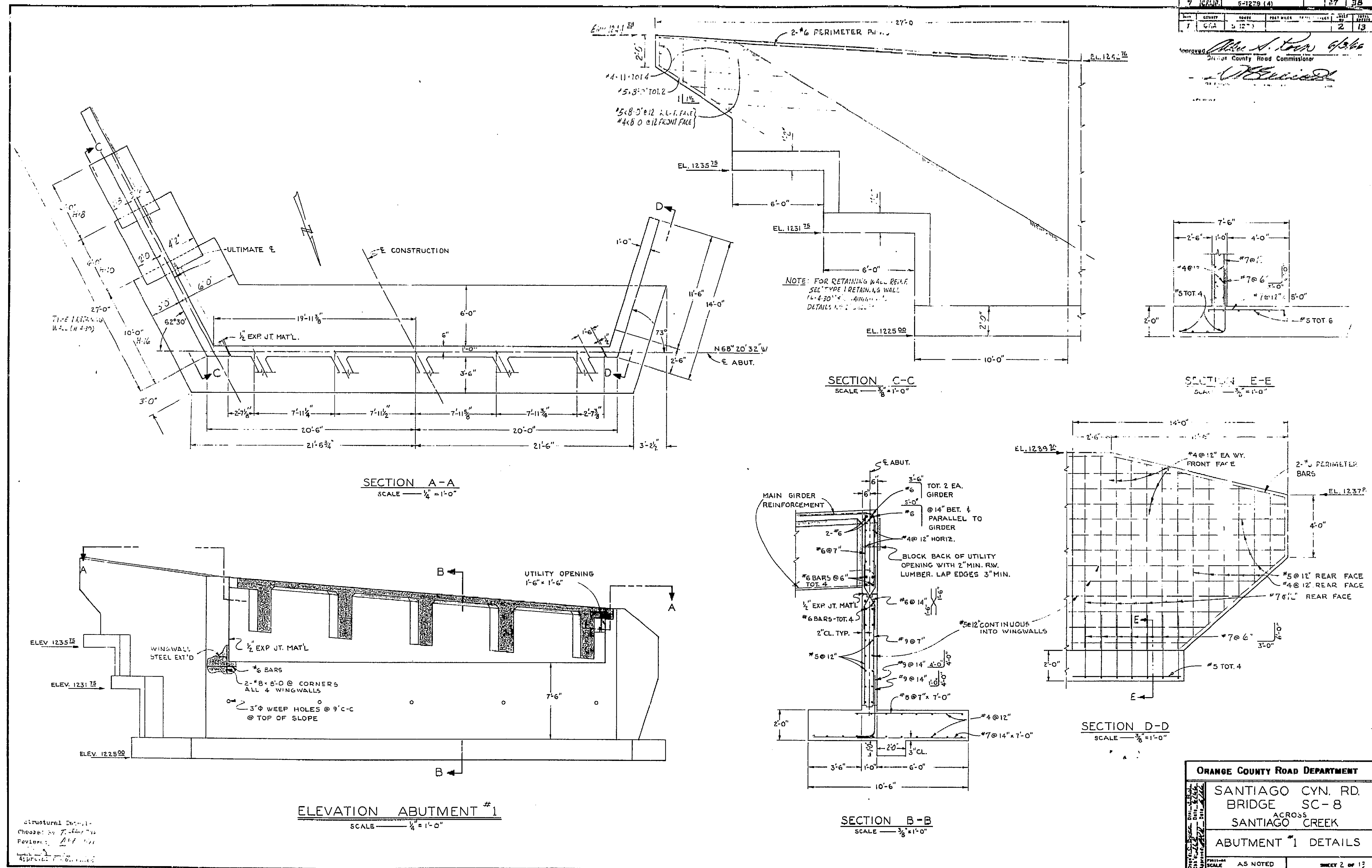


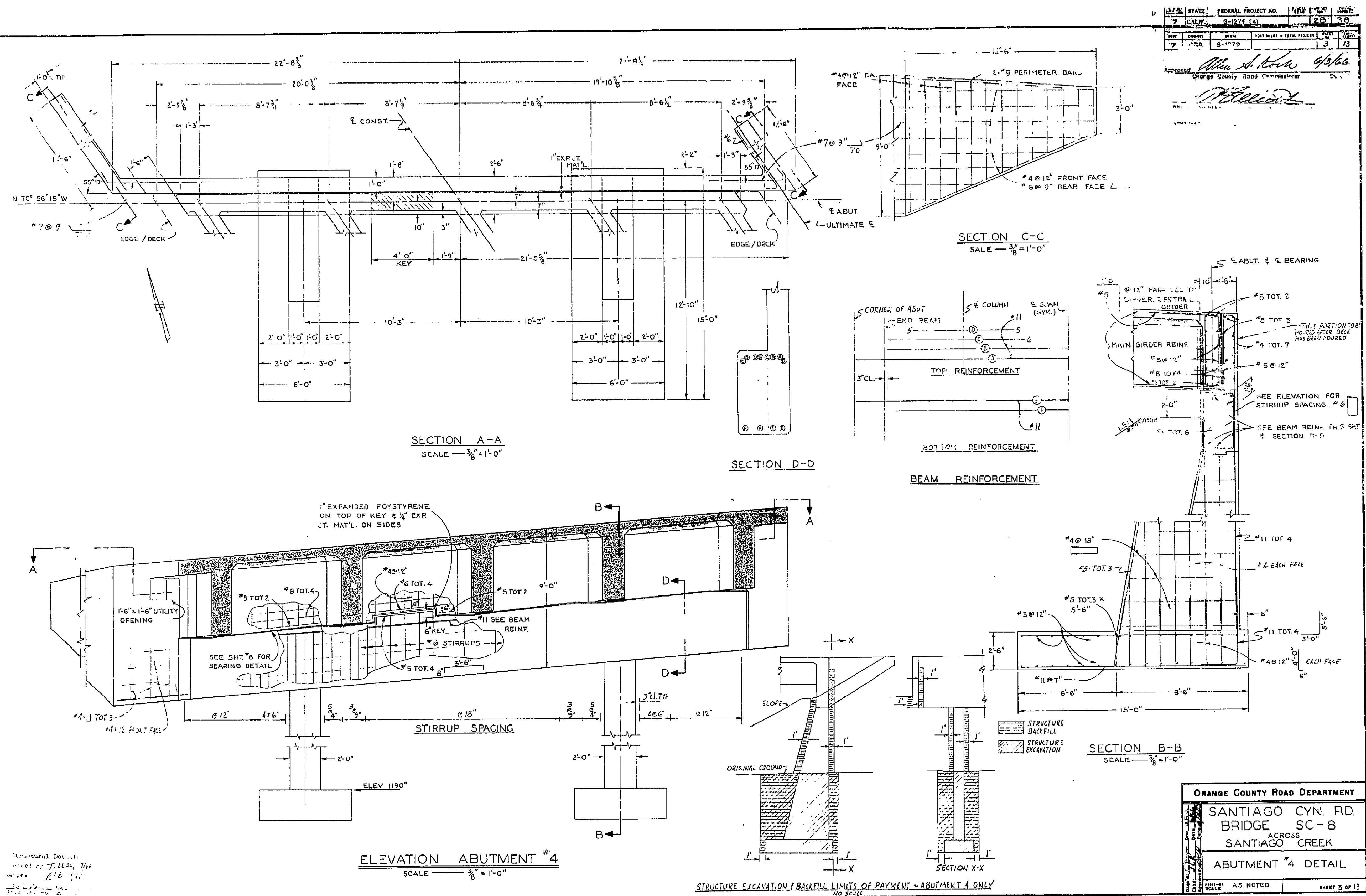
INDEX TO BRIDGE SHEETS

Sheet No	Description
1	GENERAL
2	ABUTMENT NO. 1 DETAIL
3	ABUTMENT NO. 4 DETAIL
4	PIER DETAIL
5	SUPERSTRUCTURE LAYOUT & REINFORCEMENT
6	TYPICAL SECTION
7	MISCELLANEOUS DETAILS
8	GUARD RAIL DETAILS
9-10	LOG OF TEST BORINGS
11	TYPE I RETAINING WALL (H=4-30)
12	RETAINING WALL DETAILS NO. I
13	EXCAVATION & BACKFILL BRIDGES

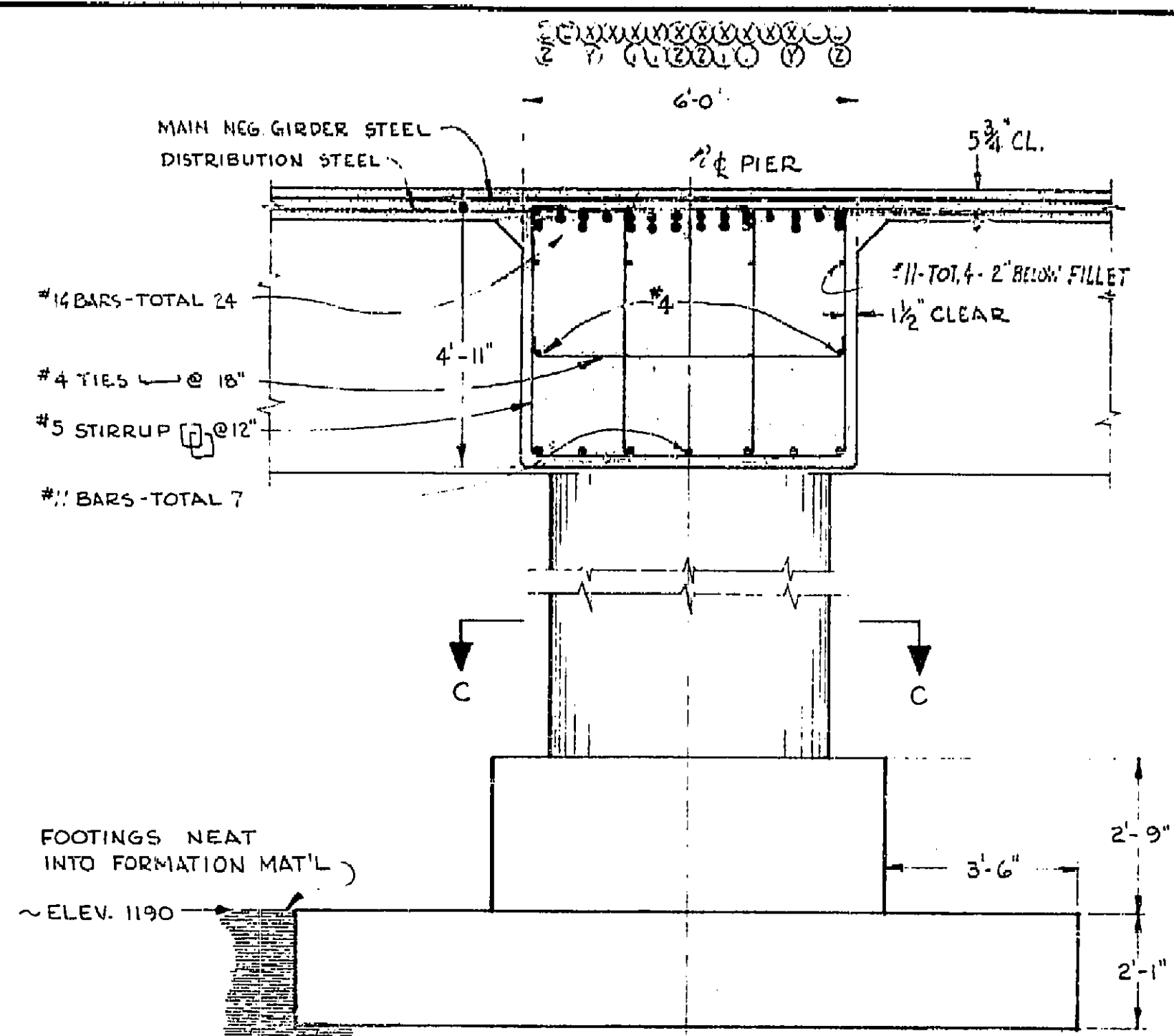
ORANGE COUNTY ROAD DEPARTMENT	
SANTIAGO CYN. RD.	
BRIDGE SC - 8	
ACRGSS	
SANTIAGO CREEK	
GENERAL PLAN	
DRAWN BY SCALE AS NOTED	SHEET 1 OF 13

Br. No. 55C-49

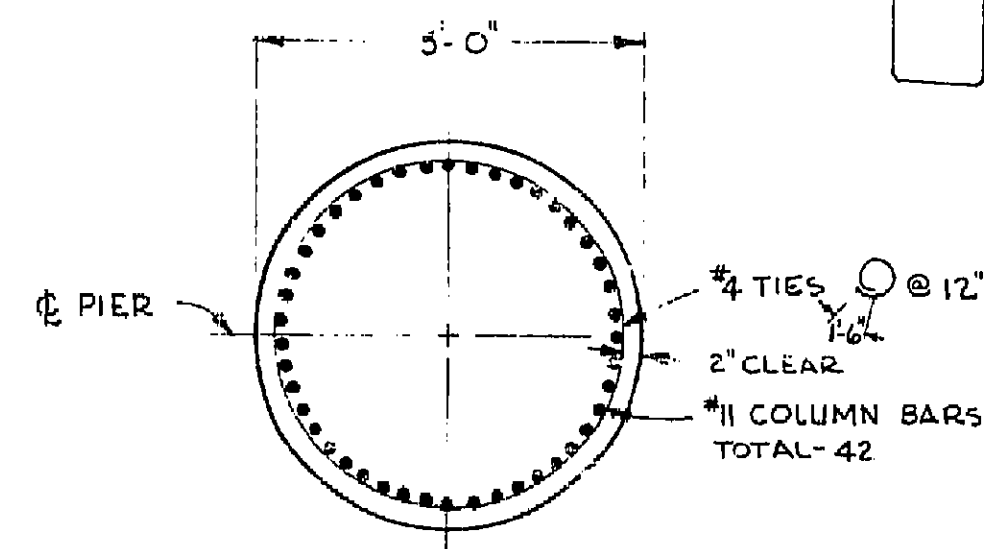




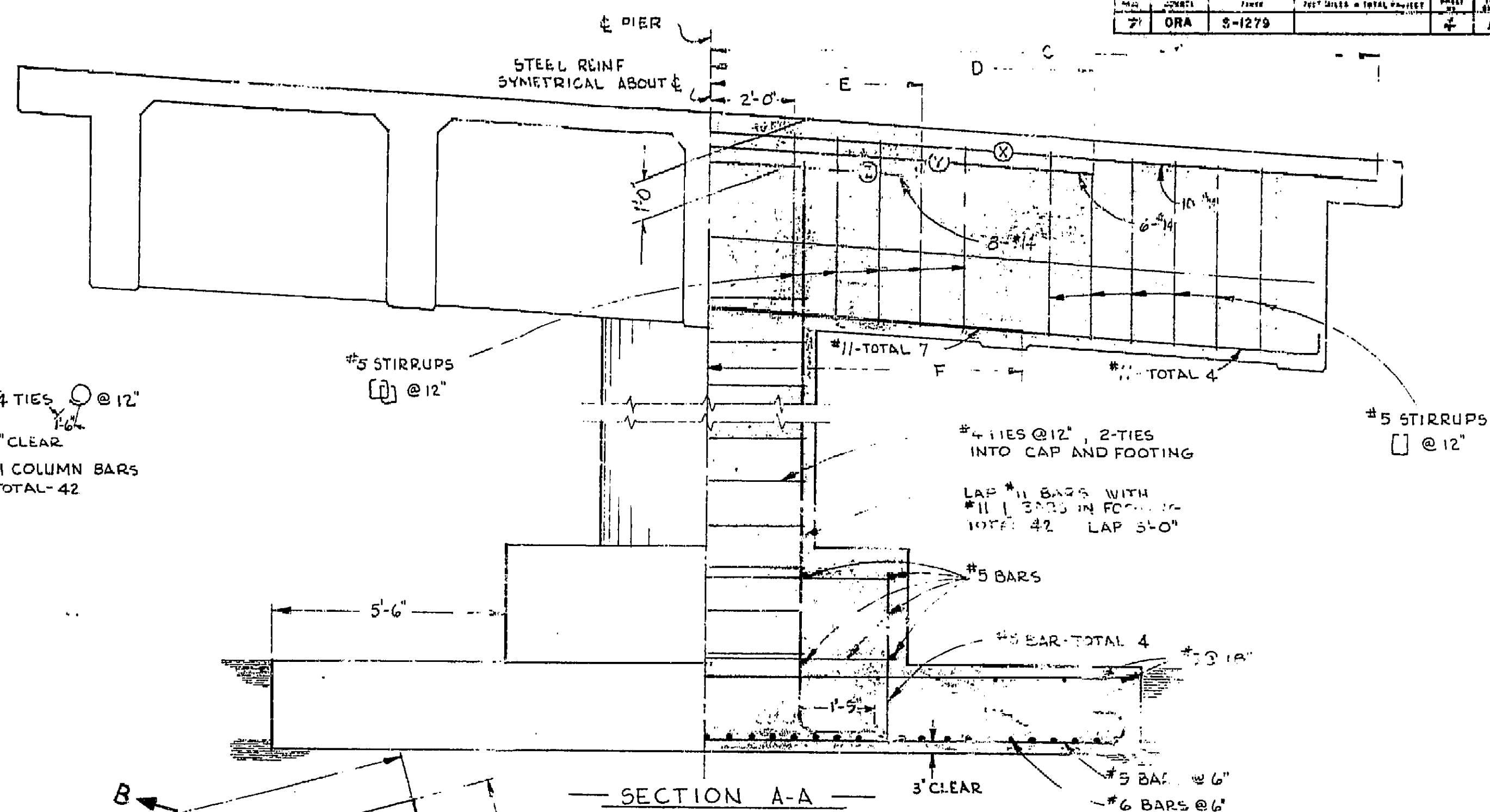
STATE	FEDERAL PROJECT NO.	DATE	BY	CHKD
CA	5-1279 (4)	5/29	58	
DATE	BY	CHKD	TOTAL SHEETS	TOTAL PAGES
5/29	ORA	5-1279	4	13



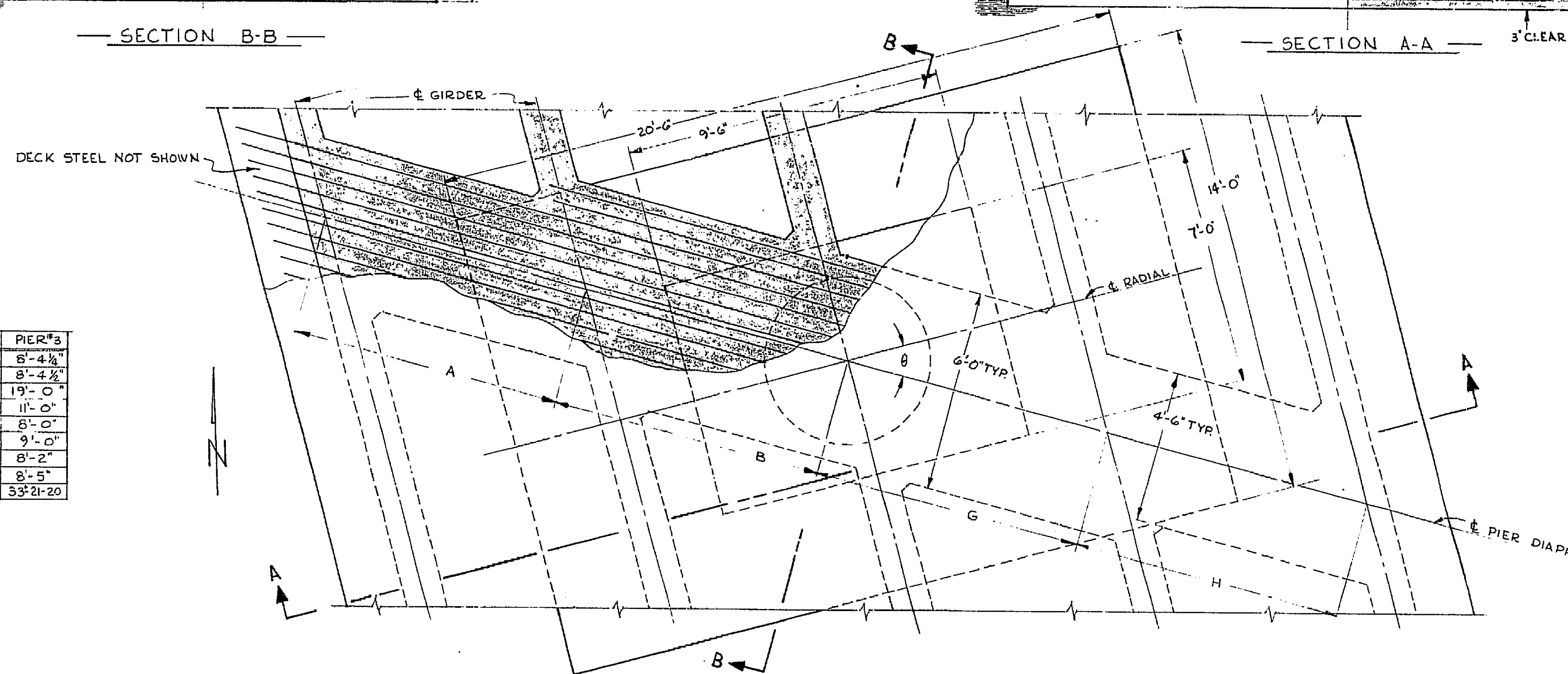
SECTION B-B



SECTION C-C



SECTION A-A



PLAN VIEW

DIM.	PIER #2	PIER #3
A	8'-1 3/4"	8'-4 1/4"
B	8'-1 3/4"	8'-4 1/4"
C	18'-4"	19'-0"
D	11'-0"	11'-0"
E	8'-0"	8'-0"
F	8'-8"	9'-0"
G	8'-1 3/4"	8'-2"
H	8'-4 3/4"	8'-5"
Ø	30'-36-51	33'-21-20

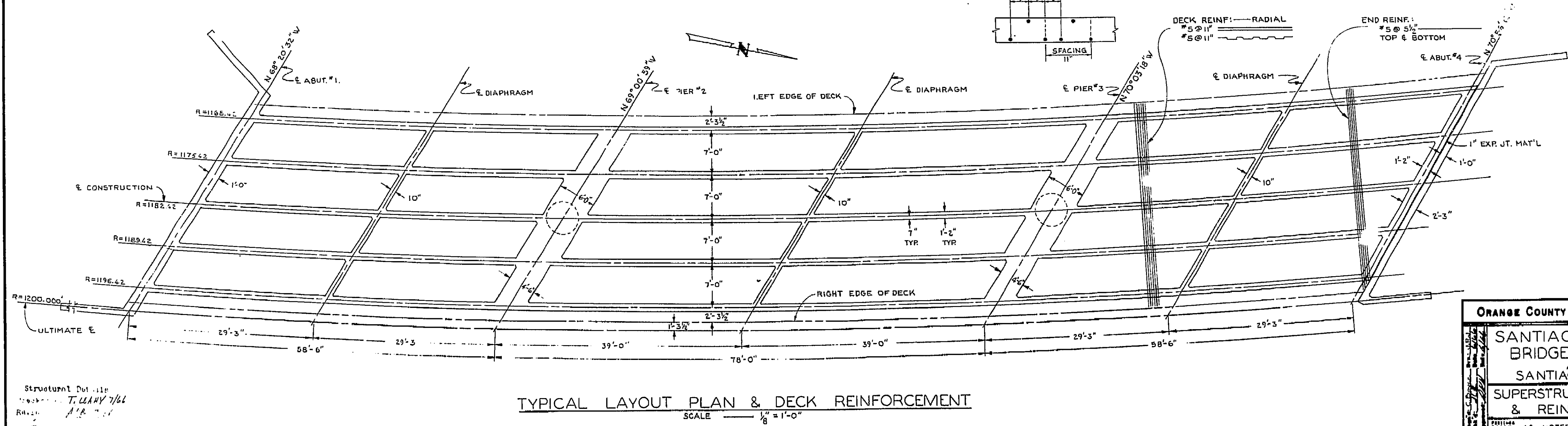
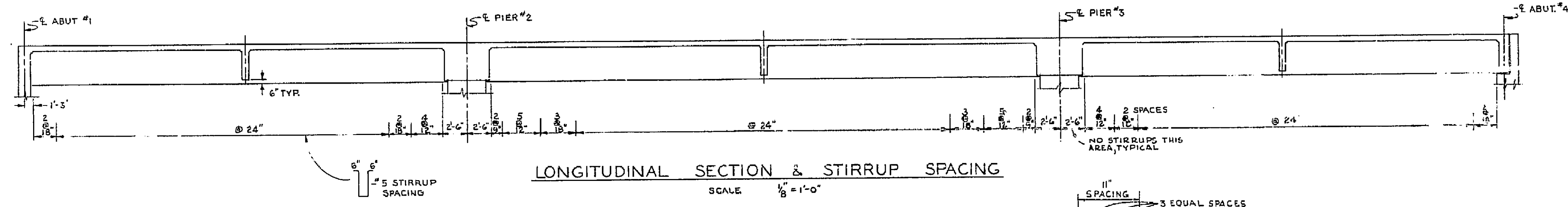
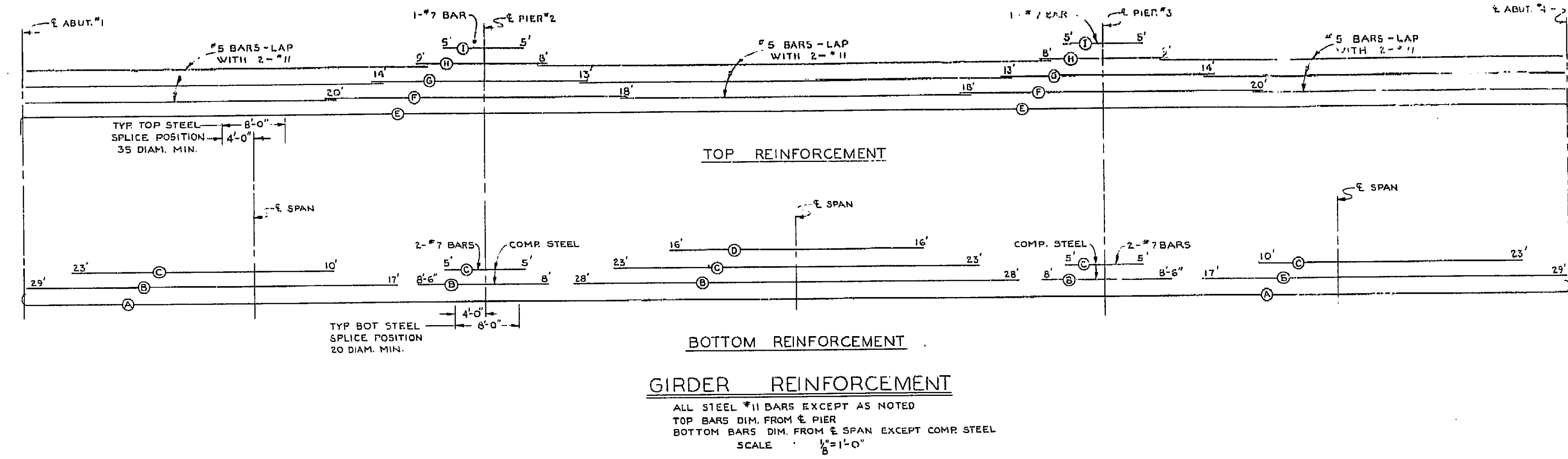
Structural Details
Checked: J. T. LEAHY 1/44
Desig: A. E. GEE
Approved: [Signature]
Approved: [Signature]

Approved: [Signature] 6/3/66
County Road Commission
Date: 6/3/66
Bridge: [Signature]
Scale: 1/2" = 1'-0"

ORANGE COUNTY ROAD DEPARTMENT	
SANTIAGO CYN. RD. BRIDGE SC-8 ACROSS SANTIAGO CREEK	
PIER DETAIL	
SCALE: 1/2" = 1'-0"	SHEET 4 OF 13

STATE	FEDERAL PROJECT NO.	SHEET	DATE
7 CALIF.	5-1279 (4)	30	30
DESIGNER	DATE	APPROVED	DATE
7	5-12-59	6/2/60	7/3

Orange County Road Commissioner
 [Signature]
 [Signature]

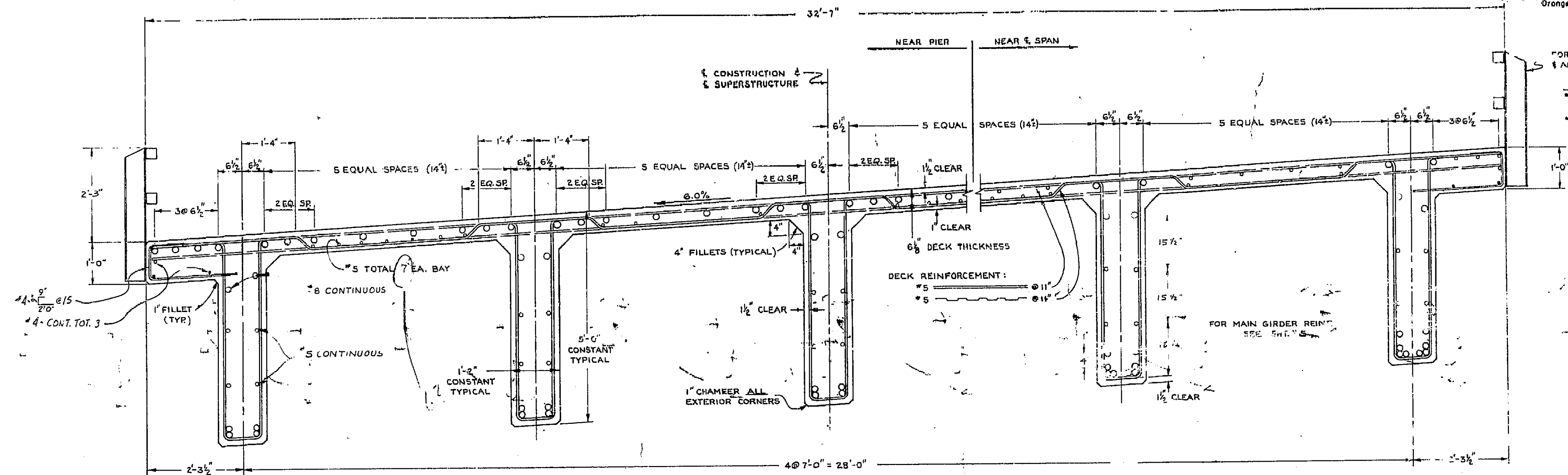


ORANGE COUNTY ROAD DEPARTMENT	
SANTIAGO CYN RD. BRIDGE SC-8	
ACROSS SANTIAGO CREEK	
SUPERSTRUCTURE LAYOUT & REINFORCEMENT	
SCALE AS NOTED	SHEET 5 OF 13

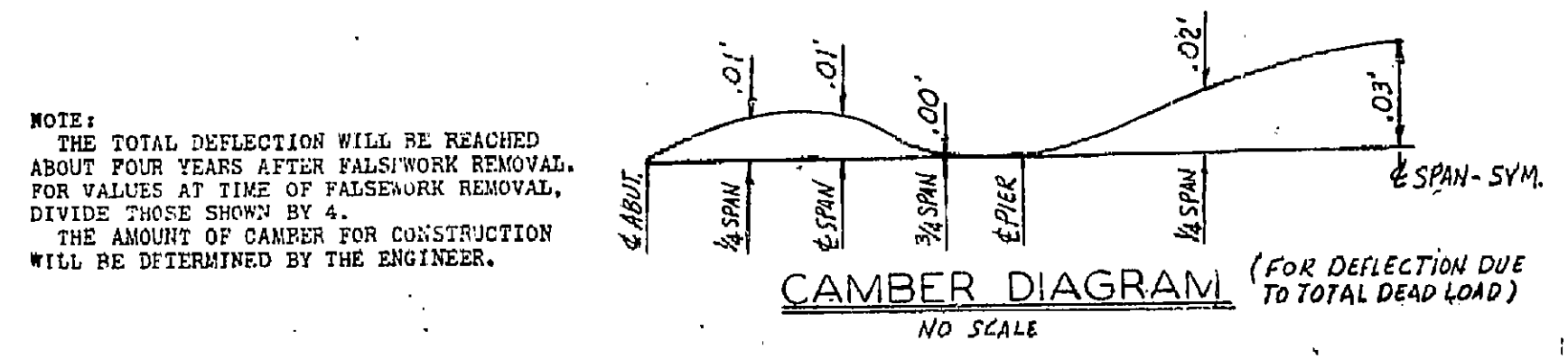
Structural Detail
 T. L. LANE 7/64
 R. L. LANE 7/64

STATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
7 CALIF.	5-1279 (1)	31	38
DATE	DESIGN	POST & RAIL - TOTAL PROJECT	DATE
7 ORA	5-1279	6	13

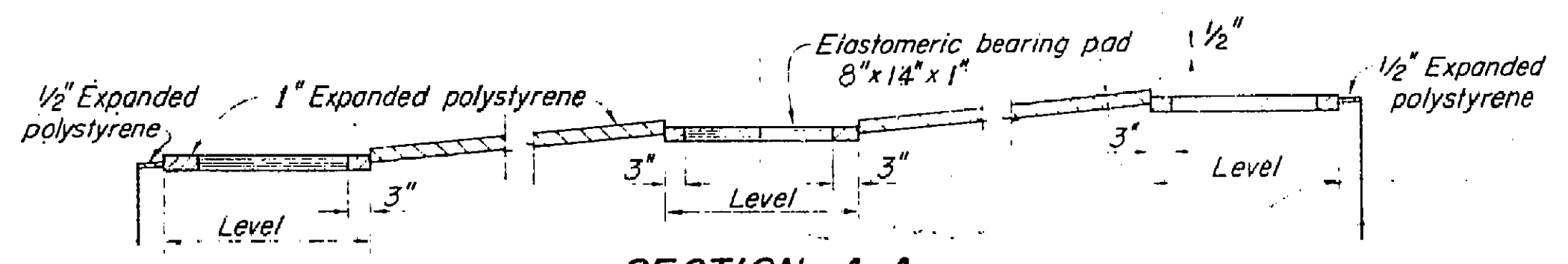
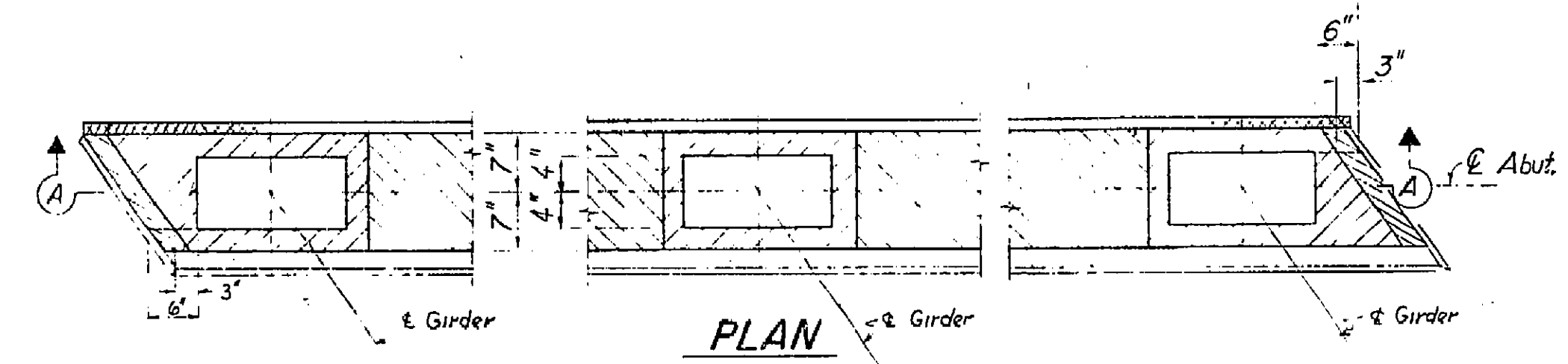
Approved *Alvin S. Koch* 6/3/66
Orange County Road Commission Date



FOR GUARD RAIL DETAILS
ANCHORAGE SEE DET. 11-1
APPROVED *Alvin S. Koch*
BRIDGE ENGINEER CIVIL ENGINEER LICENSE 2207



TYPICAL SECTION
SCALE 1/4" = 1'-0"



SECTION A-A
TYPICAL BEARING DETAIL

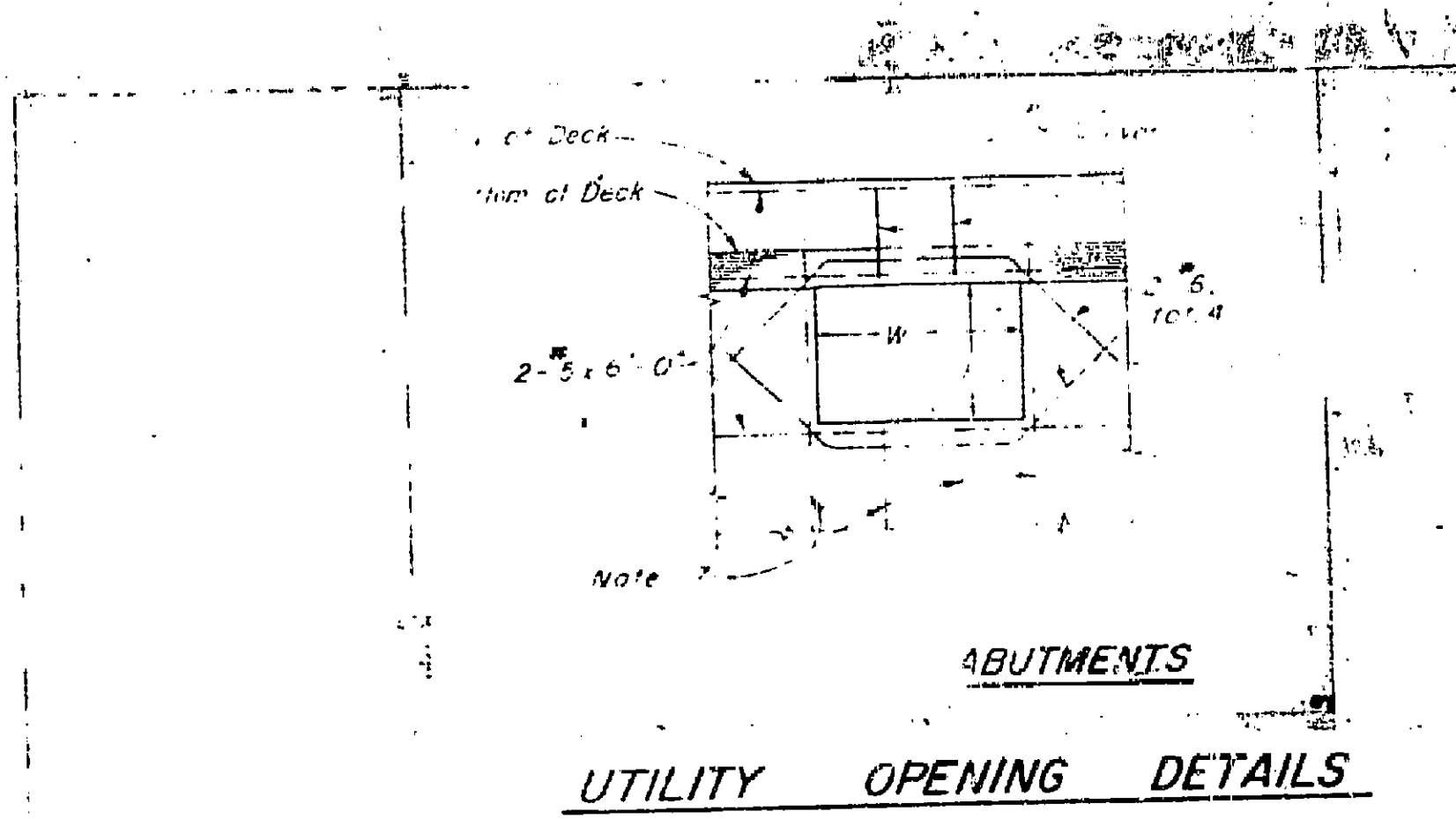
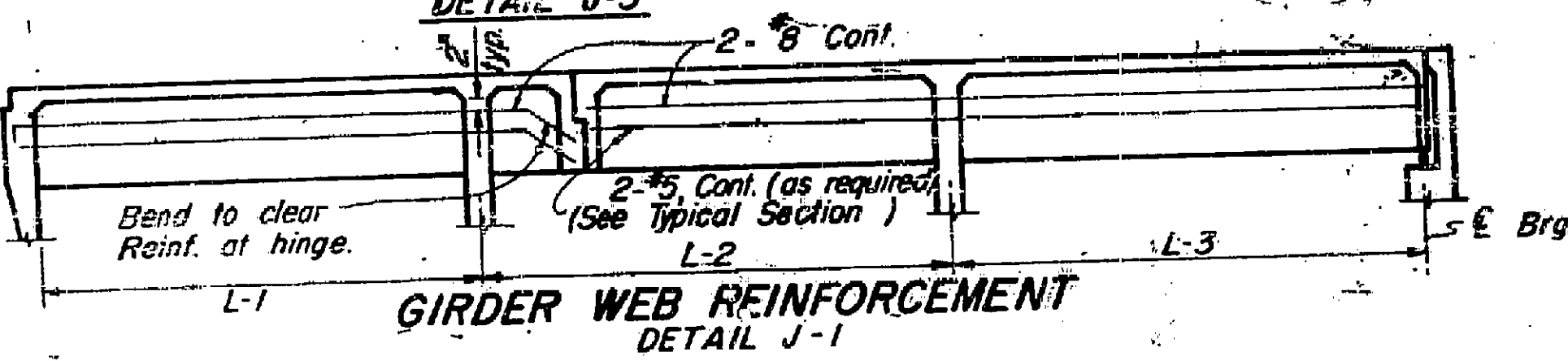
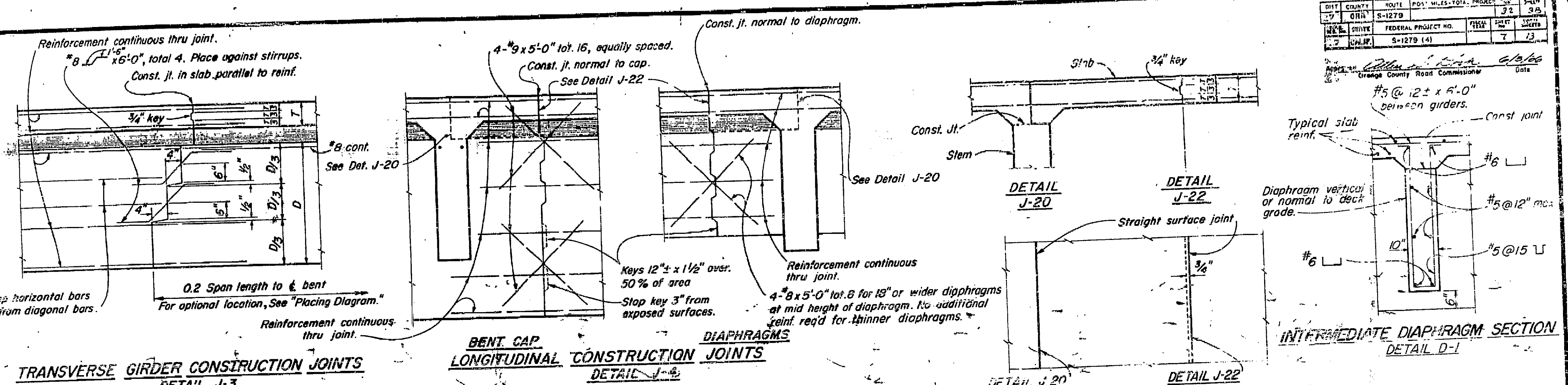
Structural Details
Checked by J. LEAHY 7/66
Revised APP. 7/66
Approval Recommended

GENERAL NOTES

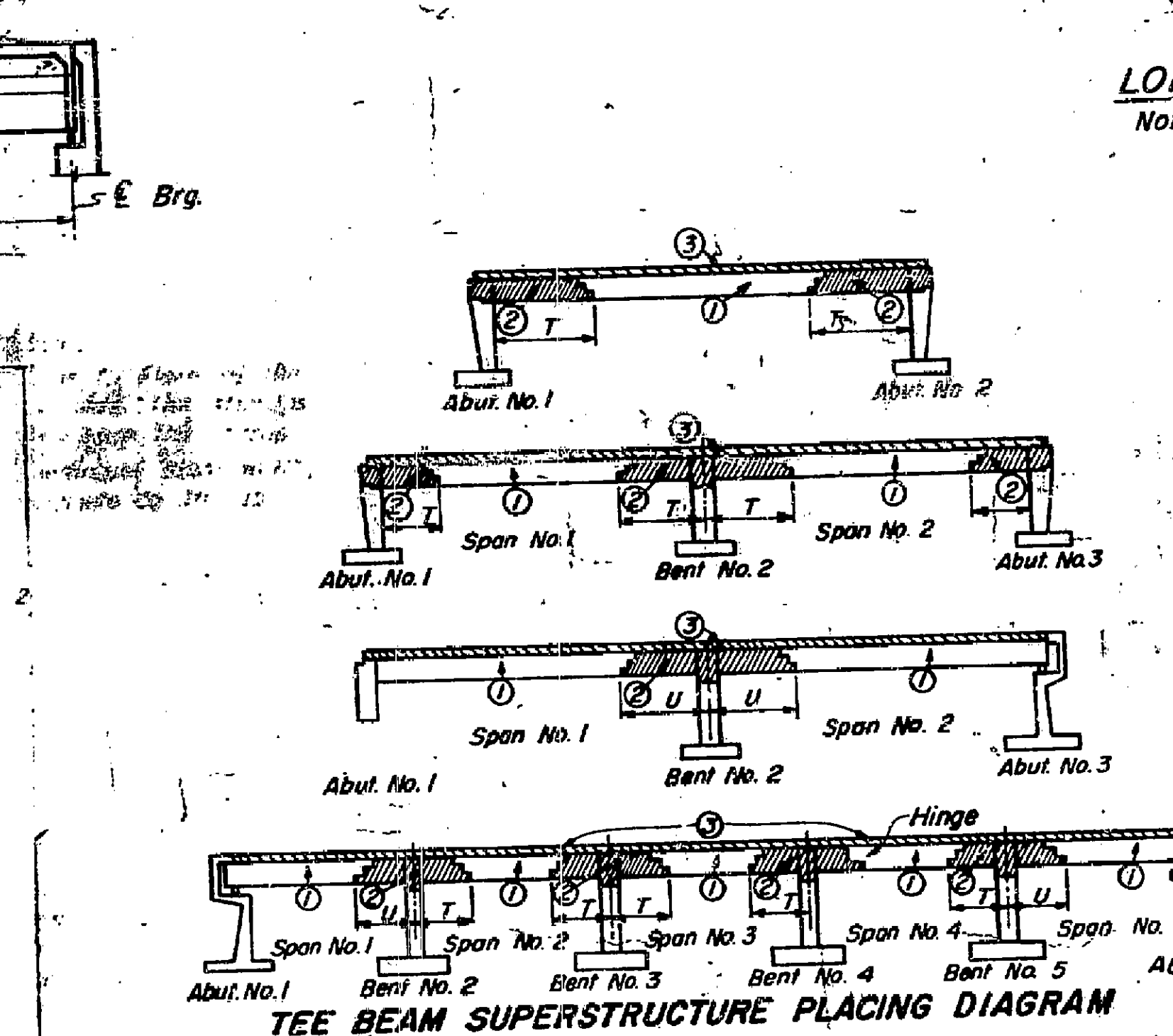
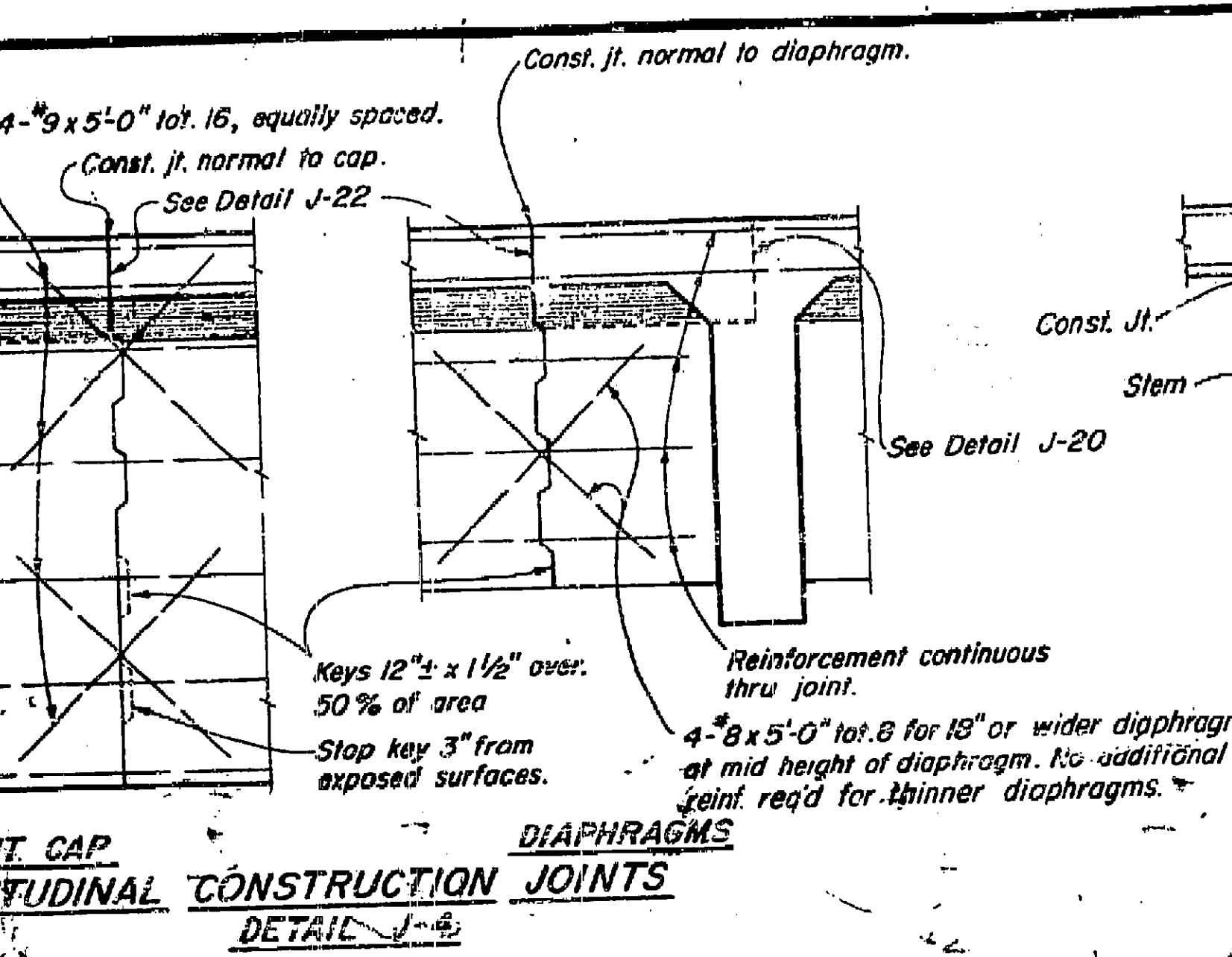
- SPECIFICATIONS:**
Design: A.A.S.H.O. dated 1961 with subsequent revisions, and Calif. Division of Highways Bridge Planning and Design manual.
Construction: Standard Specifications, Division of Highways, Calif. dated July 1964 and the special provisions.
- LIVE LOADING:** H20-S16-44
- UNIT STRESSES:**
Reinforcing Steel: f_s tension = 20,000 p.s.i.
 f_s comp. = 16,000 p.s.i.
Concrete: f_c = 1,200 p.s.i.
 n = 10
 v_c = 90 p.s.i.
- SOIL PRESSURE:**
ALLOWABLE: Abut. #1 = 1.8 %F Pier #2 = 4 %F Pier #3 = 4 %F Ab. #4 = 4 %F
- REINFORCEMENT:** Embedment is clear to outside of bar and is 2" to main reinforcement, except as noted. Backing for hooks is four diameters, except as noted.
Where reinforcing bars are spliced they shall have a 20 diameters lap unless otherwise noted.
- CONCRETE:** Class "A" using type II portland cement.

ORANGE COUNTY ROAD DEPARTMENT	
SANTIAGO CYN. RD.	BRIDGE SC-8
ACROSS	SANTIAGO CREEK
TYPICAL SECTION	
SCALE AS NOTED	SHEET 6 OF 12

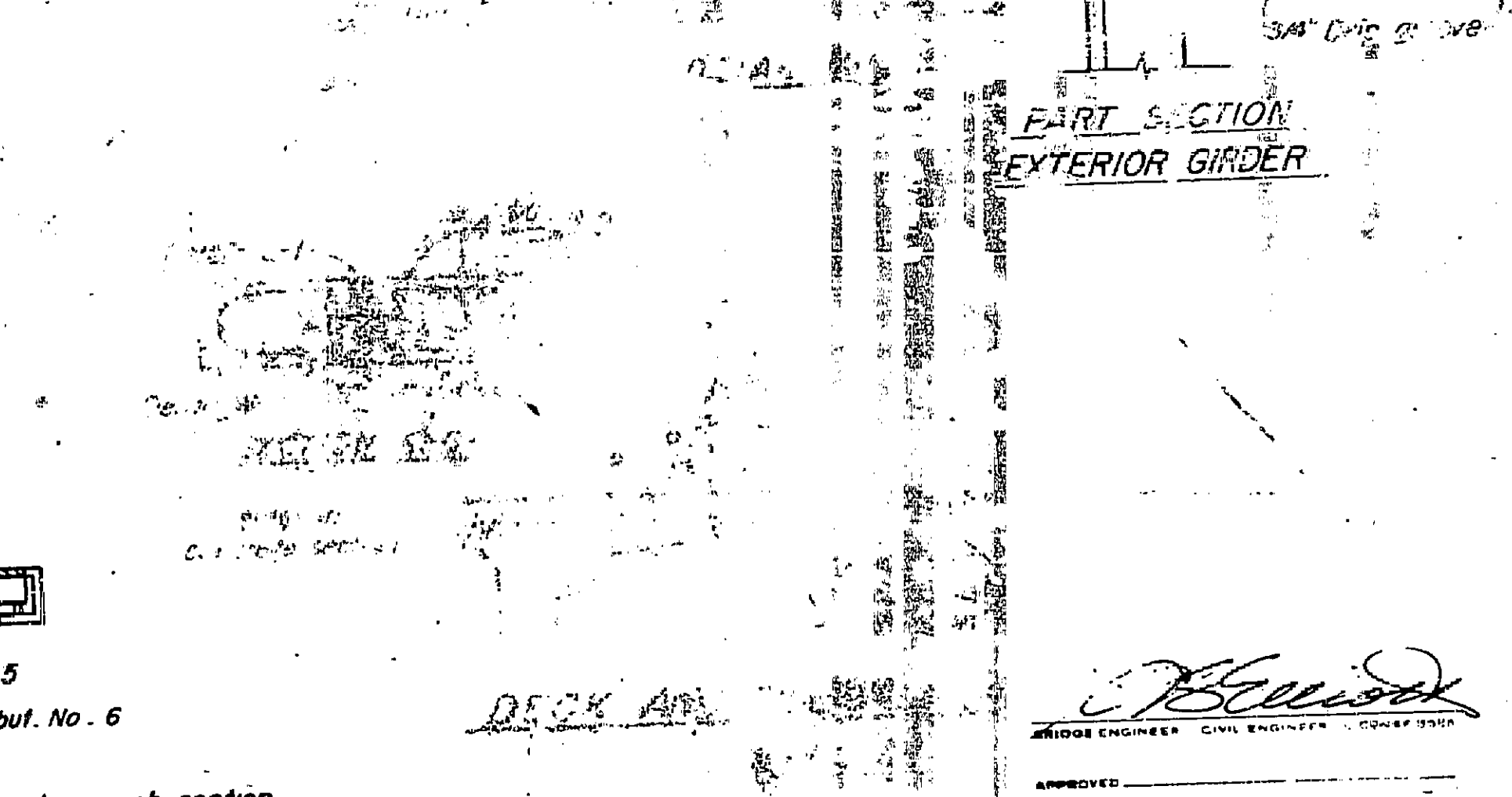
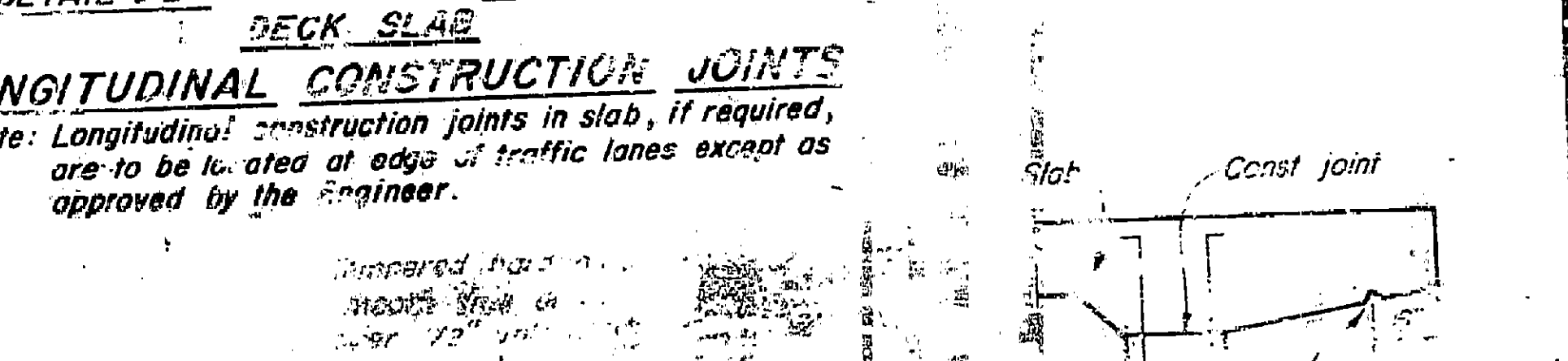
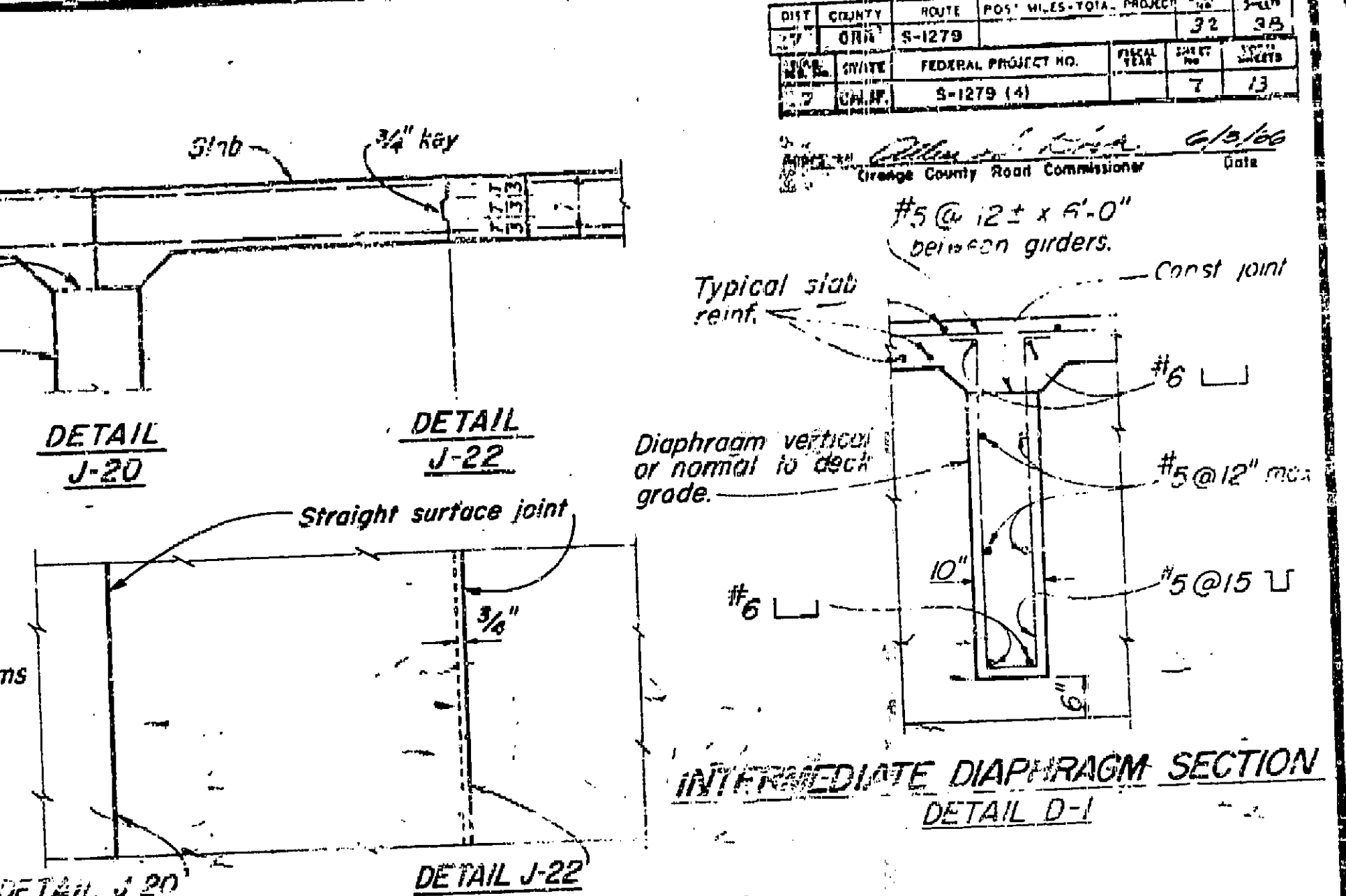
1. Deleted 11-10-60
 2. Deleted 11-10-60
 3. Deleted 11-10-60
 4. Deleted 11-10-60
 5. Deleted 11-10-60
 6. Deleted 11-10-60
 7. Deleted 11-10-60
 8. Deleted 11-10-60
 9. Deleted 11-10-60
 10. Deleted 11-10-60
 11. Deleted 11-10-60
 12. Deleted 11-10-60
 13. Deleted 11-10-60
 14. Deleted 11-10-60
 15. Deleted 11-10-60
 16. Deleted 11-10-60
 17. Deleted 11-10-60
 18. Deleted 11-10-60
 19. Deleted 11-10-60
 20. Deleted 11-10-60
 21. Deleted 11-10-60
 22. Deleted 11-10-60
 23. Deleted 11-10-60
 24. Deleted 11-10-60
 25. Deleted 11-10-60
 26. Deleted 11-10-60
 27. Deleted 11-10-60
 28. Deleted 11-10-60
 29. Deleted 11-10-60
 30. Deleted 11-10-60
 31. Deleted 11-10-60
 32. Deleted 11-10-60
 33. Deleted 11-10-60
 34. Deleted 11-10-60
 35. Deleted 11-10-60
 36. Deleted 11-10-60
 37. Deleted 11-10-60
 38. Deleted 11-10-60
 39. Deleted 11-10-60
 40. Deleted 11-10-60
 41. Deleted 11-10-60
 42. Deleted 11-10-60
 43. Deleted 11-10-60
 44. Deleted 11-10-60
 45. Deleted 11-10-60
 46. Deleted 11-10-60
 47. Deleted 11-10-60
 48. Deleted 11-10-60
 49. Deleted 11-10-60
 50. Deleted 11-10-60
 51. Deleted 11-10-60
 52. Deleted 11-10-60
 53. Deleted 11-10-60
 54. Deleted 11-10-60
 55. Deleted 11-10-60
 56. Deleted 11-10-60
 57. Deleted 11-10-60
 58. Deleted 11-10-60
 59. Deleted 11-10-60
 60. Deleted 11-10-60
 61. Deleted 11-10-60
 62. Deleted 11-10-60
 63. Deleted 11-10-60
 64. Deleted 11-10-60
 65. Deleted 11-10-60
 66. Deleted 11-10-60
 67. Deleted 11-10-60
 68. Deleted 11-10-60
 69. Deleted 11-10-60
 70. Deleted 11-10-60
 71. Deleted 11-10-60
 72. Deleted 11-10-60
 73. Deleted 11-10-60
 74. Deleted 11-10-60
 75. Deleted 11-10-60
 76. Deleted 11-10-60
 77. Deleted 11-10-60
 78. Deleted 11-10-60
 79. Deleted 11-10-60
 80. Deleted 11-10-60
 81. Deleted 11-10-60
 82. Deleted 11-10-60
 83. Deleted 11-10-60
 84. Deleted 11-10-60
 85. Deleted 11-10-60
 86. Deleted 11-10-60
 87. Deleted 11-10-60
 88. Deleted 11-10-60
 89. Deleted 11-10-60
 90. Deleted 11-10-60
 91. Deleted 11-10-60
 92. Deleted 11-10-60
 93. Deleted 11-10-60
 94. Deleted 11-10-60
 95. Deleted 11-10-60
 96. Deleted 11-10-60
 97. Deleted 11-10-60
 98. Deleted 11-10-60
 99. Deleted 11-10-60
 100. Deleted 11-10-60



NOTES
 1. The exact location and direction of openings see other sheets.
 2. Location and size of utility openings may be modified as directed by the Engineer, provided minimum dimensions are maintained.
 3. Seal around utilities at abutments to be of sufficient strength to withstand earth pressure.
 4. Reinforcement detailed to be placed in addition to reinforcement shown on other sheets.
 5. Stirrups are same size as adjacent stirrups shown on other sheets.
 6. Main reinforcement to clear openings as detailed on other sheets.



TEE BEAM SUPERSTRUCTURE PLACING DIAGRAM
 Numbers ① and ② indicate sequence of placing girder stem concrete when each section constitutes a separate pour. ① and ② sections may be placed in one continuous pour, progressing from one end, providing ① sections are placed on either side of the ② sections which are placed during this pour.
 Top slab concrete ③ may be placed separately from ① and ②. ③ may be placed continuously or in parts as approved by the Engineer, providing no transverse construction joints fall within the ② areas.
 $T = \frac{1}{5}$ span length
 $U = \frac{1}{4}$ span length
 No deviations from the above may be made unless approved by the Engineer.



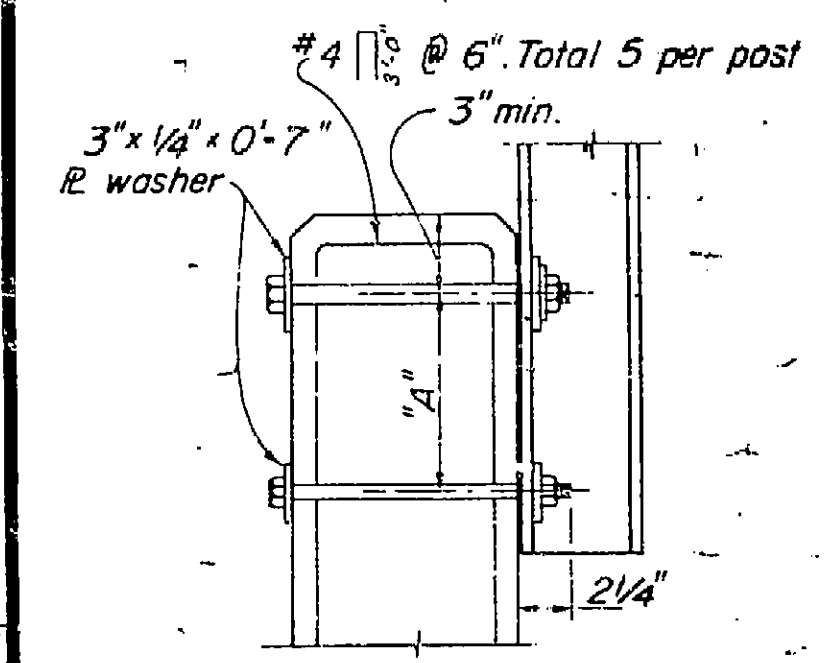
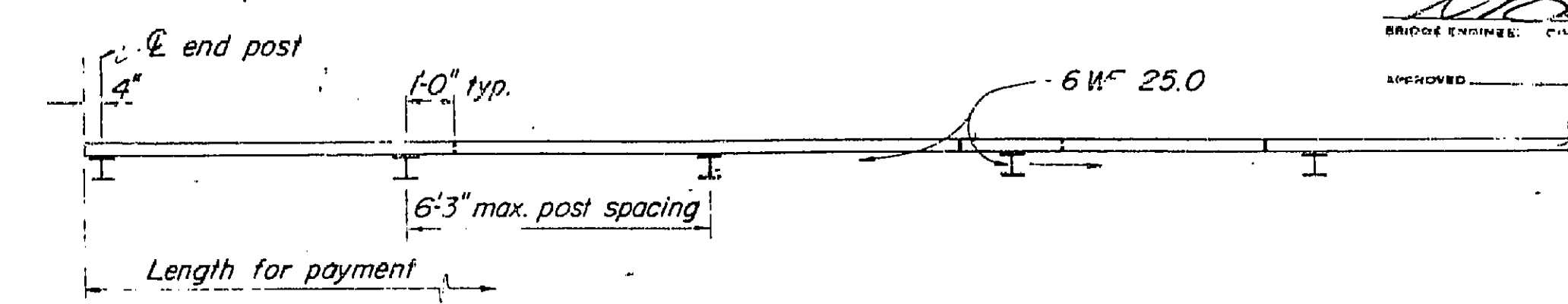
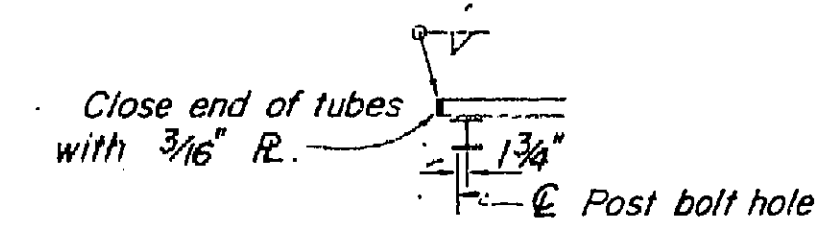
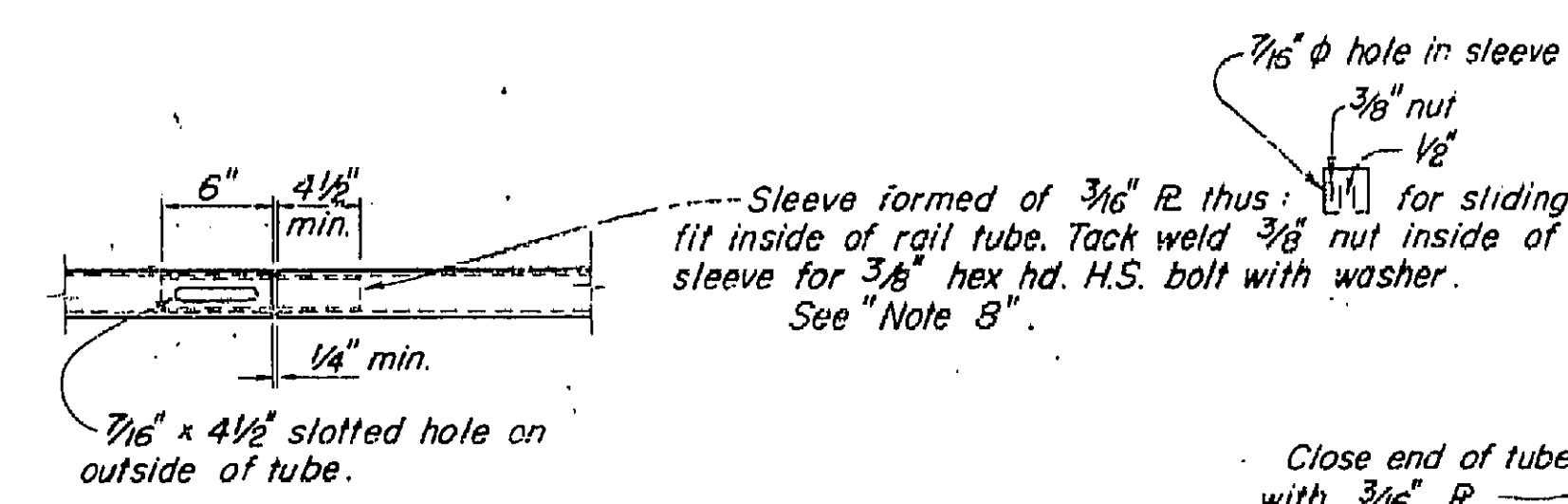
DIST.	COUNTY	ROUTE	POST MILES TOTAL	PROJECT NO.	SHEET NO.
17	ORANGE	5-1279		32	95
FED. PROJECT NO.	STATE	FED. PROJECT NO.	STATE	FED. PROJECT NO.	STATE
5-1279 (4)	CA	5-1279 (4)	CA	5-1279 (4)	CA

Orange County Road Commission
 Date: 6/2/66

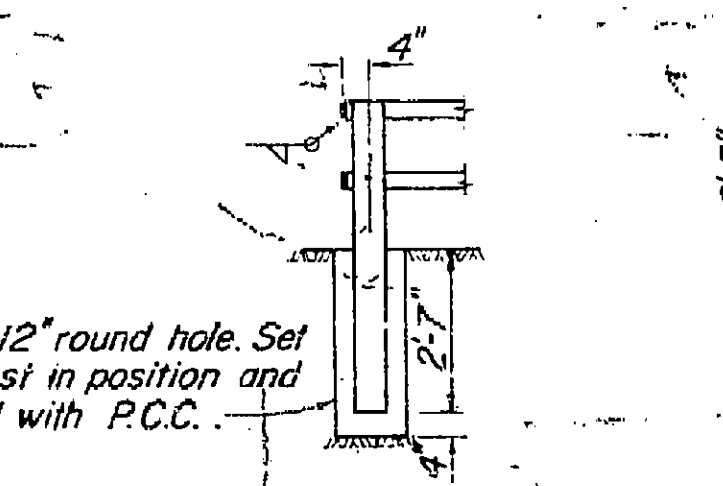
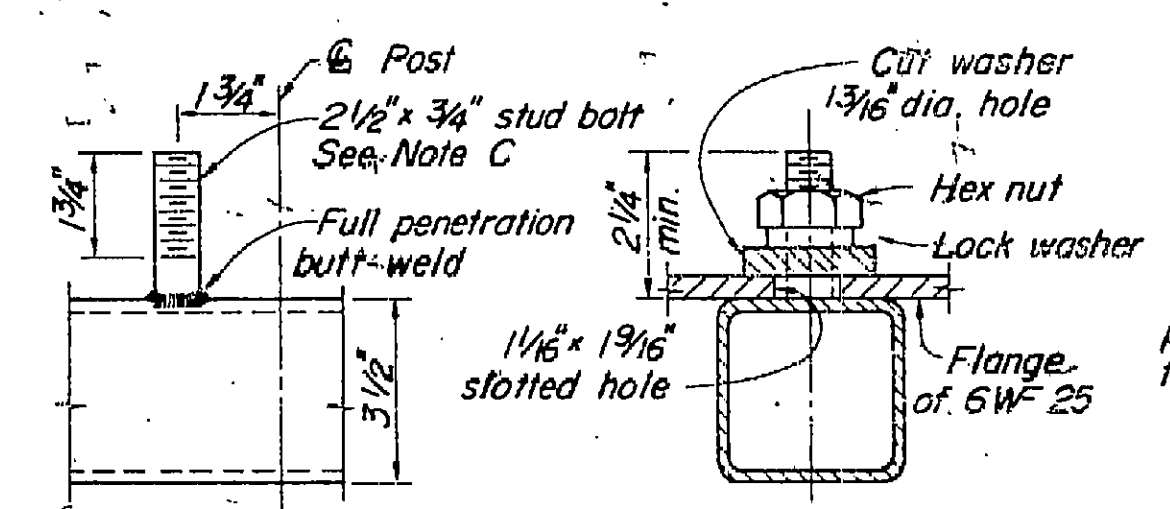
ORANGE COUNTY ROAD DEPARTMENT
 SANTIAGO CYN. RD
 BRIDGE SC-8
 ACROSS SANTIAGO CREEK
 MISCELLANEOUS DETAILS
 SHEET 7 OF 13

STATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
CALIF.	9-1279 (4)	33	38
COUNTY	PROJECT	DATE	DATE
ORA	5-12-79	B	12

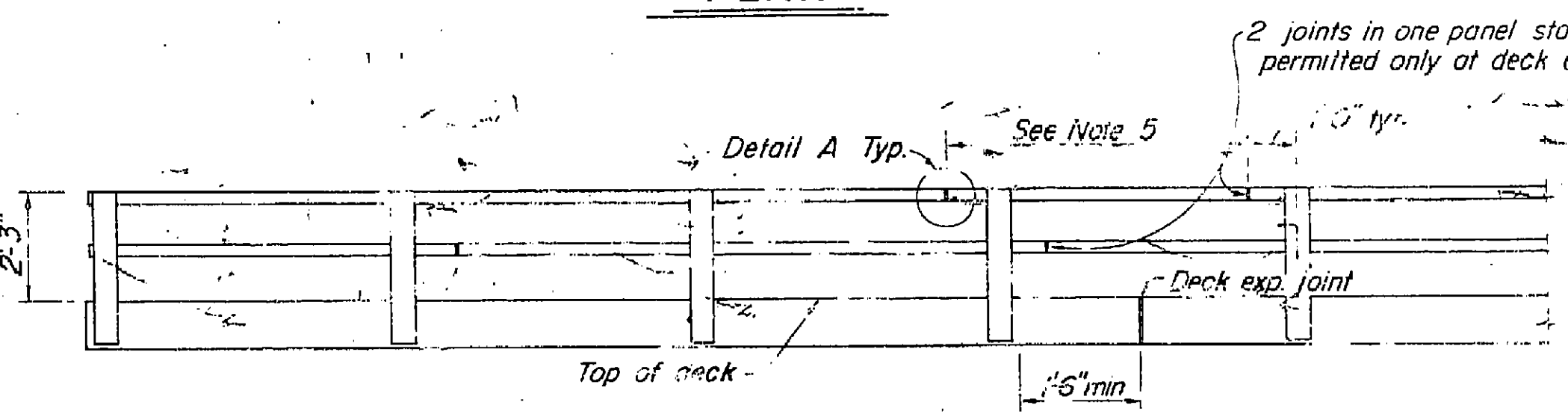
Approved: *[Signature]*
 Orange County Road Commissioner
 Date: *[Signature]*
 BRIDGE ENGINEER: CIVIL ENGINEER LICENSE 5555



RAIL POST ON WALL

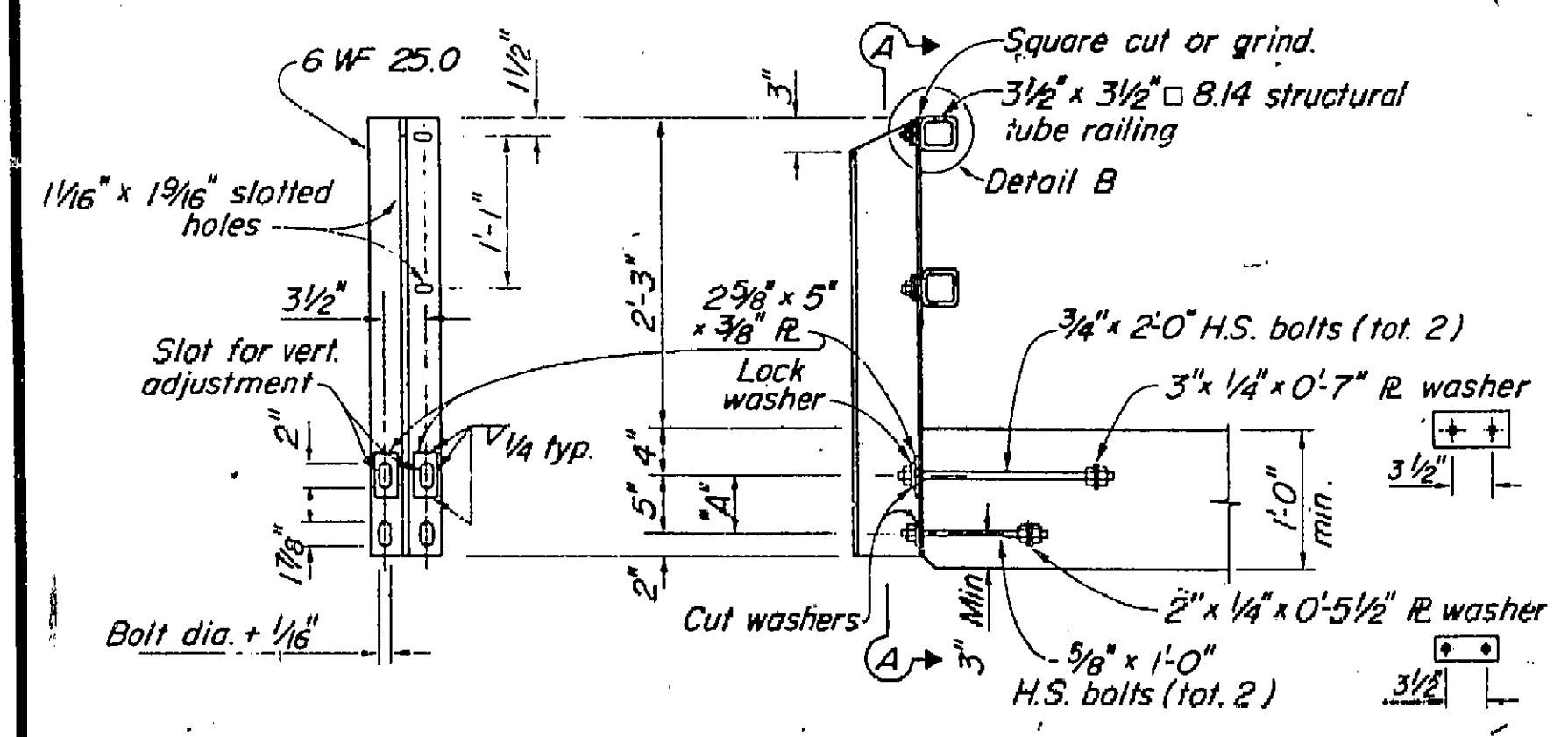


POST ON SHOULDER

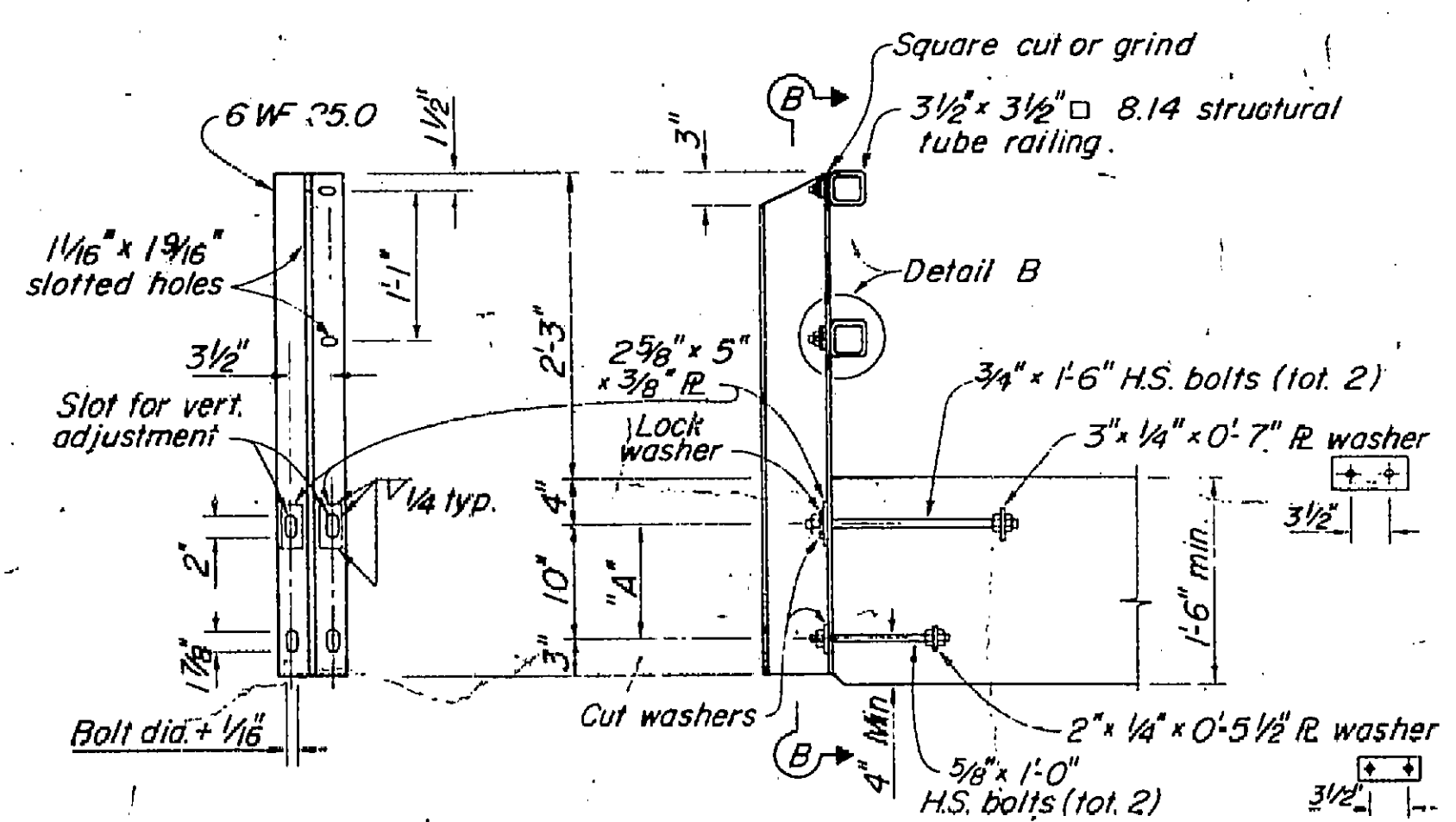


NOTES

- Materials:
- Steel tubing and structural steel shall conform to ASTM Designation A-36.
 - Anchor bolts shall be high strength conforming to ASTM Designation A 325 (Galv.)
 - ASTM A108 stud bolts with H.S. hex nuts. Torque in 175 ft. lbs.
- Fabrication:
- Posts shall be vertical.
 - Tubing shall be bent to fit horizontal curve when curve radius is less than 500'.
 - Tubing shall be parallel to vertical alignment.
 - Contractor to provide metal shims to align posts.
 - Tubing shall be continuous over not less than 2 intermediate posts, with a minimum length of 2 panels except as noted.
 - Galvanize rail assembly after fabrication.
 - Space posts to provide 1-6 inch min. clear between expansion joints and end of post.
 - Rail joints in top and bottom tubes at deck expansion joints shall provide allowance for movement equal to width of deck joint with corresponding increase in length of sleeve and slotted hole in tube.
 - Railing on bridge wingwalls to be placed after walls are backfilled.
 - All high strength bolts to have hex nuts.
 - Anchor bolt nuts shall be wrench tight.
 - Use 1-2 inch long anchor bolts in 1-2 inch wide curbs.



RAIL POST DETAILS - THIN SLAB



RAIL POST DETAILS - THICK SLAB

STANDARD DRAWING

Checked By: *[Signature]*
 Reviewed: *[Signature]*
 Approval Recommended: *[Signature]*

ORANGE COUNTY ROAD DEPARTMENT

SANTIAGO CYN. RD.
 BRIDGE SC-4
 ACROSS
 ANTIAC CREEK

GUARD RAIL DETAILS

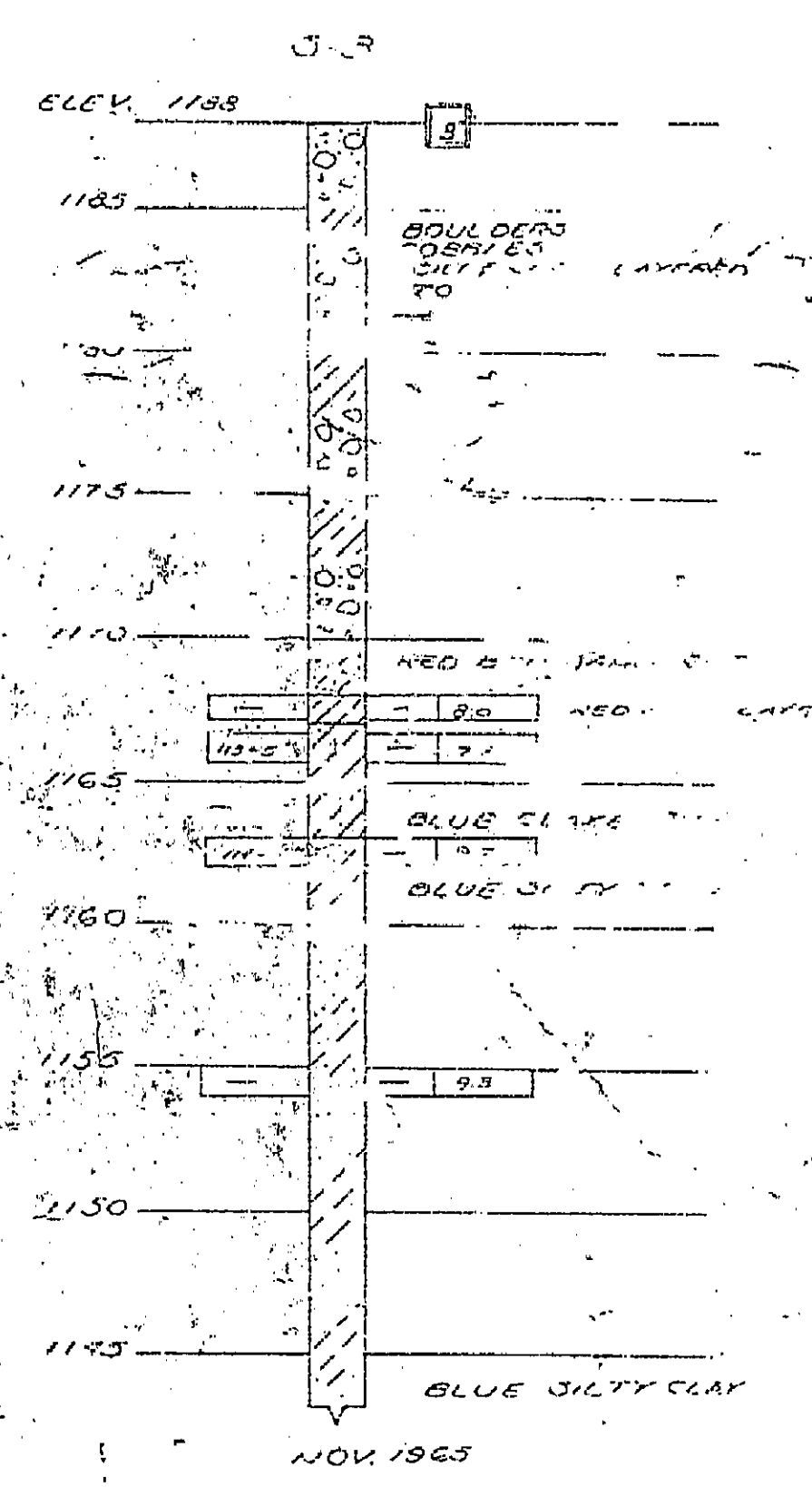
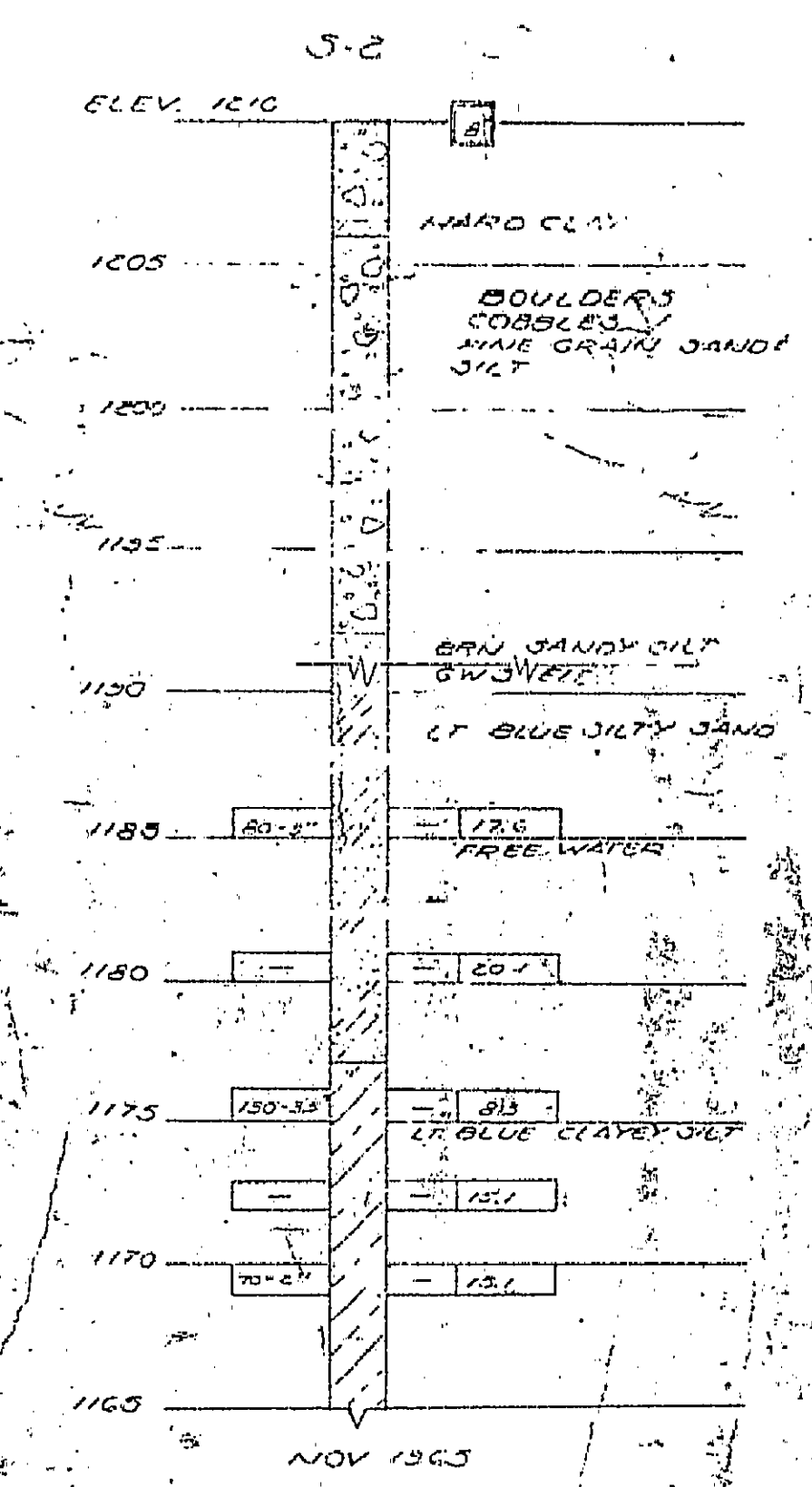
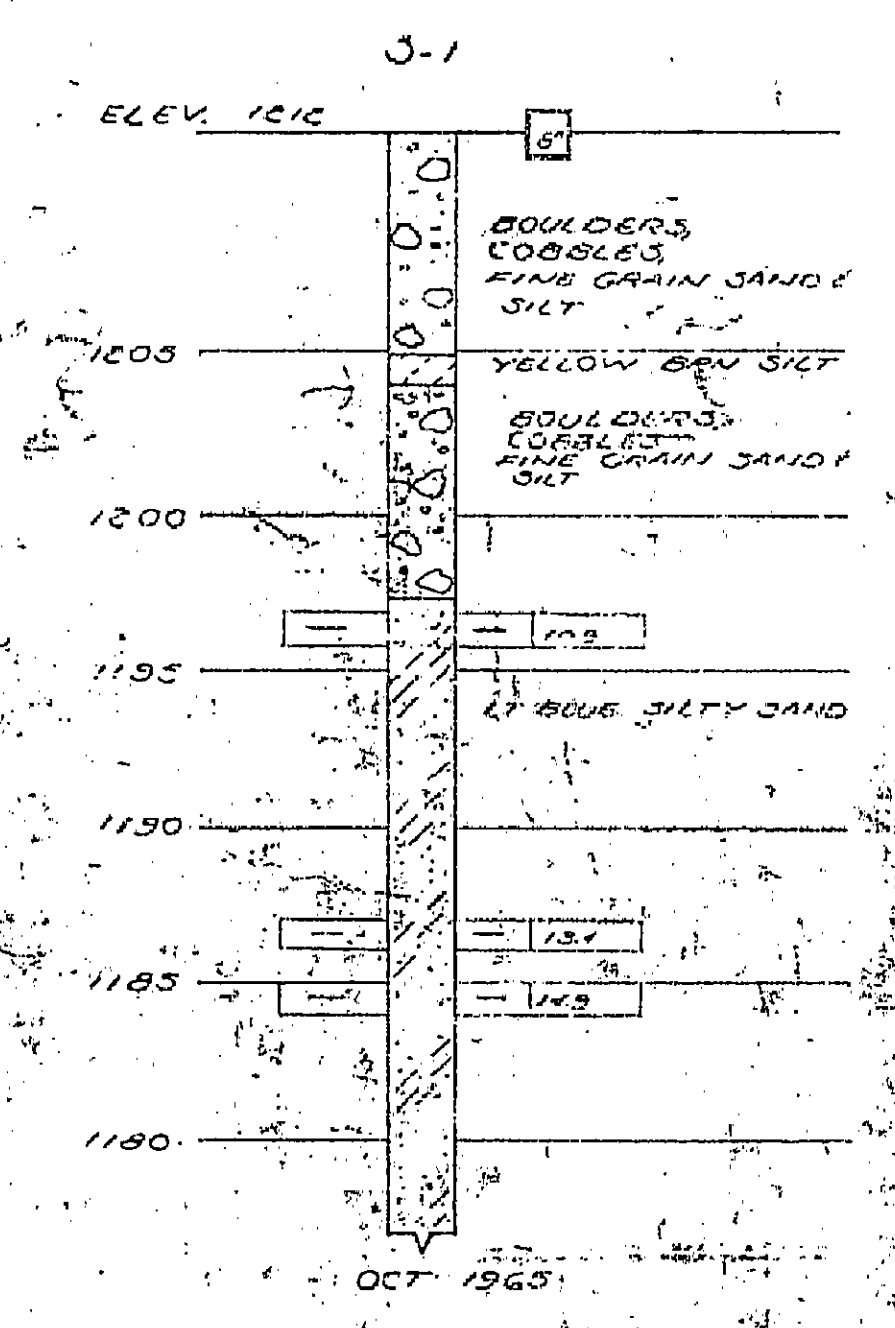
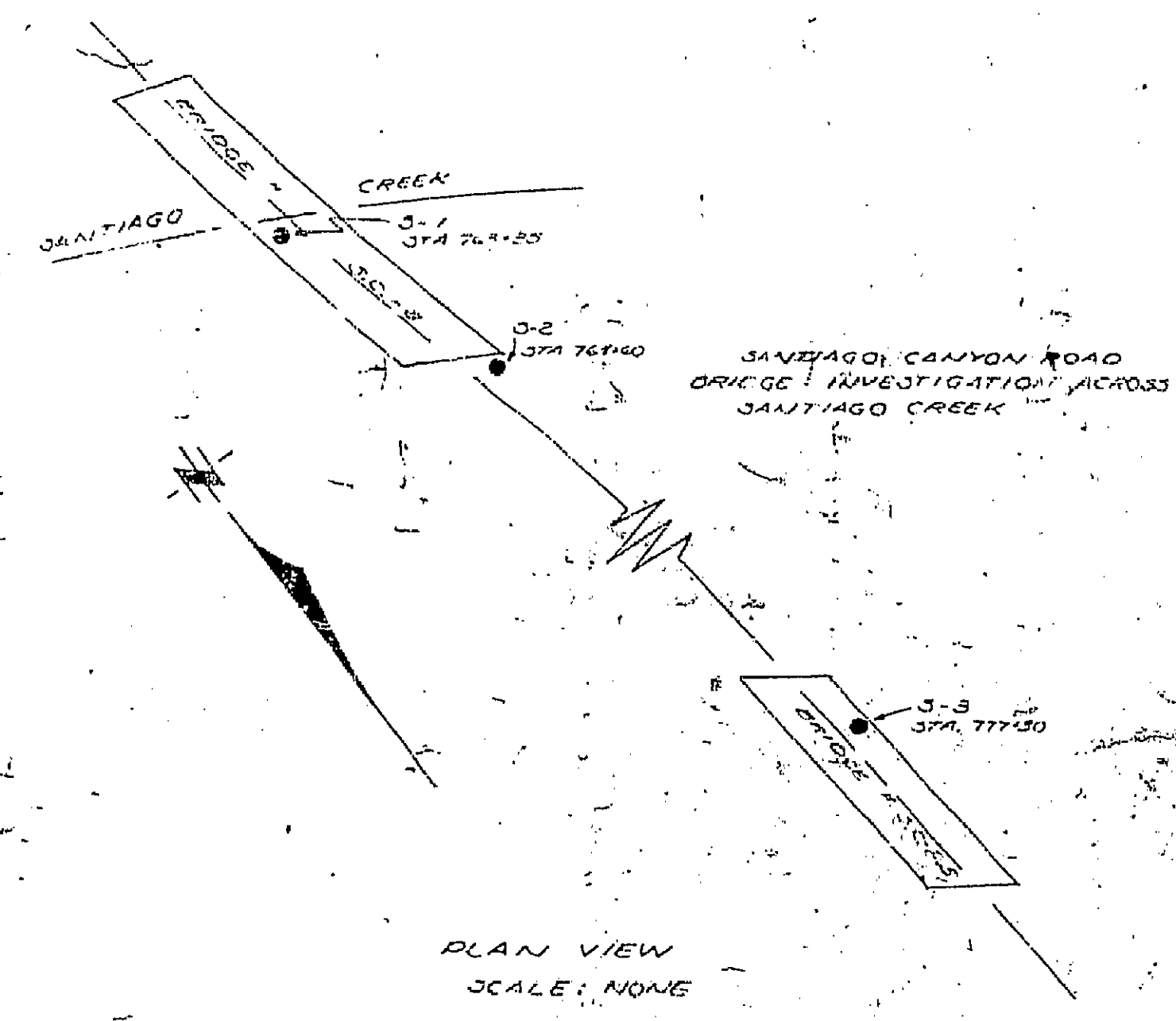
DATE: 5-12-79
 SHEET 8 OF 13

FD-3, 12-7-64

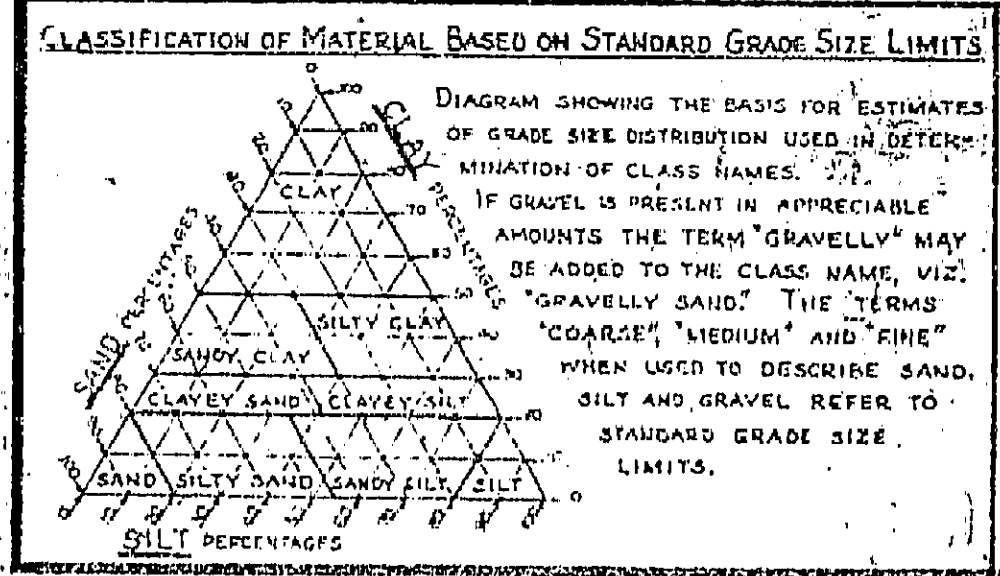
STATE	FEDERAL PROJECT NO.	SHEET	NO.
CALIF.	5-1275 (4)	34	36

DATE	PROJECT	POST MILE - EST. PROJECT	DATE
2-1-65	SC-879	2	13

APPROVED: *[Signature]* 6/5/65
BRIDGE ENGINEER - CIVIL ENGINEER - LICENSE NO. 2584



Structural Details
Checked By: J. LEAHY 7/66
Reviewed: APR 7/66
Approval Recommended: *[Signature]*



LEGEND OF EARTH MATERIALS

GRAVEL	SILTY CLAY OR CLAYEY SILT
SAND	PEAT AND/OR ORGANIC MATTER
SILT	FILL MATERIAL
CLAY	IGNEOUS ROCK
SANDY CLAY OR CLAYEY SAND	SEDIMENTARY ROCK
SANDY SILT OR SILTY SAND	METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

PLAN OF BORING	ROTARY BORING (DRY)
PENETROMETER	ROTARY BORING (WET)
24 CONE PENETROMETER	AUGER BORING (DRY)
SAMPLER BORING (DRY)	JET BORING
ROTARY BORING (WET)	CORE BORING
AUGER BORING (DRY)	TEST PIT

NOTES

The contractor's attention is directed to the fact that the classification of soil material as shown on this sheet is based upon a visual inspection and is not to be construed to imply mechanical analysis.

ORANGE COUNTY ROAD DEPARTMENT

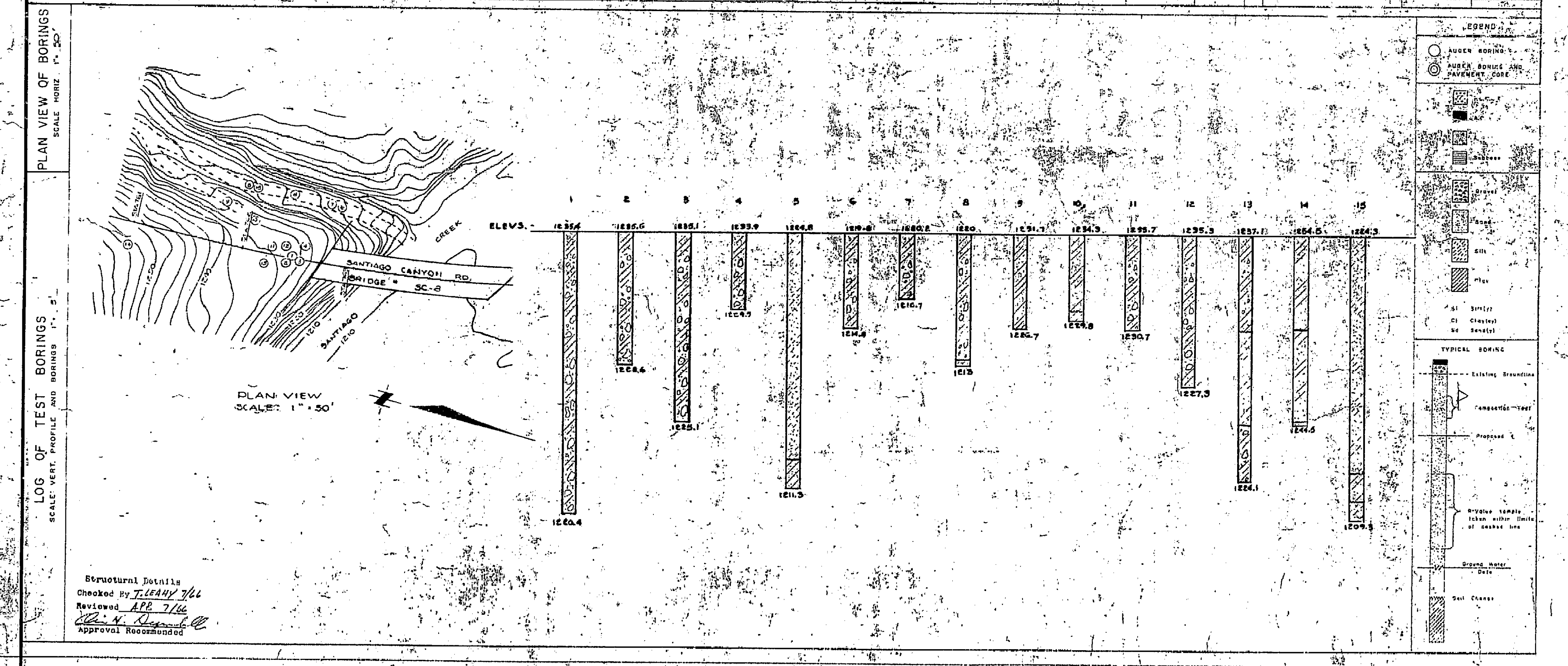
PROPOSED SANTIAGO CANYON ROAD (Hwy 67)
SC-8 & SC-8.5
ACROSS SANTIAGO CREEK
IN THE COUNTY OF ORANGE

LOG OF TEST BORINGS

SCALE 1" = 10'

BRIDGE 9 of 13

ORANGE COUNTY HIGHWAY DEPARTMENT										STANDARD SOIL SURVEY SHEET										SANTIAGO CANYON RD. BRIDGE SC-8										COUNTY OF ORANGE									
PROJECT NUMBER: 66-001										PARTY CHIEF: K. J. J. J.										MATERIALS LABORATORY										DATE: 7-1-66									
BORING NO. SAMPLE NO.										1										2										3									
LAB. NUMBER										66-0006										66-0007										66-0008									
DATE SAMPLED										7-1-66										7-1-66										7-1-66									
STATION										10+00										10+25										10+50									
DISTANCE FROM (1) (1) (1)										466.00										466.00										466.00									
TYPE OF MATERIAL										CLAYEY SAND										CLAYEY SAND										CLAYEY SAND									
WATER CONTENT (%)										23.0										23.0										23.0									
FLUIDITY										100										100										100									
UNIFORMITY										100										100										100									
MAX. SIZE										.075										.075										.075									
NO. 20										20										20										20									
NO. 40										40										40										40									
NO. 60										60										60										60									
NO. 100										100										100										100									
NO. 200										200										200										200									
SAND (PERCENT)										77										77										77									
SILT (PERCENT)										23										23										23									
CLAY (PERCENT)										0										0										0									
MAX. DENSITY (G/CC)										2.65										2.65										2.65									
RELATIVE COMPACTION (%)										100										100										100									
SPECIMEN IDENTIFICATION										A B C										A B C										A B C									
COMPACTION METHOD										A B C										A B C										A B C									
TEST										A B C										A B C										A B C									
STANDARD TEST										A B C										A B C										A B C									



Structural Details
Checked by J. L. J. J.
Reviewed APR 7/66
Approval Recommended

ORANGE COUNTY ROAD DEPARTMENT
SANTIAGO CYN. RD.
BRIDGE SC-8
ACROSS
SANTAGO CREEK
LOG OF TEST BORINGS
SHEET 1 OF 13

9-24-58
d Note

Location
9-30-58

Section Ref.
10-21-58

Use Reinforcement for H = 16' 18' 20'

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

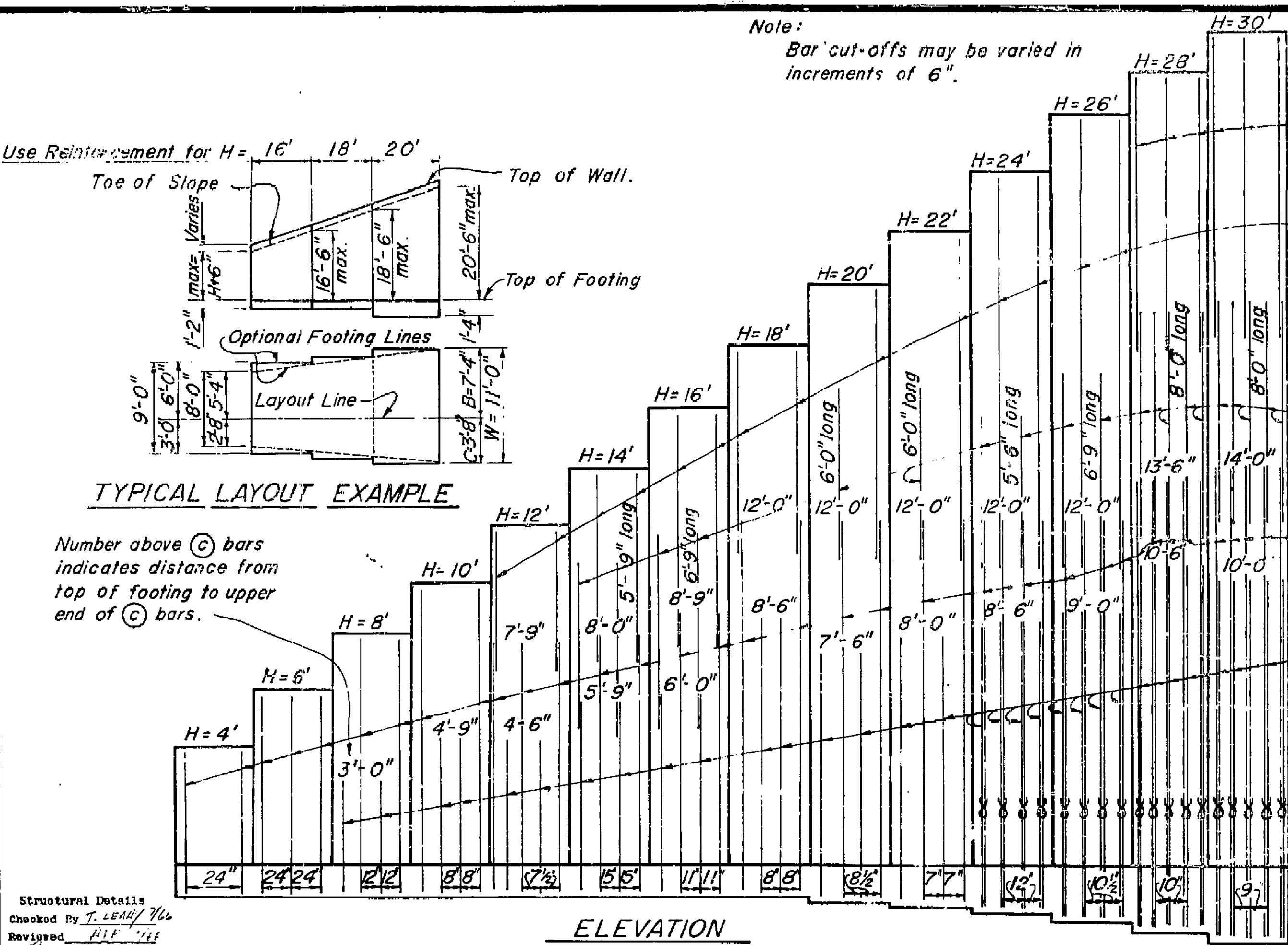
Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile

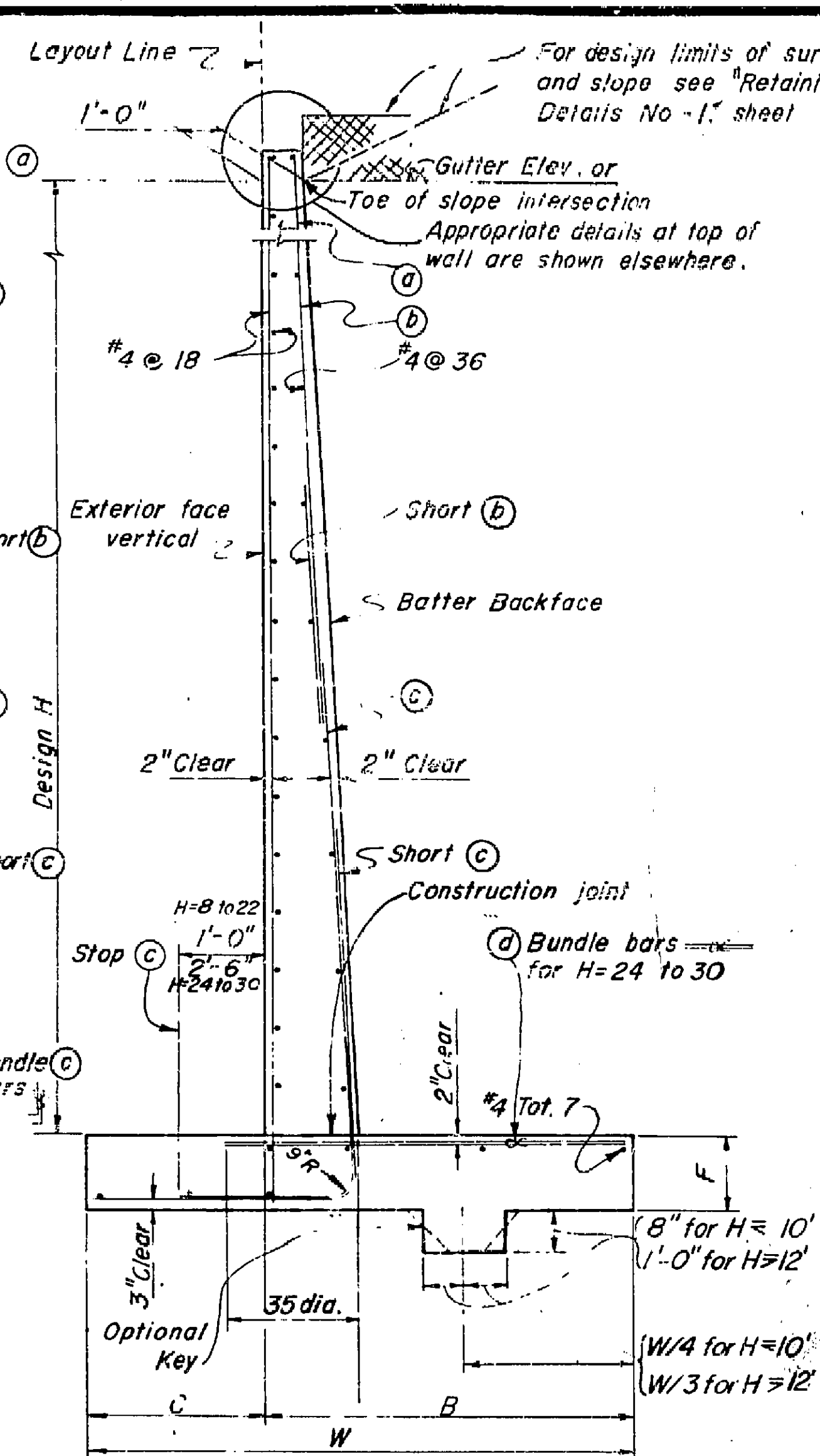
Use note of top
and top of wall
and top of footing
and top of pile

Use note of top
and top of wall
and top of footing
and top of pile



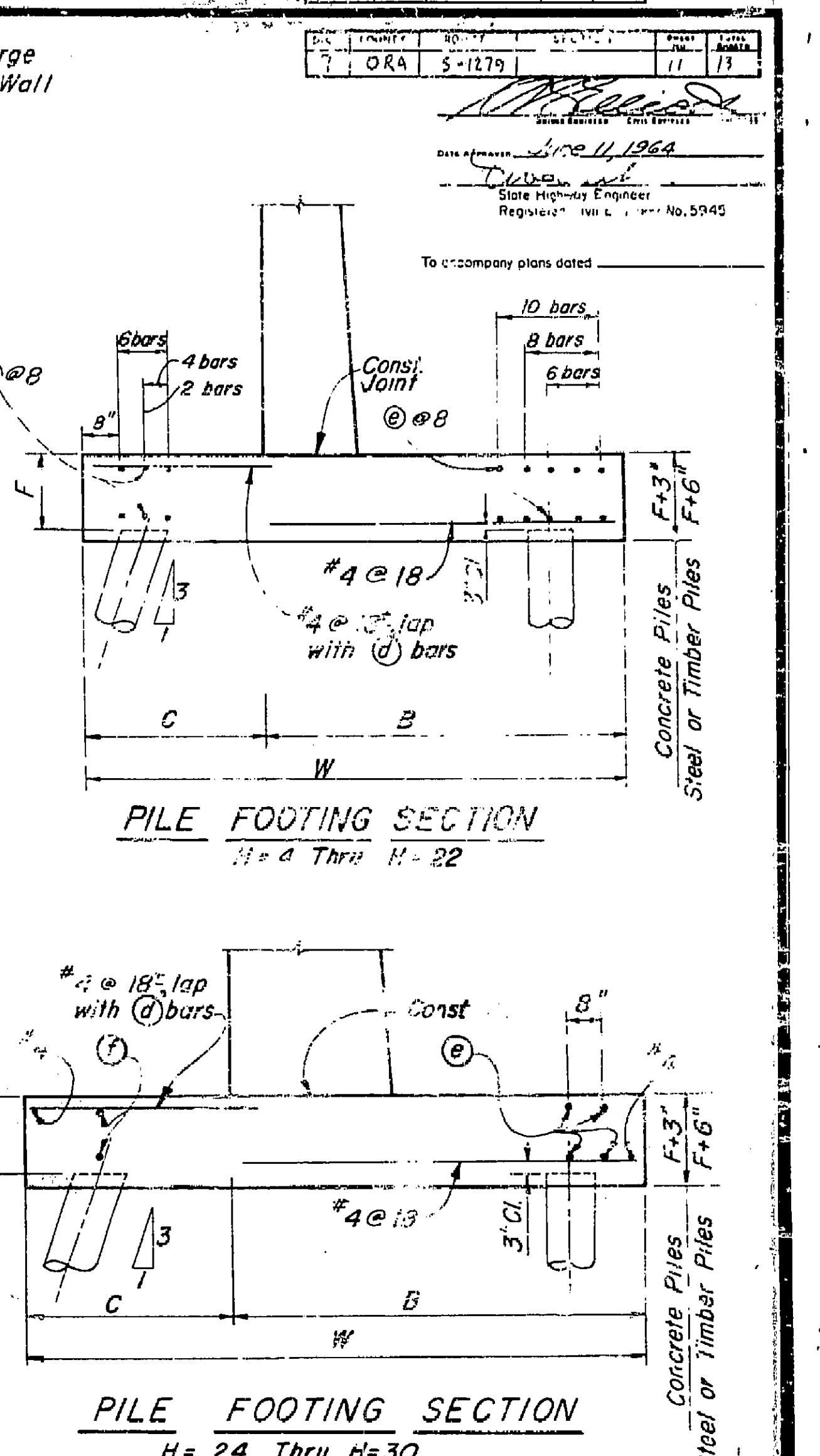
Design H	4'	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'
W	3'-2"	4'-2"	5'-2"	6'-2"	7'-2"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-3"	14'-3"	15'-3"	16'-3"
C	1'-0"	1'-4"	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-5"	4'-9"	5'-1"	5'-5"
B	2'-2"	2'-10"	3'-6"	4'-2"	4'-10"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"	8'-10"	9'-6"	10'-2"	10'-10"
F Spread Ftg.	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-8"	1'-11"	2'-2"	2'-4"
Batter	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	5/8:12	5/8:12	3/4:12	1/2:12
a bars														
b bars														
c bars														
d bars														
total a bars	6-#6	6-#6	6-#6	10-#7	10-#7	10-#7	10-#7	8-#7	8-#7	8-#7	4-#7	4-#7	4-#7	4-#7
total b bars														
total c bars														
total d bars														
H Comp k	0.85	1.4	2.2	3.1	4.1	5.2	6.5	8.0	9.7	11.6	13.7	16.0	18.6	21.1
V Comp k	2.3	3.8	5.6	7.7	10.2	12.6	15.6	19.0	24.9	27.3	32.8	38.1	43.9	50.0
Toe Pr ksf	1.4	1.8	2.2	2.5	2.8	3.1	3.5	3.8	4.1	4.6	4.7	5.3	5.7	6.2
2:1 H Comp k	0.7	1.4	2.3	3.4	4.8	6.3	8.1	10.2	12.6	15.3	18.4	21.7	25.4	29.1
unlimited slope	2.3	3.9	5.8	8.2	11.0	13.9	17.5	21.5	26.3	31.5	38.0	44.4	51.5	59.9
Toe Pr ksf	1.1	1.5	2.0	2.5	2.9	3.4	3.8	4.3	4.8	5.5	5.9	6.5	7.1	7.8
1 1/2:1 H Comp k	1.1	2.0	3.1	4.1	5.4	6.9	8.4	10.0	11.8	13.9	16.2	18.6	21.1	23.4
limited slope	2.7	4.5	6.5	8.9	11.7	14.2	17.5	21.0	27.1	29.6	35.2	40.7	46.3	52.3
Toe Pr ksf	1.3	1.9	2.4	2.8	3.5	3.8	4.2	4.6	4.9	5.5	5.8	6.4	6.9	7.5
Spread Steel lbs/ft	14	20	28	39	56	84	108	169	206	259	328	393	429	484
Footings Conc c/ft	8.9	12.6	16.3	20.2	24.3	29.5	33.8	38.5	45.0	52.1	63.1	73.0	87.6	102.7
Concrete Steel lbs/ft	24	31	39	74	92	120	144	198	236	289	348	413	449	504
pile ftg. Conc c/ft	3.8	12.8	16.7	20.3	25.2	29.5	34.1	39.0	45.8	53.1	64.4	74.6	89.4	104.8

8 Bars = a bundle of 2 bars



SPREAD FOOTING SECTION

Note:
For details not shown and drainage notes see "Retaining Wall Details No. 1".
Quantities apply to Design H portion and exclude the added portion above "Gutter Elevation."



PILE FOOTING SECTION

Note:
Reinforcement detailed is to be placed in addition to that shown for spread footing. All piles not shown, see Pile Layout on other sheets.
For pile footing Design H = 4' use same footing dimensions as Design H = 6'

1/64	XS-3-46
SANTIAGO CYN. RD BRIDGE SC-8	
SANTIAGO CREEK	
TYPE I. RETAINING WALL (H = 4' - 30')	
550-49	550-49
11	13

