
Bridge Inspection Records Information System

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State of California
Department of Transportation

**Division of Maintenance
Structures Maintenance & Investigations**



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0631
Facility Carried: HARBOR BLVD
Location : 0.2 MI N/O WARNER AVENUE
City :
Inspection Date : 24-JUL-01
Inspection Type
Routine Group A Underwater Special Other
: X

Bridge Inspection Report

Name : SANTA ANA RIVER CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1994
Year Widened : N/A
Length (m) : 120.1

Skew (degrees): 45
No. of Joints : 0
No. of Hinges : 0

Description of Structure : Continuous 5-span PC/PS I-girder (14 each) with RC pier walls and RC open end seat abutments, all supported upon driven Class 70 and Class 100 PS concrete piles.

Span Configuration : (S) 20.7 m, 3 @ 25.9 m, 20.7 m (N) c/c

LOAD CAPACITY AND RATINGS

Design Live Load : MS - 18 + MOD OR HS - 20 + MOD
Inventory Rating : 32.4 metric tons
Operating Rating : 53.1 metric tons
Permit Rating : PPPPP
Posting Load : Type 3 N/A english tons Type 3S2 N/A english tons Type 3-3 N/A english tons
Calculation Method : LOAD FACTOR
Calculation Method : LOAD FACTOR

DESCRIPTION ON STRUCTURE

Bridge width : (W) 0.3 m br, 1.5 m sw, 13.4 m, 1.4 m cu med, 13.4 m, 1.5 m sw, 0.3 m br (E)
Total Width : 30.5 m
Net Width : 13.40 m
Rail Description : Type 26 Concrete
Min. Vertical Clearance : Unimpaired
No. of Lanes : 6
Rail Code : 1000

DESCRIPTION UNDER STRUCTURE

Channel Description : RC trapezoidal

CONDITION OF STRUCTURE

The concrete has spalled (0.5 m W x 1.0 m H x 0.05 m D) at the southeast corner of the south abutment. (O)

Transients are residing beneath the structure at both abutments.

Otherwise, the structure is in excellent condition.

MISCELLANEOUS

Vehicular access into the channel is from the southwest quadrant of Warner Avenue.

This bridge replaces Br. No. 55C0001R/L, which have been removed.

ELEMENT LEVEL INSPECTION RATINGS

F#	Elem No.	Element Description	Env	Total Units Quantity	Qty in each Condition State				
					St. 1	St. 2	St. 3	St. 4	St. 5
01 12		Concrete Deck - Bare	2	3221 sq.m.	3221	0	0	0	0
01 109		P/S Conc Open Girder/Beam	2	1682 m.	1682	0	0	0	0
01 210		Reinforced Conc Pier Wall	2	176 m.	176	0	0	0	0
01 215		Reinforced Conc Abutment	2	90 m.	89	1	0	0	0
01 226		P/S Conc Submerged Pile	2	104 ea.	104	0	0	0	0
01 256		Slope Protection	2	2 ea.	2	0	0	0	0
01 302		Compression Joint Seal	2	84 m.	84	0	0	0	0
01 312		Enclosed/Concealed Bearing	2	2 ea.	2	0	0	0	0
01 321		Reinforced Conc Approach Slab	2	12 ea.	12	0	0	0	0

Bridge No.: 55C0631

Location: 0.2 MI N/O WARNER AVENUE

Inspection Date: 24-JUL-01

F#	Elem No.	Element Description	Env	Total Units Quantity	Qty in each Condition State				
					St. 1	St. 2	St. 3	St. 4	St. 5
		w/ or w/o AC Ovly							
01	331	Reinforced Conc Bridge Railing	2	240m.	240	0	0	0	

WORK RECOMMENDATIONS

Remove the transients and their temporary shelters from beneath the structure at both abutments.

<u>Item#</u>	<u>Rec. Date</u>	<u>Work By</u>	<u>Work Id.</u>	<u>Prog. Method</u>	<u>Cost</u>
1	24-JUL-2001	County Agency	40631X01205X		

Inspected By : M. Ogata

M. Ogata
Registered Civil Engineer



CC : TMRut
County of Orange

Bridge No.: 55C0631

Location: 0.2 MI N/O WARNER AVENUE

Inspection Date: 24-JUL-01

STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME - CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0631
 (5) INVENTORY ROUTE (ON/UNDER) - ON 141 00000N
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 059 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED - SANTA ANA RIVER CHANNEL
 (7) FACILITY CARRIED - HARBOR BLVD
 (9) LOCATION - 0.2 MI N/O WARNER AVENUE
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK - NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 43 MIN 00 SEC
 (17) LONGITUDE 117 DEG 55 MIN 00.06 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN: MATERIAL - PRSTR CONC CONT
 TYPE - OTHER CODE 6 00
 (44) STRUCTURE TYPE APPR: MATERIAL -
 TYPE - CODE
 (45) NUMBER OF SPANS IN MAIN UNIT 5
 (46) NUMBER OF APPROACH SPANS 0
 (107) DECK STRUCTURE TYPE CIP CONCRETE CODE 1
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:
 A) TYPE OF WEARING SURFACE - NONE CODE 0
 B) TYPE OF MEMBRANE - NONE CODE 0
 C) TYPE OF DECK PROTECTION - NONE CODE 0

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

(27) YEAR BUILT 1994
 (106) YEAR RECONSTRUCTED
 (42) TYPE OF SERVICE: ON - HIGHWAY-PEDESTRIAN 5
 UNDER - WATERWAY 5
 (28) LANES: ON STRUCTURE 06 UNDER STRUCTURE
 (29) AVERAGE DAILY TRAFFIC 20000
 (30) YEAR OF ADT 1999 (109) TRUCK ADT 1%
 (19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 25.9 M
 (49) STRUCTURE LENGTH 120.1 M
 (50) CURB OR SIDEWALK: LEFT 1.8 M RIGHT 1.8 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 13.4 M
 (52) DECK WIDTH OUT TO OUT 30.5 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 26.8 M
 (33) BRIDGE MEDIAN - CLOSED (NO BARRIER) 2
 (24) SKEW 45 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 13.4 M
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.93 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
 (115) VERT-LIFT BRIDGE NAV MIN VERT CLEAR 0 M
 (40) NAVIGATION HORIZONTAL CLEARANCE 0

***** SUFFICIENCY RATING = 76.6 *****

STATUS = FUNCTIONALLY OBSOLETE

HEALTH INDEX = 99.98

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

(112) NBIS BRIDGE LENGTH - YES Y
 (104) HIGHWAY SYSTEM - NOT ON NHS 0
 (26) FUNCTIONAL CLASS - MINOR ARTERIAL URBAN 16
 (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 7
 (59) SUPERSTRUCTURE 8
 (60) SUBSTRUCTURE 7
 (61) CHANNEL & CHANNEL PROTECTION 9
 (62) CULVERTS N

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

(31) DESIGN LOAD - MS - 18 + MOD OR HS - 20 + MOD 6
 (63) OPERATING RATING METHOD - LOAD FACTOR 1
 (64) OPERATING RATING - 53.1
 (65) INVENTORY RATING METHOD - LOAD FACTOR 1
 (66) INVENTORY RATING - 32.4
 (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 2
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
 (71) WATER ADEQUACY 9
 (72) APPROACH ROADWAY ALIGNMENT 8
 (36) TRAFFIC SAFETY FEATURES 1000
 (113) SCOUR CRITICAL BRIDGES 8

***** 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 30000
 (115) YEAR OF FUTURE ADT 2019

***** INSPECTIONS *****

(90) INSPECTION DATE 07/01 (91) FREQUENCY 24 MO
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
 A) FRACTURE CRIT DETAIL - 0 MO A)
 B) UNDERWATER INSP - NO 0 MO B)
 C) OTHER SPECIAL INSP - NO 0 MO C)

Bridge No 55C-631

Name SANTA ANA RIVER CHANNEL

Location 0 2 ml N of Warner Av
Dist -Co -Rte -City

SUMMARY OF ENCROACHMENTS

Permit No and Permittee	Date	Description & Location on Bridge
So Cal Gas	10-23-99	0 6+ m diameter steel pipeline at centerline of bridge



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0631
Facility Carried: HARBOR BLVD
Location : 0.2 MI N/O WARNER AVENUE
City :
Inspection Date : 13-OCT-99
Inspection Type :
Routine ☒ Group A ☐ Underwater ☐ Special ☐ Other ☐

Bridge Inspection Report

Name : SANTA ANA RIVER CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1994 Skew (degrees): 45
Year Widened : N/A No. of Joints : 0
Length (m) : 120.1 No. of Hinges : 0

Description of Structure : Continuous 5-span PC/PS I-girder (14 each) with RC pier walls and RC open end seat abutments, all supported upon driven Class 70 and Class 100 PS concrete piles.

Span Configuration : (S) 20.7 m, 3 @ 25.9 m, 20.7 m (N) c/c

LOAD CAPACITY AND RATINGS

Design Live Load : MS - 18 + MOD OR HS - 20 + MOD
Inventory Rating : 32.4 metric tons Calculation Method : LOAD FACTOR
Operating Rating : 53.1 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) 0.3 m br, 1.5 m sw, 13.4 m, 1.4 m cu med, 13.4 m, 1.5 m sw, 0.3 m br (E)
Total Width : 30.5 m Net Width : 13.40 m No. of Lanes : 6
Rail Description : Type 26 Concrete Rail Code : 1000
Min. Vertical Clearance : Unimpaired

DESCRIPTION UNDER STRUCTURE

Channel Description : RC trapezoidal

CONDITION OF STRUCTURE

The concrete has spalled (0.5 m W x 1.0 m H x 0.05 m D) at the southeast corner of the south abutment. (O)

Otherwise, the structure is in excellent condition.

SCOUR

The scour rating of A1 is appropriate.

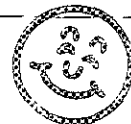
MISCELLANEOUS

Vehicular access into the channel is from the southwest quadrant of Warner Avenue.

This bridge replaces Br. No. 55C0001R/L, which have been removed.

ELEMENT LEVEL INSPECTION RATINGS

F#	Elem No.	Element Description	Env	Total Units Quantity	Qty in each Condition State				
					St. 1	St. 2	St. 3	St. 4	St. 5
01 12		Concrete Deck - Bare	2	3221 sq.m.	3221	0	0	0	0
01 109		P/S Conc Open Girder/Beam	2	1682 m.	1682	0	0	0	
01 210		Reinforced Conc Pier Wall	2	176 m.	176	0	0	0	
01 215		Reinforced Conc Abutment	2	90 m.	89	1	0	0	
01 226		P/S Conc Submerged Pile	2	104 ea.	104	0	0	0	
01 256		Slope Protection	2	2 ea.	2	0	0		
01 302		Compression Joint Seal	2	84 m.	84	0	0		
01 312		Enclosed/Concealed Bearing	2	2 ea.	2	0	0		



Bridge No.: 55C0631 Location: 0.2 MI N/O WARNER AVENUE Inspection Date: 13-OCT-99

F#	Elem No.	Element Description	Env	Total Units Quantity	Qty in each Condition State				
					St. 1	St. 2	St. 3	St. 4	St. 5
01	321	Reinforced Conc Approach Slab w/ or w/o AC Ovly	2	12 ea.	12	0	0	0	
01	331	Reinforced Conc Bridge Railing	2	240 m.	240	0	0	0	

WORK RECOMMENDATIONS

Remove the transients and their temporary shelters from beneath the structure at both abutments.

Item#	Rec. Date	Work By	Work Id.	Prog. Method	Cost
1	24-JUL-2001	County Agency	40631X01205X		

Inspected By : M. Ogata

M. Ogata
 Registered Civil Engineer

CC : TMRut
County of Orange

Bridge No.: 55C0631 Location: 0.2 MI N/O WARNER AVENUE Inspection Date: 13-OCT-99

STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME - CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0631
 (5) INVENTORY ROUTE (ON/UNDER) - ON 1 41 0000N
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 353 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED - SANTA ANA RIVER CHANNEL
 (7) FACILITY CARRIED - HARBOR BLVD
 (9) LOCATION - 0.2 MI N/O WARNER AVENUE
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK - NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 43 MIN 00 SEC
 (17) LONGITUDE 117 DEG 55 MIN 00.06 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN: MATERIAL - PRSTR CONC CONT
 TYPE - OTHER CODE 6 00
 (44) STRUCTURE TYPE APPR: MATERIAL -
 TYPE - CODE
 (45) NUMBER OF SPANS IN MAIN UNIT 5
 (46) NUMBER OF APPROACH SPANS 0
 (107) DECK STRUCTURE TYPE CIP CONCRETE CODE 1
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:
 A) TYPE OF WEARING SURFACE - NONE CODE 0
 B) TYPE OF MEMBRANE - NONE CODE 0
 C) TYPE OF DECK PROTECTION - NONE CODE 0

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

(27) YEAR BUILT 1994
 (106) YEAR RECONSTRUCTED
 (42) TYPE OF SERVICE: ON - HIGHWAY-PEDESTRIAN 5
 UNDER - WATERWAY 5
 (28) LANES: ON STRUCTURE 06 UNDER STRUCTURE
 (29) AVERAGE DAILY TRAFFIC 20000
 (30) YEAR OF ADT 1999 (109) TRUCK ADT 1%
 (19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 25.9 M
 (49) STRUCTURE LENGTH 120.1 M
 (50) CURB OR SIDEWALK: LEFT 1.8 M RIGHT 1.8 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 13.4 M
 (52) DECK WIDTH OUT TO OUT 30.5 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 26.8 M
 (33) BRIDGE MEDIAN - CLOSED (NO BARRIER) 2
 (34) SKEW 45 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 13.4 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 - CODE
 (39) NAVIGATION VERTICAL CLEARANCE 0 M
 (116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M
 (40) NAVIGATION HORIZONTAL CLEARANCE 0

***** SUFFICIENCY RATING = 96.1 *****

STATUS =

HEALTH INDEX = 99.98

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

(112) NBIS BRIDGE LENGTH - YES Y
 (104) HIGHWAY SYSTEM - NOT ON NHS 0
 (26) FUNCTIONAL CLASS - MINOR ARTERIAL URBAN 16
 (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 7
 (59) SUPERSTRUCTURE 8
 (60) SUBSTRUCTURE 7
 (61) CHANNEL & CHANNEL PROTECTION 9
 (62) CULVERTS N

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

(31) DESIGN LOAD - MS - 18 + MOD OR HS - 20 + MOD 6
 (63) OPERATING RATING METHOD - LOAD FACTOR 1
 (64) OPERATING RATING - 53.1
 (65) INVENTORY RATING METHOD - LOAD FACTOR 1
 (66) INVENTORY RATING - 32.4
 (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 7
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
 (71) WATER ADEQUACY 9
 (72) APPROACH ROADWAY ALIGNMENT 8
 (36) TRAFFIC SAFETY FEATURES 1000
 (113) SCOUR CRITICAL BRIDGES 8

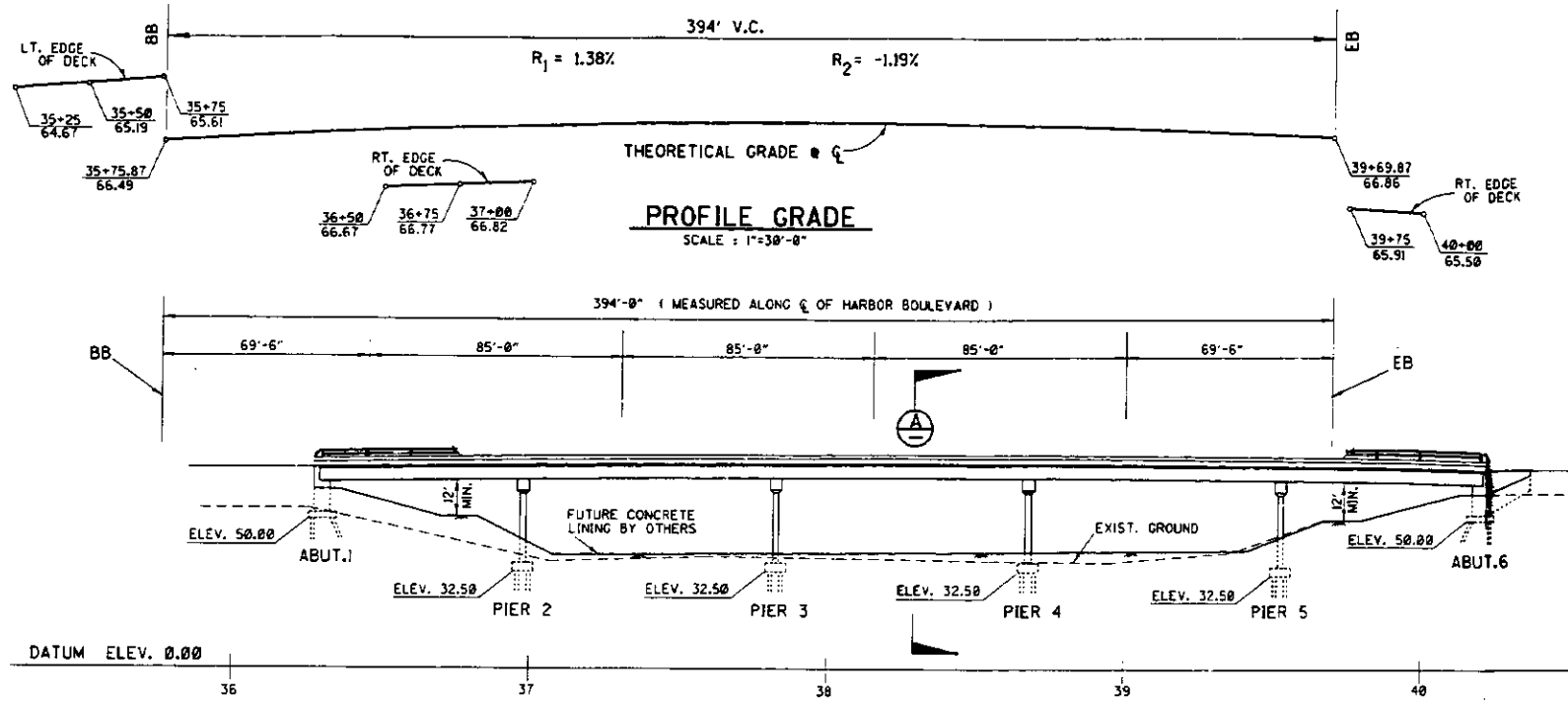
***** PROPOSED IMPROVEMENTS *****

(75) TYPE OF WORK - CODE
 (76) LENGTH OF STRUCTURE IMPROVEMENT M
 (94) BRIDGE IMPROVEMENT COST
 (45) ROADWAY IMPROVEMENT COST
 (96) TOTAL PROJECT COST
 (97) YEAR OF IMPROVEMENT COST ESTIMATE
 (114) FUTURE ADT 30000
 (115) YEAR OF FUTURE ADT 2019

***** INSPECTIONS *****

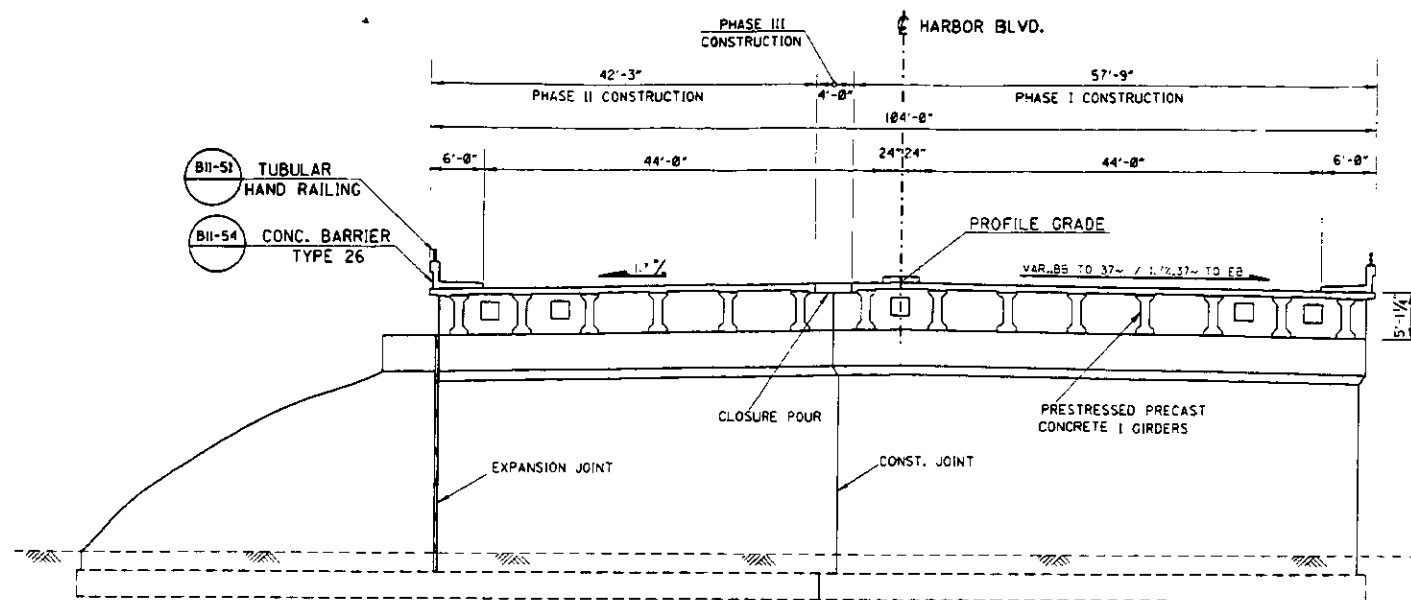
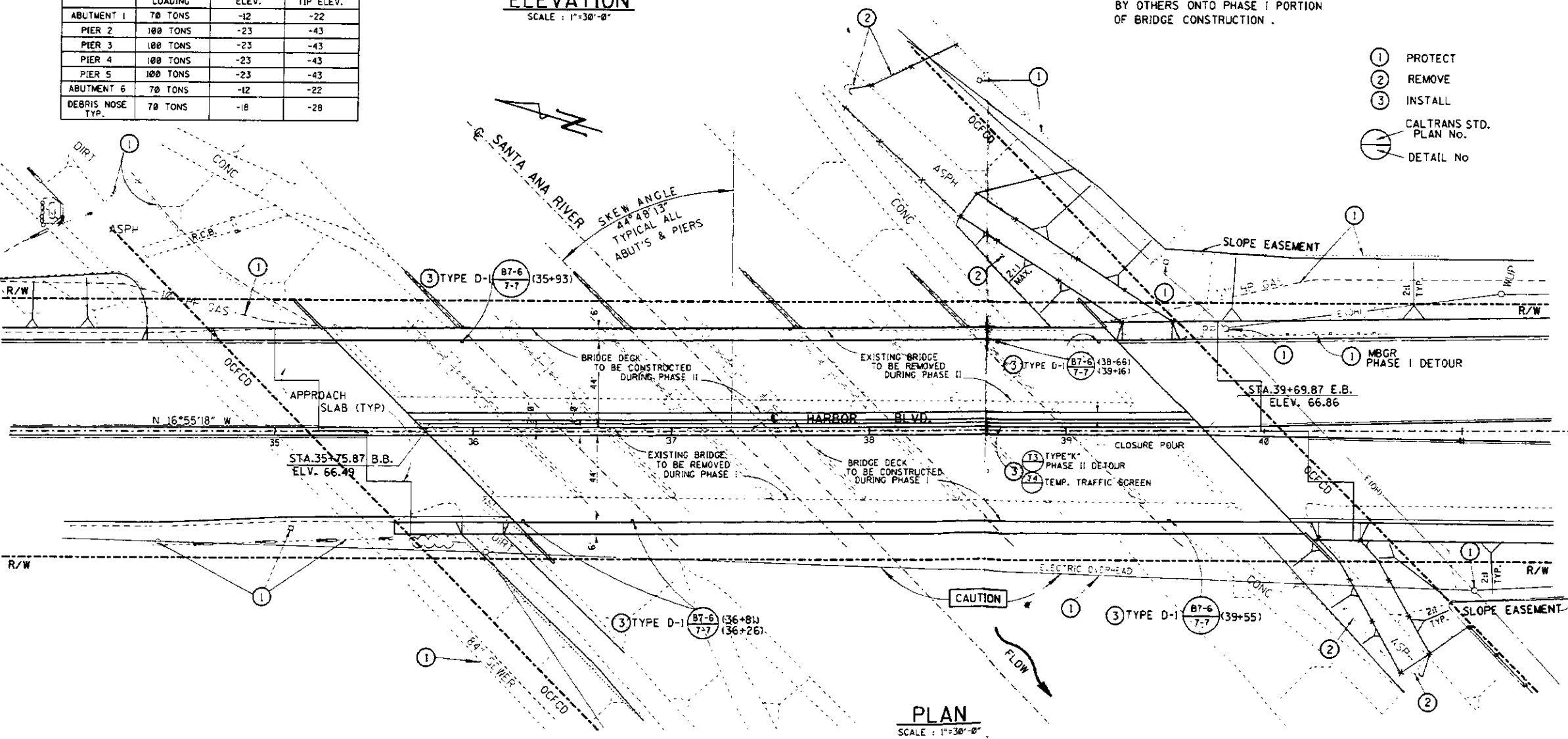
(30) INSPECTION DATE 07/01 (91) FREQUENCY 24 MC
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
 A) FRACTURE CRIT DETAIL - 0 MC A)
 B) UNDERWATER INSP - NO 0 MC B)
 C) OTHER SPECIAL INSP - NO 0 MC C)





LOCATION	DESIGN LOADING	SPECIFIED ELEV.	PROBABLE TIP ELEV.
ABUTMENT 1	70 TONS	-12	-22
PIER 2	100 TONS	-23	-43
PIER 3	100 TONS	-23	-43
PIER 4	100 TONS	-23	-43
PIER 5	100 TONS	-23	-43
ABUTMENT 6	70 TONS	-12	-22
DEBRIS NOSE TYP.	70 TONS	-18	-28

ELEVATION
SCALE: 1" = 30'-0"



NOTE: GAS LINE TO BE RELOCATED BY OTHERS ONTO PHASE I PORTION OF BRIDGE CONSTRUCTION.

- ① PROTECT
- ② REMOVE
- ③ INSTALL
- CALTRANS STD. PLAN No.
- DETAIL No.

GENERAL NOTES
LOAD FACTOR DESIGN

SPECIFICATIONS

DESIGN
AASHTO STANDARD SPECIFICATIONS 13TH EDITION AS MODIFIED BY CALTRANS.

LIVE LOADING
HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD P-13.

PRESTRESS
PRESTRESSING INFORMATION IS ON PRESTRESSED I-GIRDER SHT.

MATERIALS

REINFORCING STEEL
F_y = 60,000 Psi

REINFORCING LAPS
BAR No. 8 & SMALLER-LAP45
DIAMETERS OF SMALLER BAR JOINED.

BAR No. 9, 10, AND 11-LAP60
DIAMETERS OF SMALLER BAR JOINED

CONCRETE
DECK CONCRETE
f_c = 4000 Psi AT 28 DAYS
V_c = 126 Psi n=8

ALL OTHER:
f_c = 3500 Psi AT 28 DAYS
V_c = 126 Psi n=8

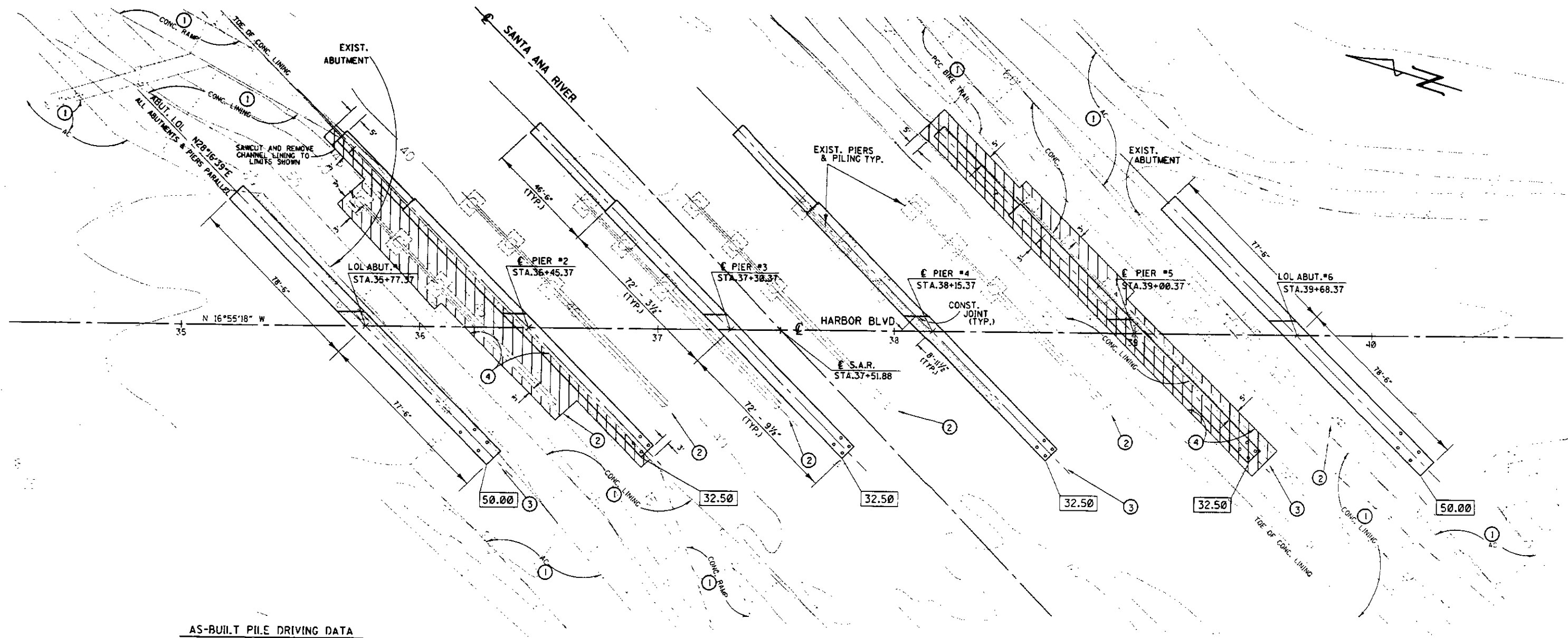
TRANSVERSE DECK SLAB (WORKING STRESS DESIGN)
f_s = 20,000 Psi
f_c = 1,200 Psi

NOTE: K-RAIL TO BE EXTENDED BEYOND BRIDGE MINIMUM 150' AT 10:1 TAPER, AND AS DETAILED IN CONTRACTORS APPROVED TRAFFIC DETOUR PLAN. ALL K-RAIL ENDS TO BE PROTECTED IN ACCORDANCE WITH CALTRANS STD PLANS FOR TEMPORARY CRASH CUSHION, SAND FILLED, STD PLAN T1.

BR# 55C-0631

3 inches on original drawing

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS - BRIDGE	
SANTA ANA RIVER CHL GENERAL PLAN	
DATE	DESCRIPTION
REVISIONS	
PREPARED UNDER SUPERVISION OF	DATE
DESIGNED RB/RH	CHECKED RH
SCALE AS SHOWN	DATE 3/93
DRAWING NO. 17 OF 60	



AS-BUILT PILE DRIVING DATA

PILE DRIVER MAKE AND MODEL:
 DRIVING ACTION :
 RATED ENERGY :
 RAM WEIGHT
 MAXIMUM STROKE
 BEARING VALUE FORMULA
 P= P=

	CUT-OFF ELEVATION	MAXIMUM TIP ELEVATION	MINIMUM TIP ELEVATION	AVERAGE "AS BUILT" PILE TIP ELEVATION	AVERAGE STROKE HEIGHT	AVERAGE BLOW PER FOOT	AVERAGE BEARING VALUE (TONS)
ABUT. NO. 1							
PIER NO. 2							
PIER NO. 3							
PIER NO. 4							
PIER NO. 5							
ABUT. NO. 6							

FOUNDATION PLAN

SCALE : 1" = 20'

LEGEND :

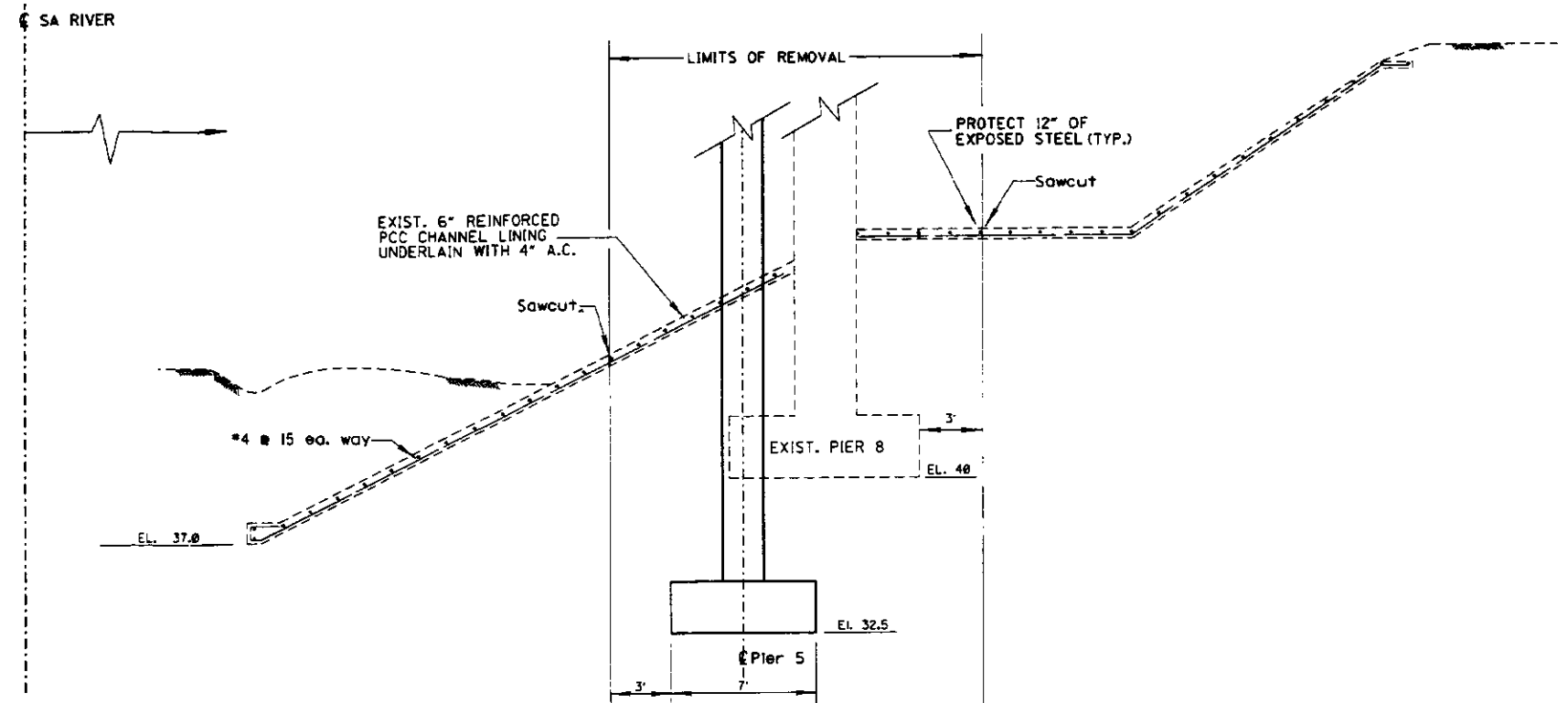
- ① PROTECT IN PLACE
- ② REMOVE FOUNDATION AND PILING TO EL. 30 AT PIERS, EL. 48 AT ABUTMENT
- ③ REMOVE ENTIRE FOUNDATION AND EXTRACT PILING
- ④ SAWCUT AND REMOVE CHANNEL LINING PER CHANNEL LINING DETAIL SHEET
- DENOTES NEW PILE FOUNDATION
- - - DENOTES EXISTING FOUNDATION
- DENOTES BOTTOM OF FOOTING ELEVATION
- ▨ CHANNEL LINING REMOVAL LIMITS

NOTE : CHANNEL LINING REMOVED SHALL BE REPLACED PER PLANS INCLUDED HEREIN. TYPICAL SECTION OF EXISTING CHANNEL LINING DEPICTED PER PLANS INCLUDED HEREIN.

SSC - 0631

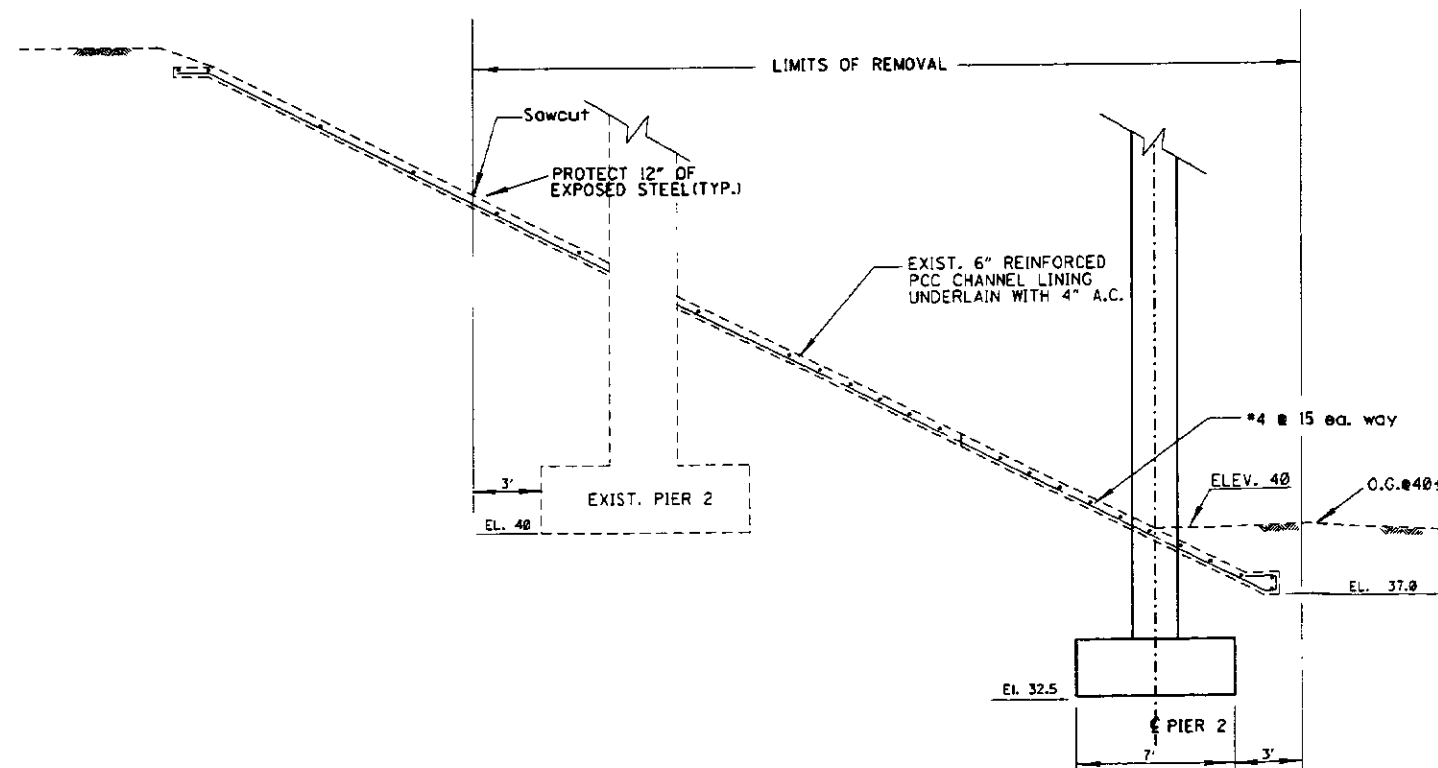
ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
FOUNDATION PLAN	
DESIGNED: RB/RH	CHECKED: RH
DATE: 3/93	DRAWING NO. 19
SCALE: AS SHOWN	DATE: 3/93
RICHARD A. HART RCE 39595 (EXP. 12-31-93)	

SHEET
19
OF 60



LIMITS OF CHANNEL LINING REMOVAL

Scale: 1/4" = 1'



LIMITS OF CHANNEL LINING REMOVAL

Scale: 1/4" = 1'

NOTE:

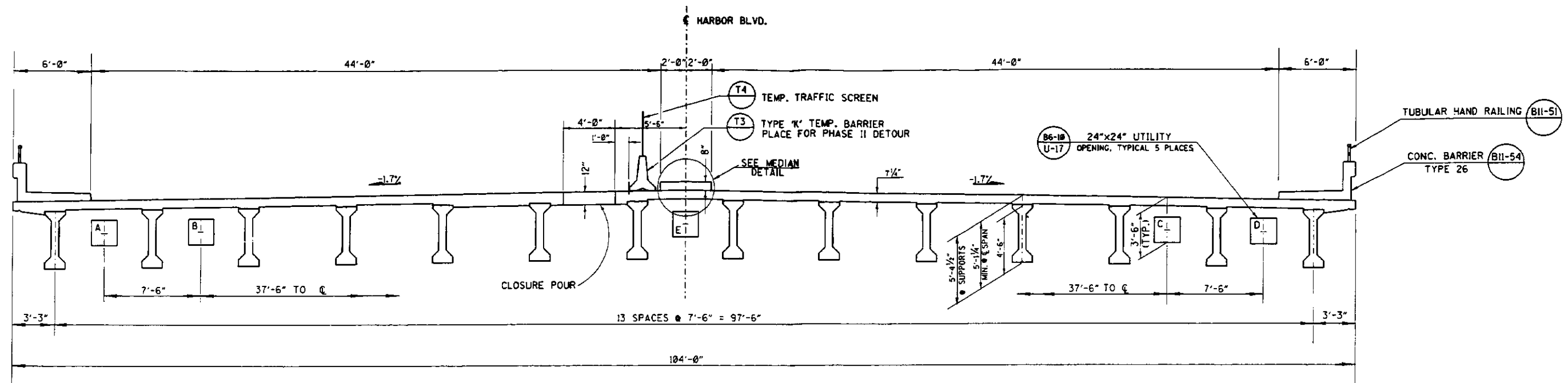
- All dimensions subject to approval of the Contractor's Shoring Plan by the Engineer.
- Replace all concrete channel lining with 6" thick PCC with #4's @ 15 each way. Lap splice to existing.
- Limits shown are for bidding purposes only.

1 1/2" = 3 inches on original drawing 55C-0631

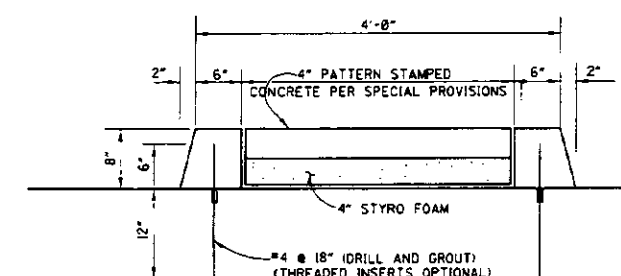
ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
CHANNEL LINING DETAILS	
DESIGNED: RH	CHECKED: RH
SCALE: AS SHOWN	DATE: 3/93
DRAWING NO. 19A OF 60	

RICHARD A. HART
RCE 39595 (EXP. 12-31-93)

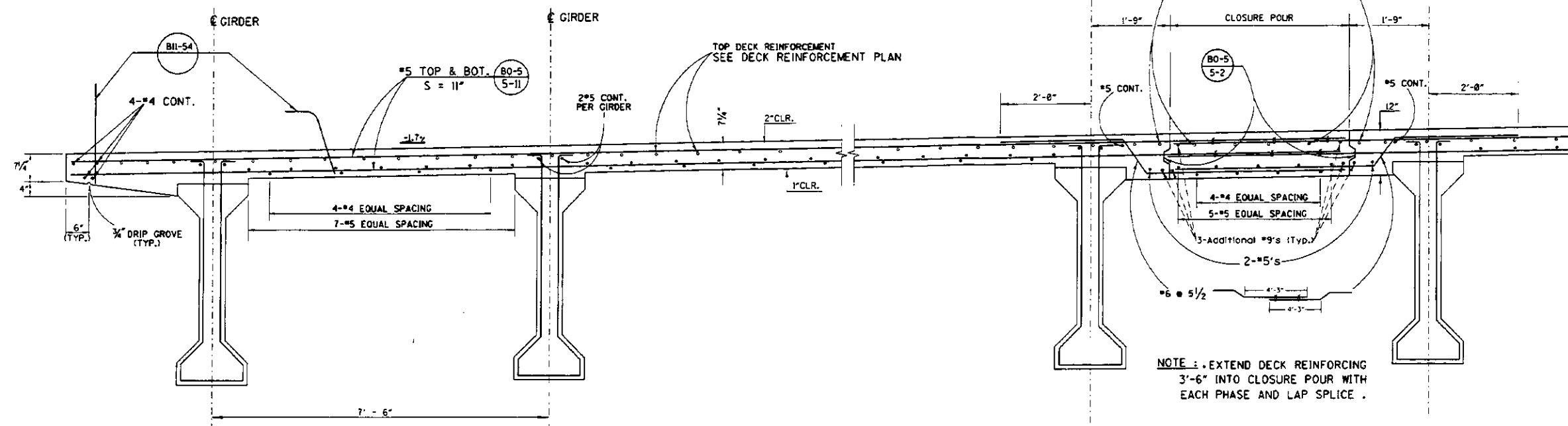
3/4/93



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



MEDIAN DETAIL
SCALE: 1" = 1' - 0"



PART TYPICAL SECTION
SCALE: 3/4" = 1' - 0"

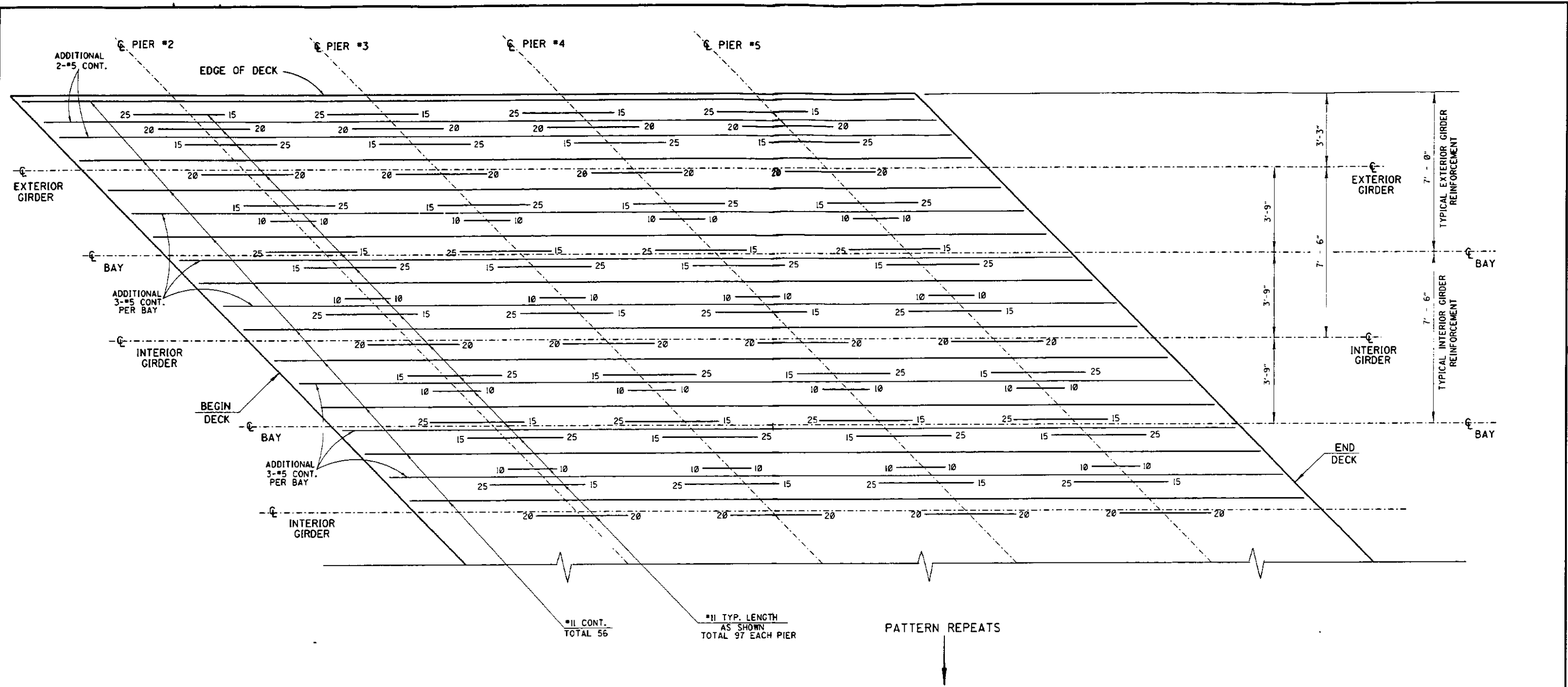
UTILITY INFORMATION

- A- SO. CALIFORNIA GAS COMPANY
- B- FUTURE UTILITY OPENING
- C- FUTURE UTILITY OPENING
- D- PACIFIC BELL
- E- FUTURE UTILITY OPENING

55C-0631

1 1/2 0 1 2
3 inches on original drawing

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
TYPICAL SECTION	
DESIGNED: RB/RH	SHEET
CHECKED: RH	25
DATE: 3/93	OF 60
PREPARED UNDER: <i>Richard A. Ryan</i> RCE 39595 (EXP. 12-31-93)	



- NOTE :
- ALL #11's TO BE EQUAL SPACE
 - ADDITIONAL #5's TO BE CENTERED BETWEEN #11's
 - NO SPLICING WITHIN 1/3 SPAN LENGTH OF ϕ PIER
 - #11 BARS ADJACENT TO EACH SIDE OF CLOSURE POUR TO BE CONTINUOUS .

LONGITUDINAL TOP
DECK REINFORCEMENT

SCALE H : 1"=20'-0"
V : 1"=2'-0"

55C-0631

1 1/2 0 1 2
3 inches on original drawing

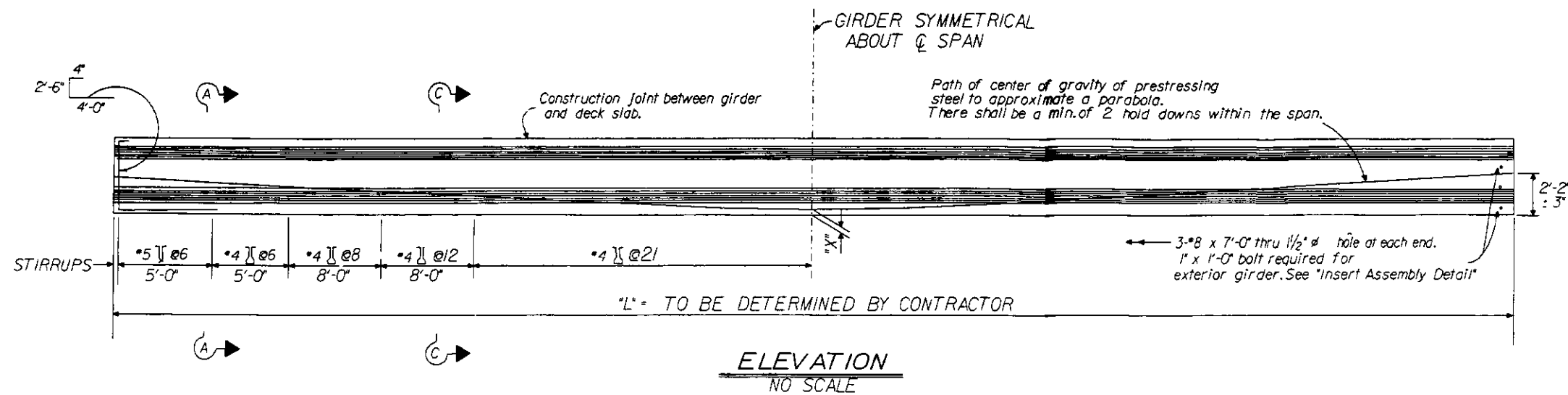
ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
DECK REINFORCEMENT	
DESIGNED RB/RH	CHECKED RH
SCALE HP	DATE 3/93
AS SHOWN	DRAWING NO. 27
SHEET 27 OF 60	

REVISIONS

NO. 39595
EXP. 12-31-93

RICHARD A. HART
RCE 39595 (EXP. 12-31-93)

3/4/93



PRESTRESSING NOTES

Working Force: The force required of center of span after all losses.

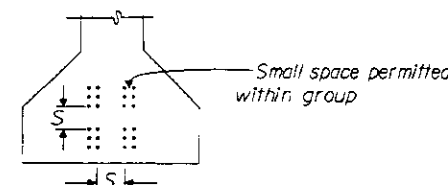
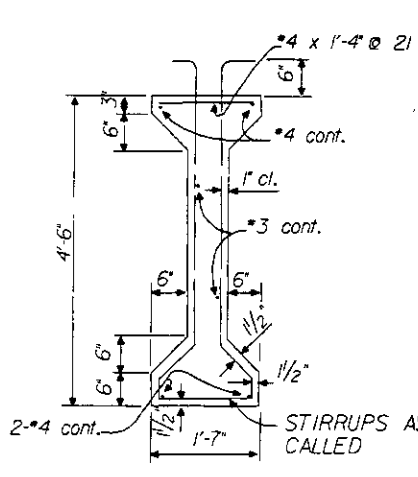
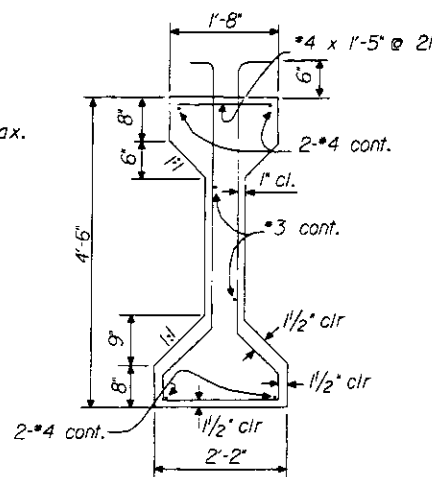
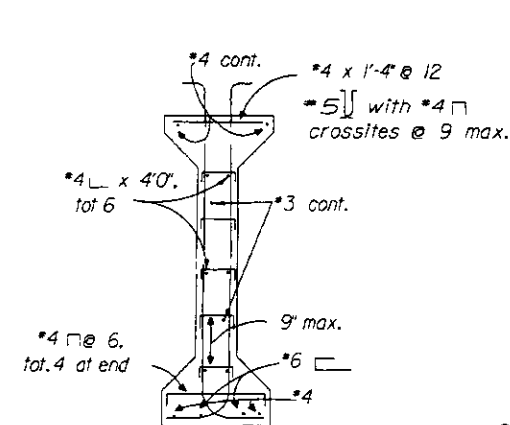
Concrete Strength: f'_{ci} is at time of initial stressing. f'_c is at 28 days, psi.

Camber: Girder camber immediately after the deck and barriers have been placed.

Screed line elevations for deck concrete will be determined by the Engineer.

Contractor may interpolate "P" and "X" values between those shown.

CALIF. I					
Girder location or designation and length	P	Working force in Kips. at $\bar{Q}$ Span	Concrete Strength		Girder def' / deu to c/c/cowc
			f'_{ci}	f'_c	
SPANS 1 & 5 INTERIOR L' = 69'-6"	4	450	4000	5200	1/2"
	6	480			
SPANS 1 & 5 EXTERIOR L' = 69'-6"	4	440	4000	5200	1/2"
	6	470			
SPANS 2,3,4 L' = 85'-0"	4	560	4000	5200	1 1/4"
	6	590			

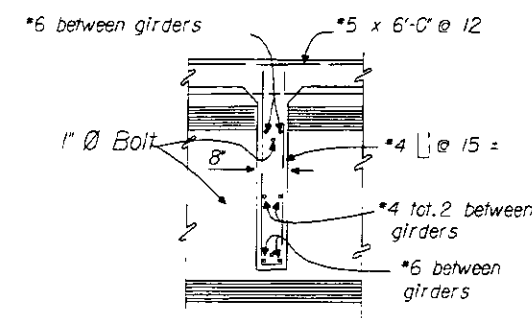
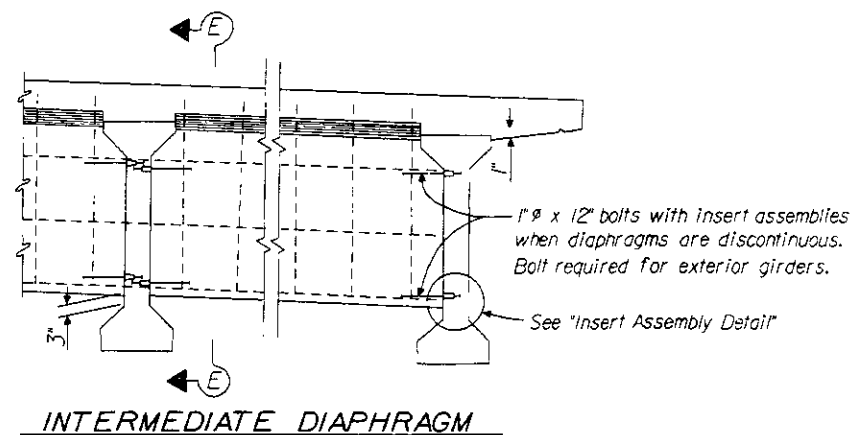
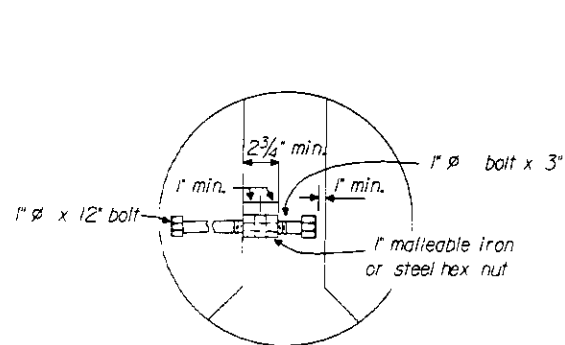


CLEARANCES FOR PRETENSIONED STRANDS

1. Strands may be bundled in groups consisting of 3 vertically and 2 horizontally and separated at the ends.
2. The min distance "S" between groups or individual strands is 1/2" for 3/8" strands, 1 1/4" for 1/2" strands and 2" for 5/8" strands.
3. "S" is measured between centers of adjacent strands.
4. Approval of the Engineer is required for deviation.

AASHTO TYPE IV					
Girder location	P	Working force in Kips. at $\bar{Q}$ Span	Concrete Strength		Girder def' / deu to c/c/cowc
			f'_{ci}	f'_c	
SPANS 1 & 5 INTERIOR L' = 69'-6"	4	480	4000	5200	1/2"
	6	510			
SPANS 1 & 5 EXTERIOR L' = 69'-6"	4	470	4000	5200	1/2"
	6	500			
SPANS 2,3,4 L' = 85'-0"	4	615	4000	5200	1"
	6	655			

*L GIVEN ARE NOMINAL LENGTHS. CONTRACTOR SHALL VERIFY EXACT LENGTHS OF GIRDERS BASED ON PLANS AND ANTICIPATED SHORTENING.

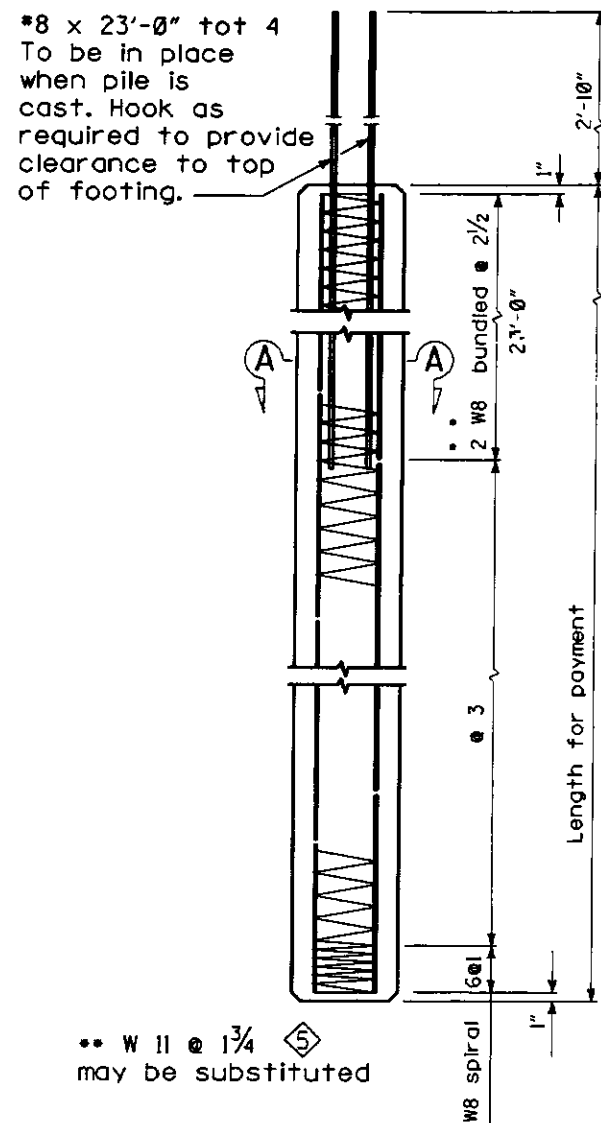


NOTE:

Details shown are for Pretensioned girders. The Contractor may submit details for Post tensioning which shall be subject to the approval of the Engineer.

55C-0631

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
PRESTRESSED I GIRDER	
MARK	DATE
DESCRIPTION	
REVISIONS	
PREPARED BY	DATE
DESIGNED	HP
CHECKED	RH
SCALE	DATE
AS SHOWN	3/93
DRAWING NO.	DATE
RICHARD A. HART RCE 39595 (EXP. 12-31-93)	3/4/93
SHEET	28 OF 60



ELEVATION
NO SCALE

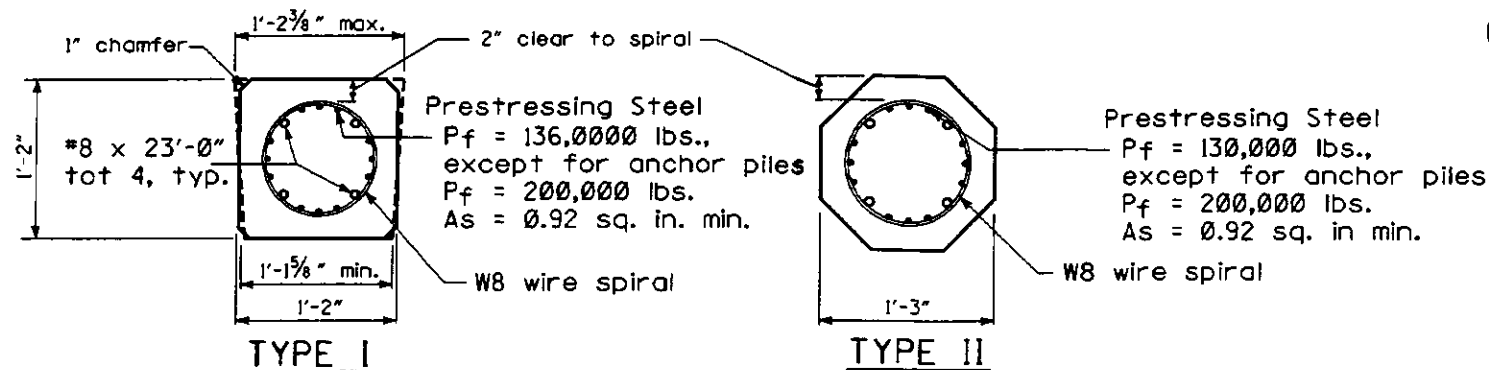
Note:

All piles precast prestressed concrete.
P_f = Prestress Force (after losses).
f_c' @ 28 days = 7,000 p.s.i..
f_c' @ transfer = 4,000 p.s.i..

DESIGN LOADING = 100 TONS.

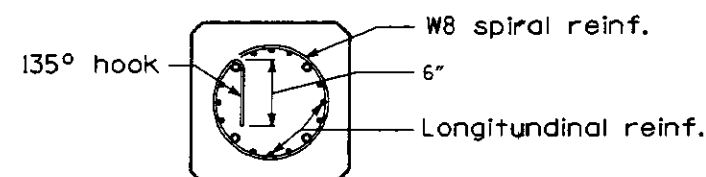
Concrete in Class 100C piles shall
contain not less than 752 pounds
of cement per cubic yard.

Details are the same for both Class 100
and Class 100C piles unless noted otherwise.
Maximum cut-off length at the top of pile is 10'-0".



SECTION A-A

1 1/2" = 1'-0"

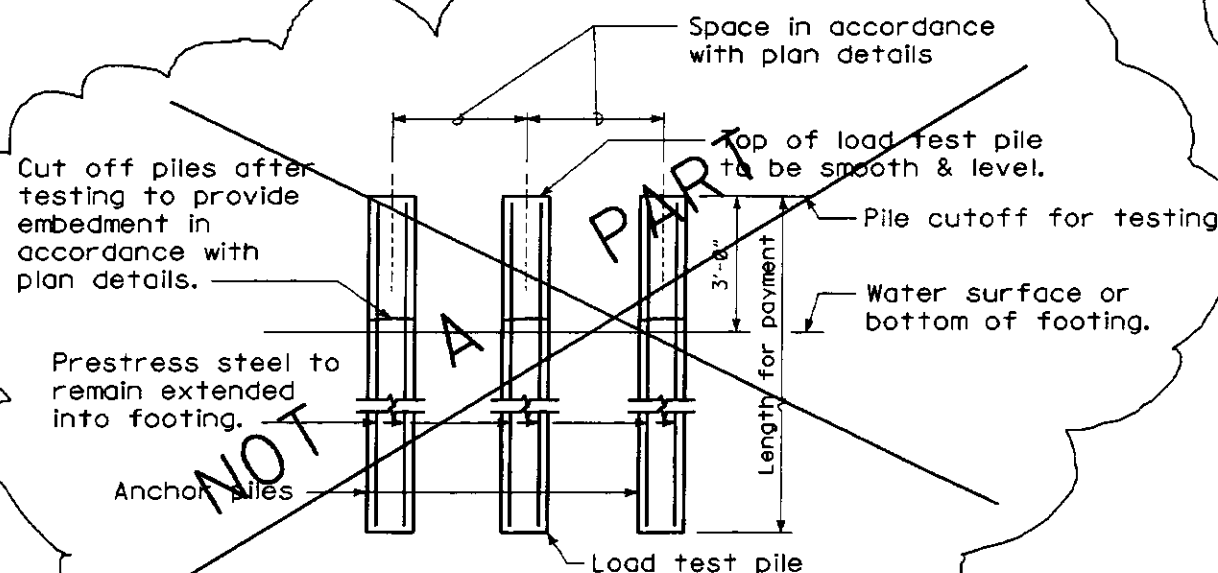


Note:

1. For lapped splices, spiral reinforcement shall be lapped at least 80 diameters.
2. Spiral reinforcement at lapped splices and at ends shall be terminated by a 135° hook around longitudinal reinf.

PILE SPIRAL DETAIL

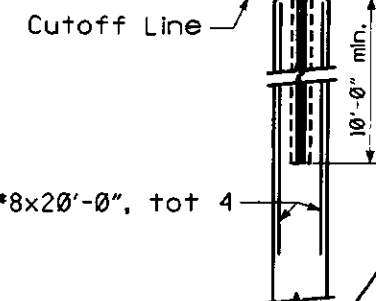
NO SCALE



LOAD TEST PILE GROUP

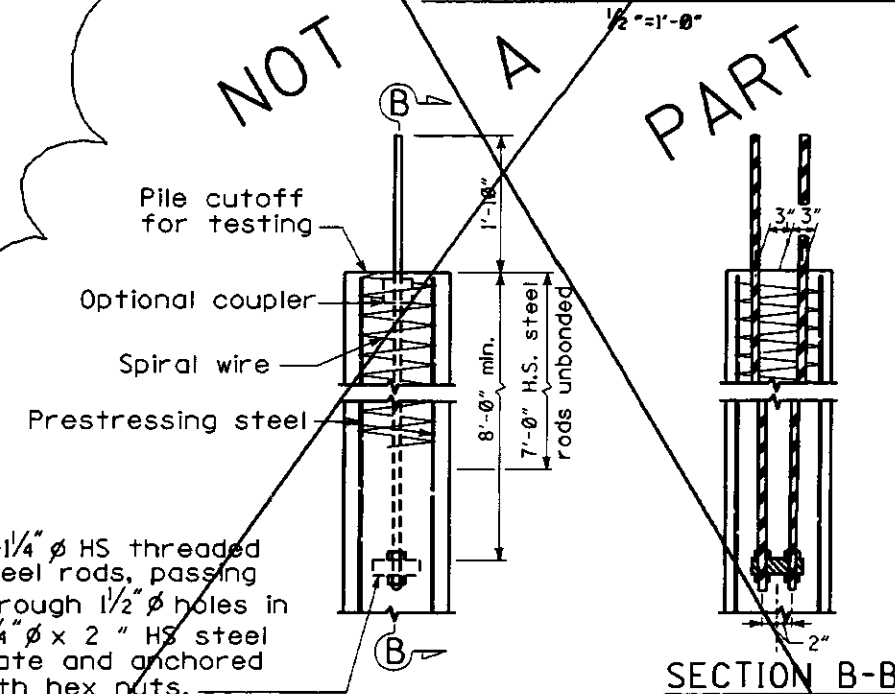
1/2" = 1'-0"

*9 with standard 90° hook,
tot 3(bundled) grouted
in 4" dia. hole cast or
drilled into center of pile.



**ALTERNATE PILE ANCHOR
FOR PRESTRESSED PILE**

1 1/2" = 1'-0"



ANCHOR PILE CONNECTION

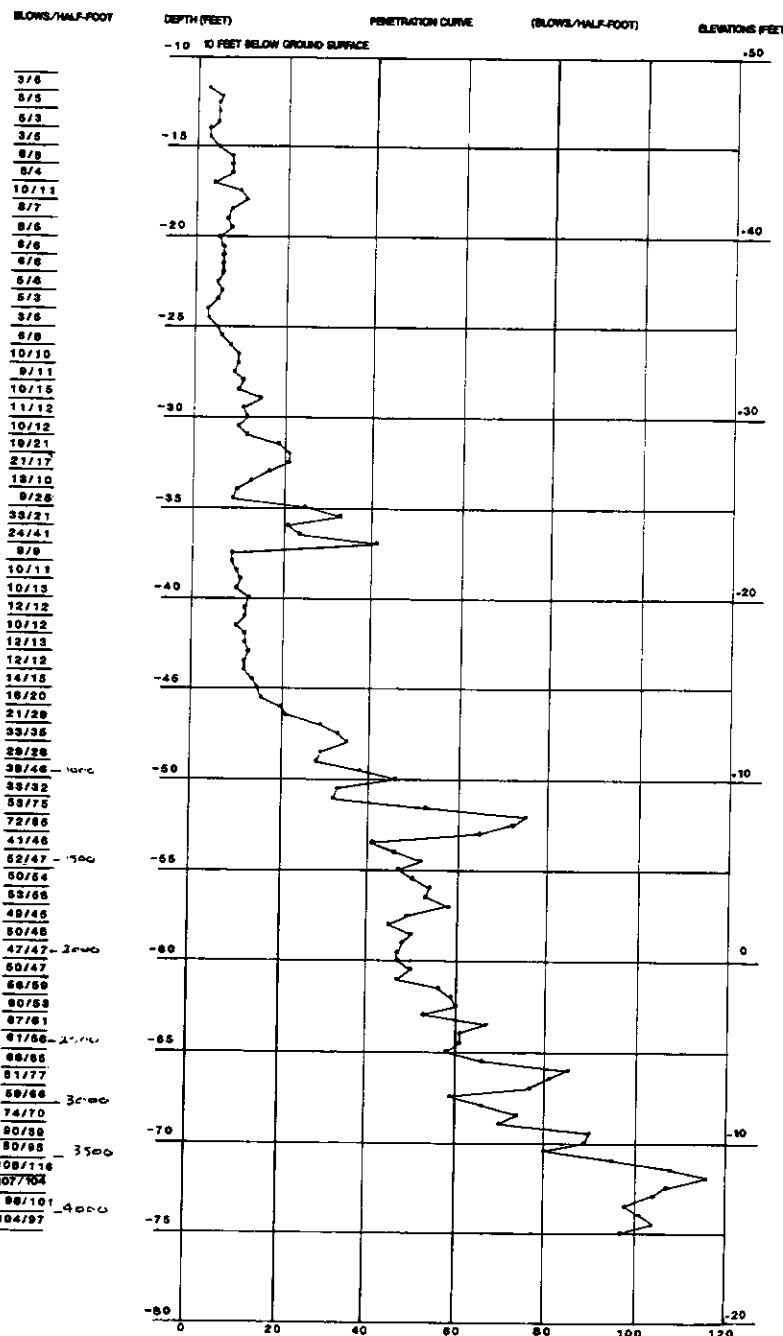
1" = 1'-0"

1/2" = 0' 3 inches on original drawing 55C-0631

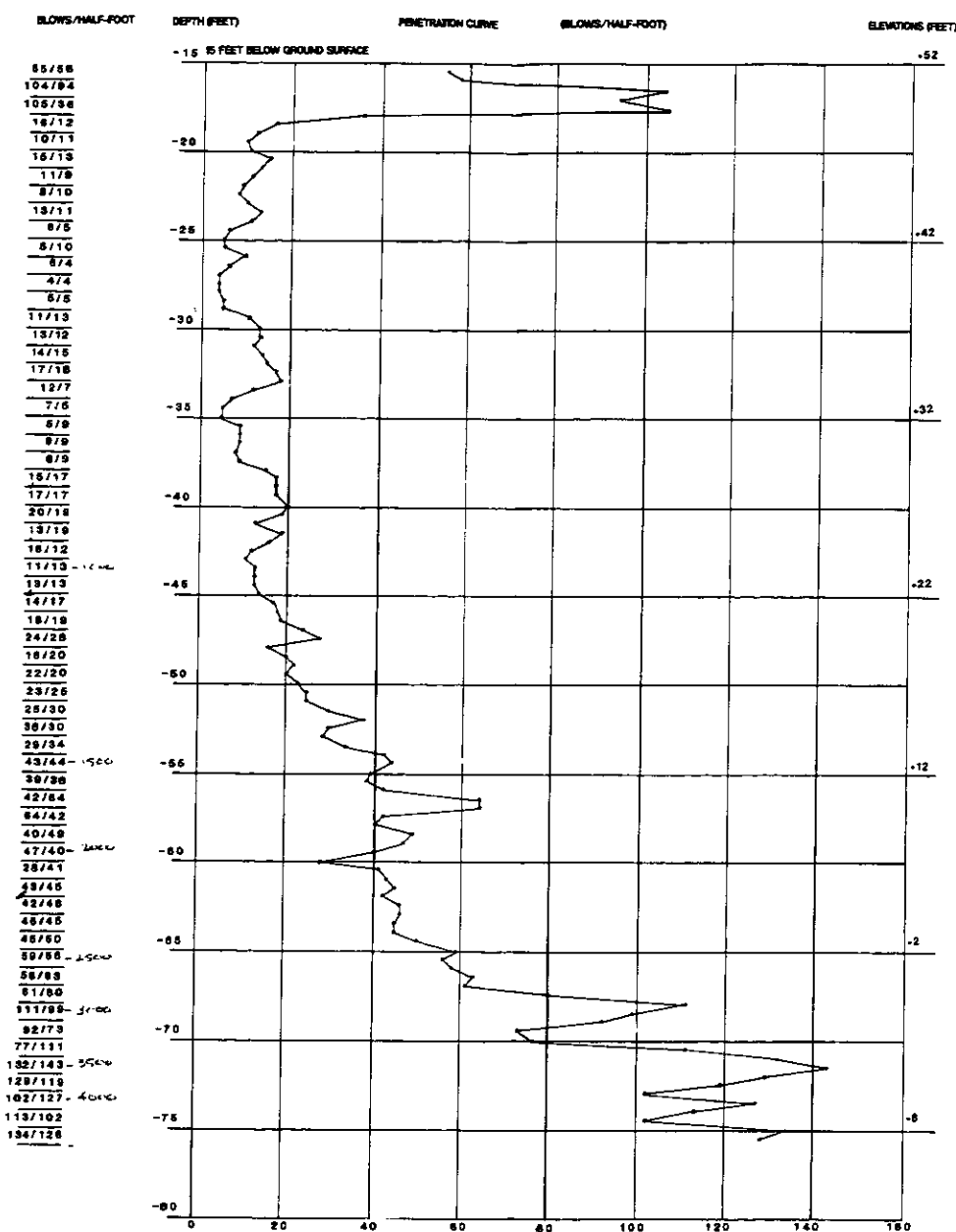
ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
100-TON PILING	
DESIGNED: RB/RH	SHEET
DRAWN: HP	29
SCALE: AS SHOWN	OF 60
DATE: 3/93	
RICHARD A. RCE 39595 (EXP. 12-31-93)	

PENETROMETERS

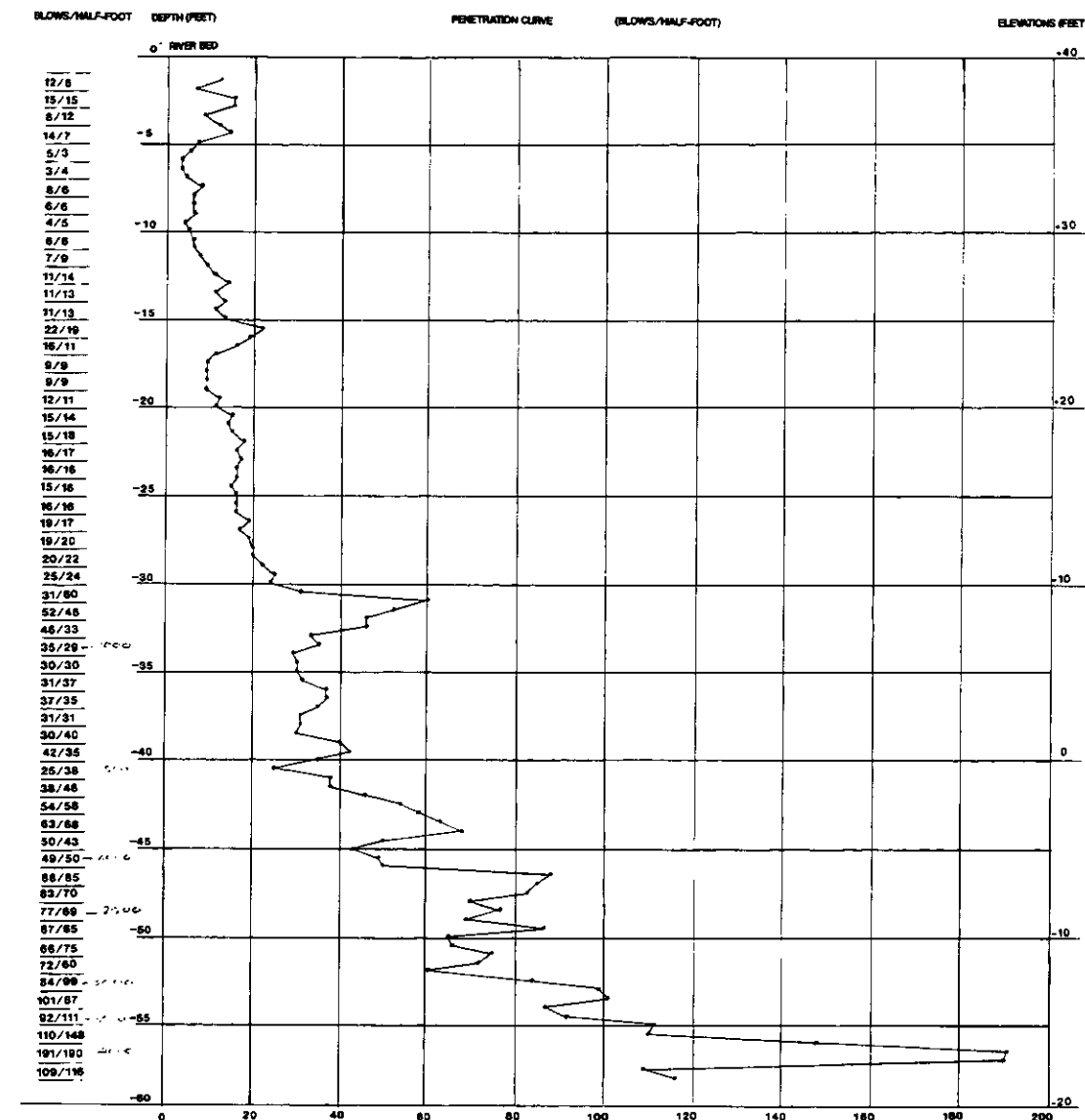
PENETROMETER 1
12/17/90



PENETROMETER 2
12/12/90



PENETROMETER 3
11/29/90



1 1/2 0 1 2
3 inches on original drawing

55C-0631

LEGEND OF EARTH MATERIALS			LEGEND OF BORING OPERATIONS		
CLASSIFICATION OF EARTH MATERIAL CLASSIFICATION OF EARTH MATERIAL SHOWN ON THIS SHEET IS BASED ON MECHANICAL ANALYSIS UNLESS OTHERWISE INDICATED. SIZE CLASSIFICATION GRAVEL (4.75 to 60 mm) SAND (0.075 to 4.75 mm) SILT (0.0075 to 0.075 mm) CLAY (less than 0.0075 mm) CLAY PERCENTAGES CLAY PERCENTAGES CLAY PERCENTAGES			CONSISTENCY CLASSIFICATION ACCORDING TO THE STANDARD PENETRATION TEST NO. OF BLOWS 0-5 VERY LOOSE 6-10 LOOSE 11-20 SLIGHTLY COMPACT 21-35 COMPACT 36-70 DENSE 71-100 VERY DENSE 101-150 HARD 151-200 VERY HARD 201-250 EXTREMELY HARD 251-300 301-350 351-400 401-450 451-500 501-550 551-600 601-650 651-700 701-750 751-800 801-850 851-900 901-950 951-1000		
MATERIAL SYMBOLS GRAVEL SAND SILT CLAY SANDY CLAY OR CLAYEY SAND SANDY SILT OR SILTY SAND SILTY CLAY OR CLAYEY SILT PEAT OR ORGANIC MATTER FILL MATERIAL SHALE SANDSTONE LIMESTONE METAMORPHIC ROCK IGNEOUS ROCK			ROTARY BORING PLAN OF ANY BORING STANDARD PENETROMETER 2.5" CONE PENETROMETER ROTARY BORING AUGER BORING SAMPLE BORING JET BORING DIAMOND CORE BORING TEST PIT LOCATION TOP HOLE ELEV. NO. DESCRIPTION OF MATERIAL SIZE OF SAMPLER BLOWS PER FOOT (USING A 140 LB HAMMER WITH A 30" DROP) ELEVATION GROUND WATER SURFACE DATE MEASURED UNCOMPARABLE MATERIAL CHANGE COMPARABLE MATERIAL CHANGE ESTIMATED MATERIAL CHANGE DATE OF BORING		

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY

HARBOR BLVD BRIDGE

AT SANTA ANA RIVER

SOIL INVESTIGATION

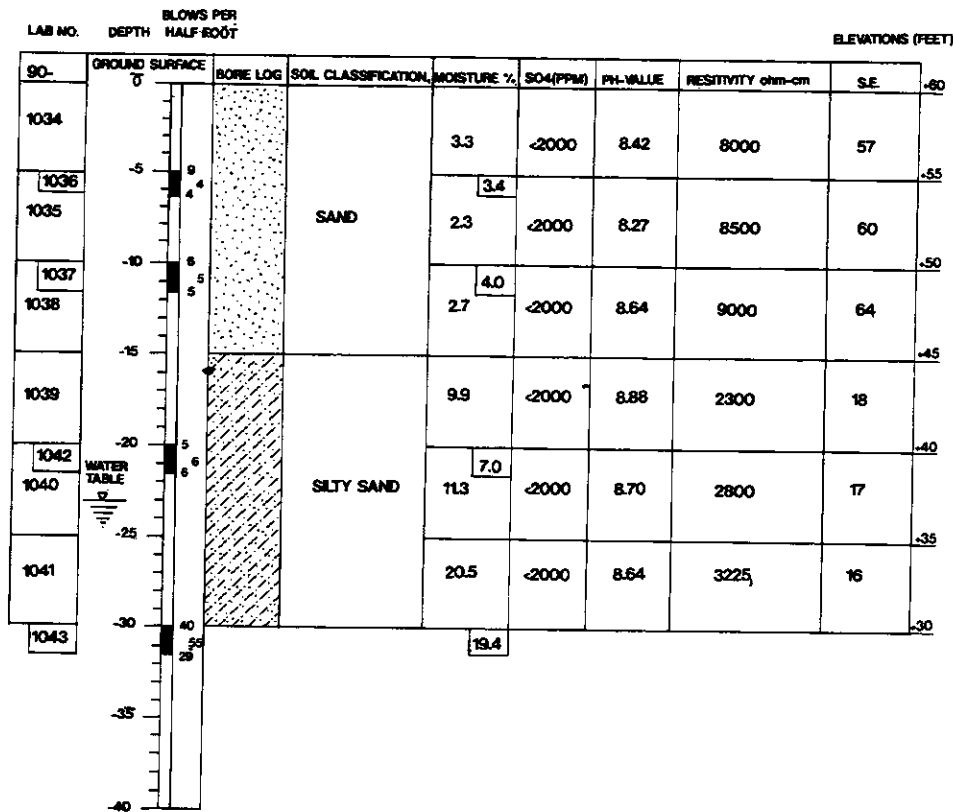
MARK DATE DESCRIPTION PREPARED UNDER SUPERVISION OF *Edward Kagan* SHEET **31** OF 60

DESIGNED *R. CHENG* SCALE DATE DWG. NO.

DRAWN *YAMBA* CHECKED *CHENG* AS SHOWN JAN 1991

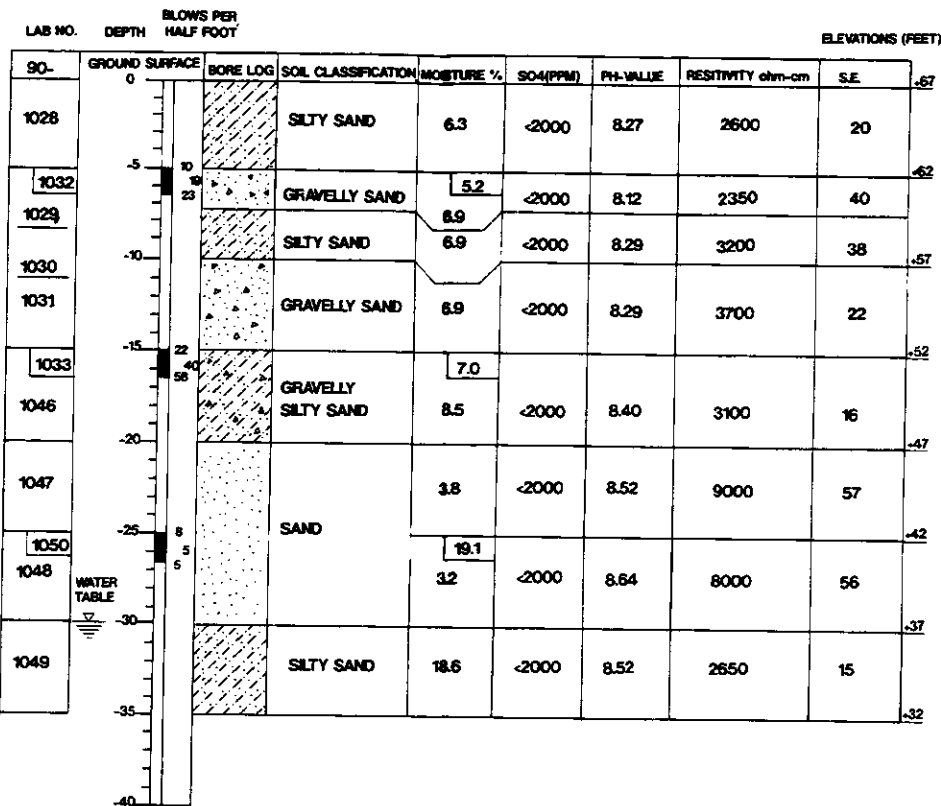
BORE LOG 1

12/17/90
12/18/90



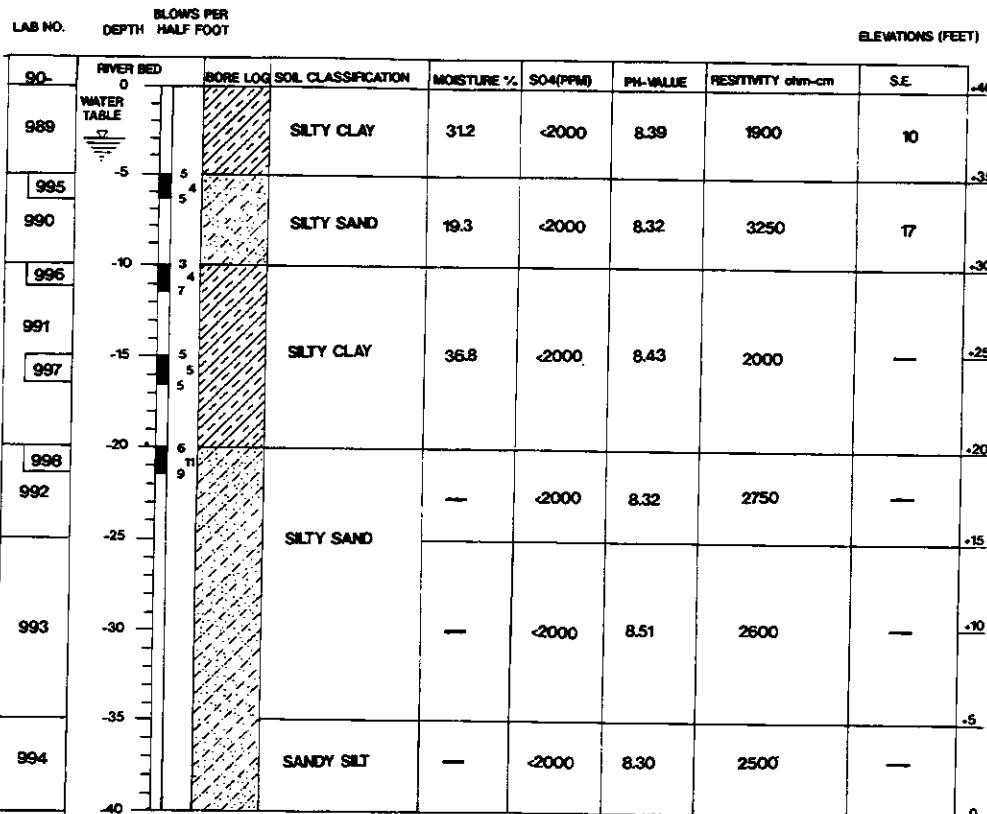
BORE LOG 2

12/12/90
12/20/90



BORE LOG 3

12/4/90



DRIVE SAMPLE DATA

LAB NO.	DEPTH (ft)	Ø (")	C (pcf)	γ _d (pcf)
1036	6	34	400	—
1037	11	32	750	96.7
1042	21	36	450	100.5
1043	31	43	650	103.9

NOTE: FIGURES IN SMALL RECTANGLES REFER TO DRIVE SAMPLES

DRIVE SAMPLE DATA

LAB NO.	DEPTH (ft)	Ø (")	C (pcf)	γ _d (pcf)
1032	6	42	0	117.0
1033	16	50	100	118.5
1050	26	48	200	100.1

NOTE: FIGURES IN SMALL RECTANGLES REFER TO DRIVE SAMPLES

DRIVE SAMPLE DATA

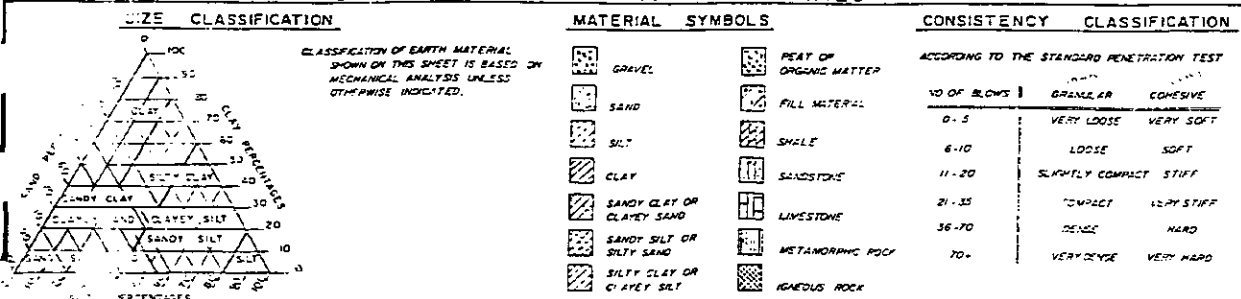
LAB NO.	DEPTH (ft)	Ø (")	C (pcf)	γ _d (pcf)
995	6	38	50	—
996	11	26	450	103.5
997	16	45	50	101.2
998	21	23	0	94.8

NOTE: FIGURES IN SMALL RECTANGLES REFER TO DRIVE SAMPLES

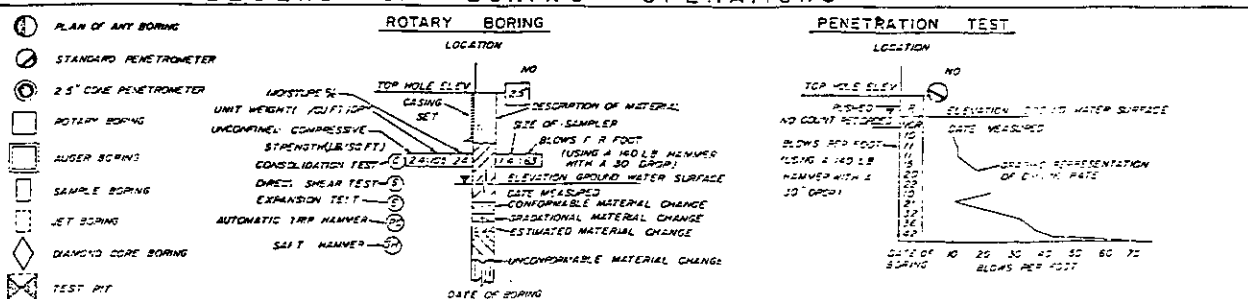
1 1/2 0 1 2
3 inches on original drawing

55C-0631

LEGEND OF EARTH MATERIALS



LEGEND OF BORING OPERATIONS



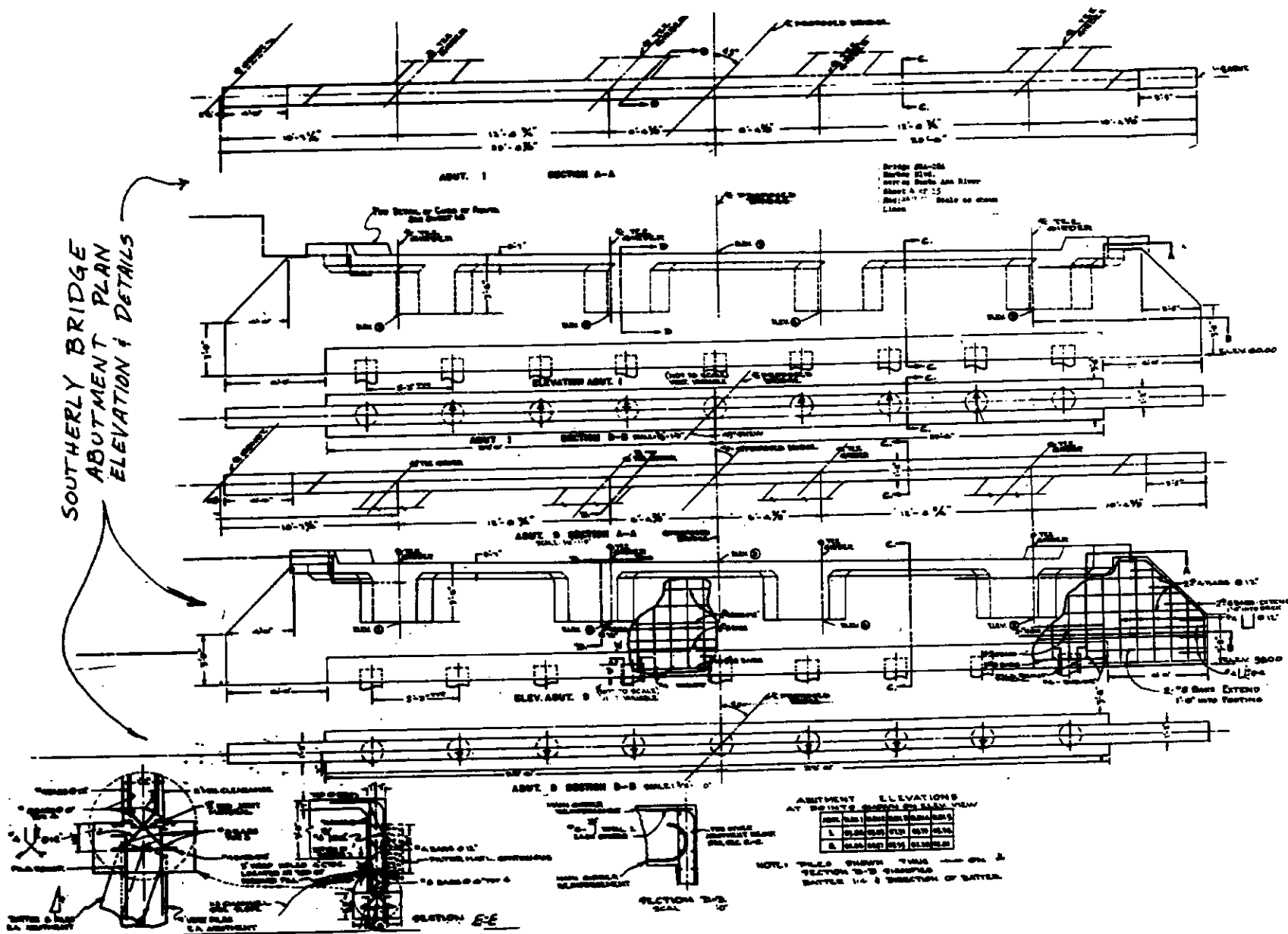
ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY

HARBOR BLVD BRIDGE
AT SANTA ANA RIVER
SOIL INVESTIGATION

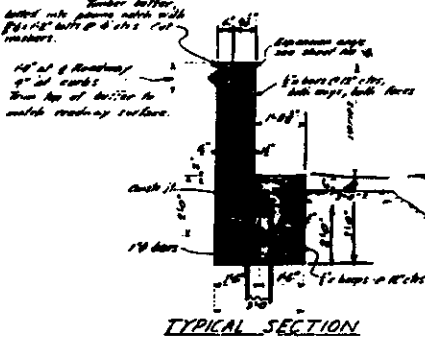
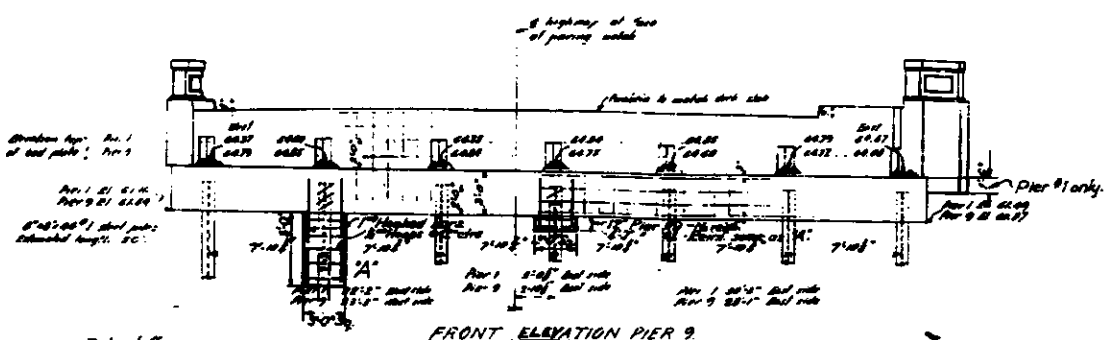
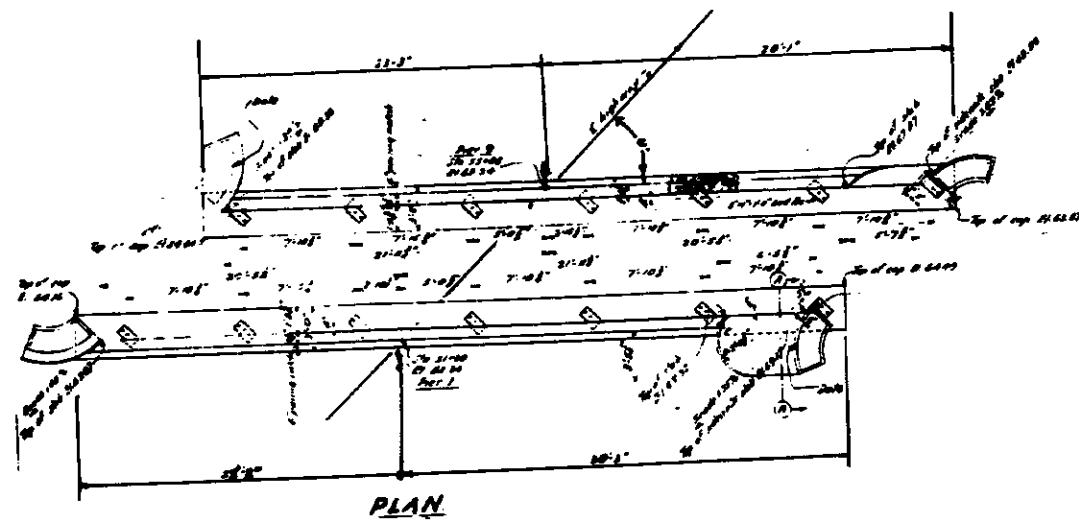
REVISIONS	DATE	SCALE	DATE	DWG. NO.
1	12/17/90	AS SHOWN	12/18/90	55C-0631

SHEET 32 OF 60

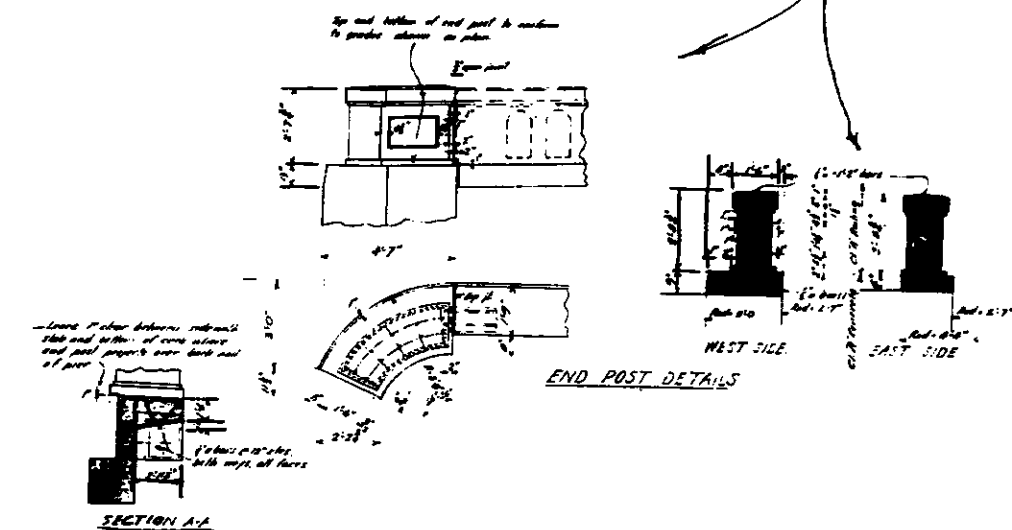
SOUTHERLY BRIDGE
ABUTMENT PLAN
ELEVATION & DETAILS



NORTHERLY BRIDGE
ABUTMENT
PLAN



NORTHERLY BRIDGE
ABUTMENT
ELEVATION & DETAILS

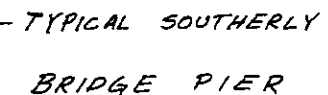


- REMOVE ENTIRE BRIDGE ABUTMENTS, FOOTINGS, WINGWALLS, END POSTS, AND PILING DOWN TO ELEV. 48.
- THIS PLAN DEPICTS THE EXISTING BRIDGE ABUTMENTS AS REPRODUCED FROM THE MICROFILMED RECORD DRAWINGS.
- SEE SPECIAL PROVISIONS FOR PHASING OF DEMOLITION.

- NOT TO SCALE -
1 1/2 0 1 2
3 inches on original drawing

55C-0631

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS	
BRIDGE DEMOLITION	
PLAN	
MARK	DATE
REVISIONS	
DESIGNED	CHECKED
PREPARED UNDER SUPERVISION OF RCE/STTS	DATE 3/93
SCALE AS SHOWN	DATE OF REVIEW
SHEET 33 OF 60	



- REMOVE ENTIRE BRIDGE PIERS, FOOTINGS AND PILING DOWN TO ELEVATION 30.
- THIS PLAN DEPICTS THE EXISTING BRIDGE PIERS AS REPRODUCED HEREON FROM THE MICROFILMED RECORD DRAWINGS.
- SEE SPECIAL PROVISIONS FOR PHASING OF DEMOLITION.

- NOT TO SCALE -



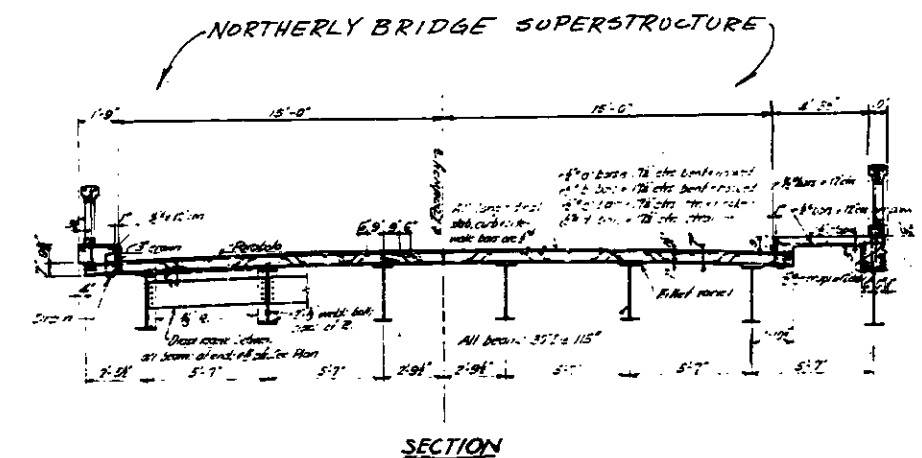
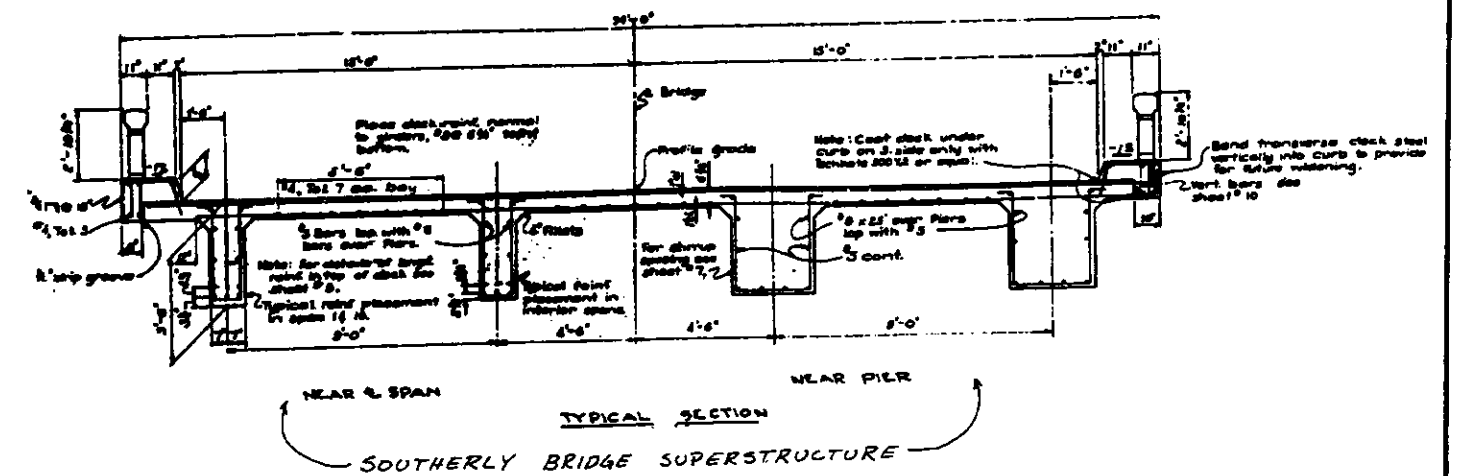
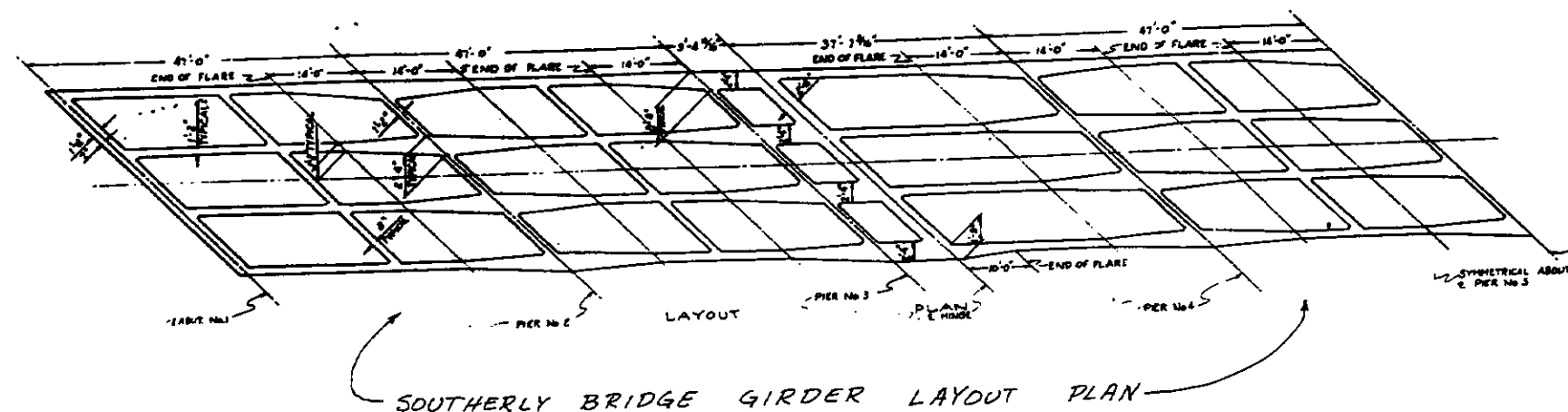
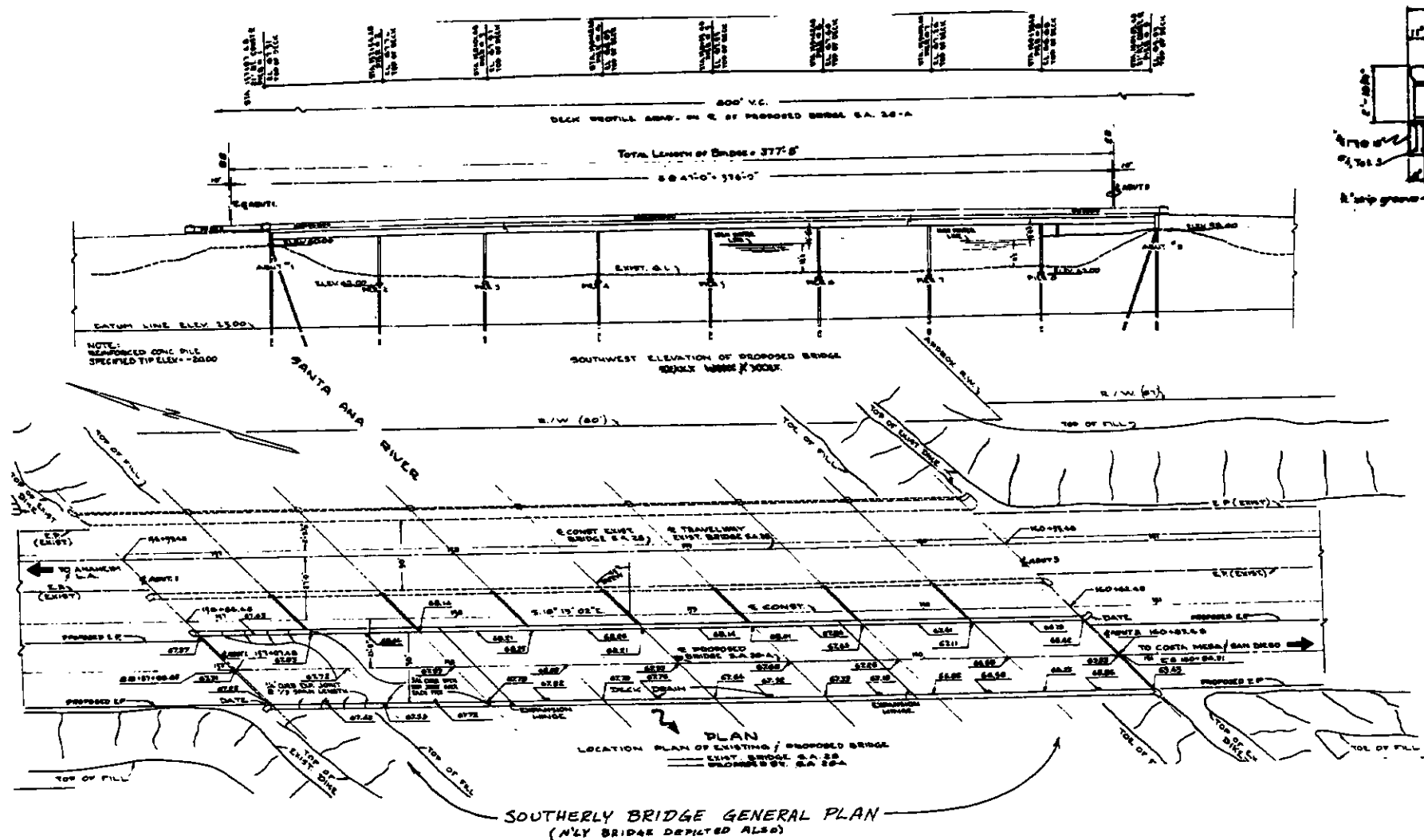
55C-0631

ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

HARBOR BLVD. IMPROVEMENTS

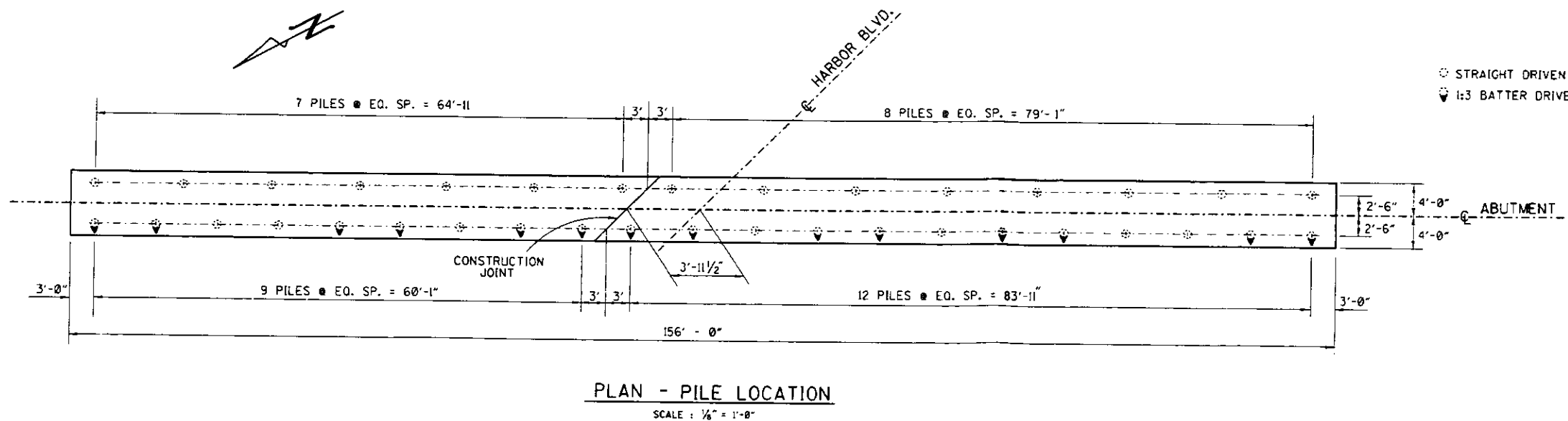
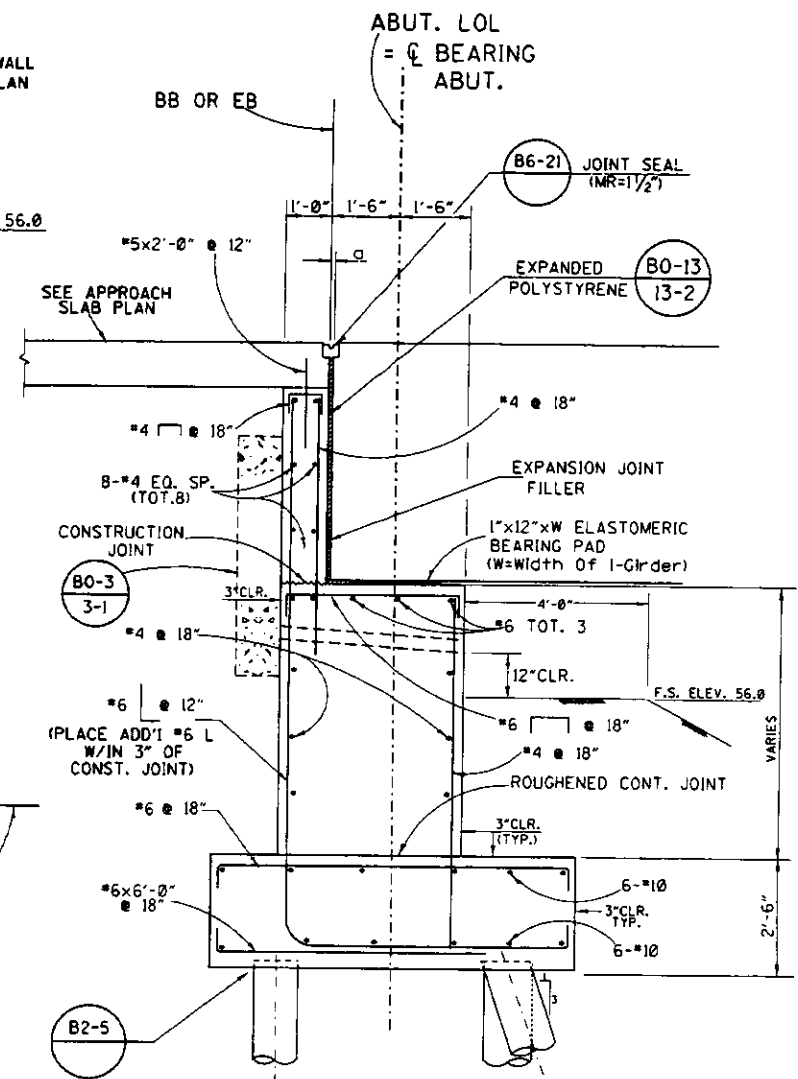
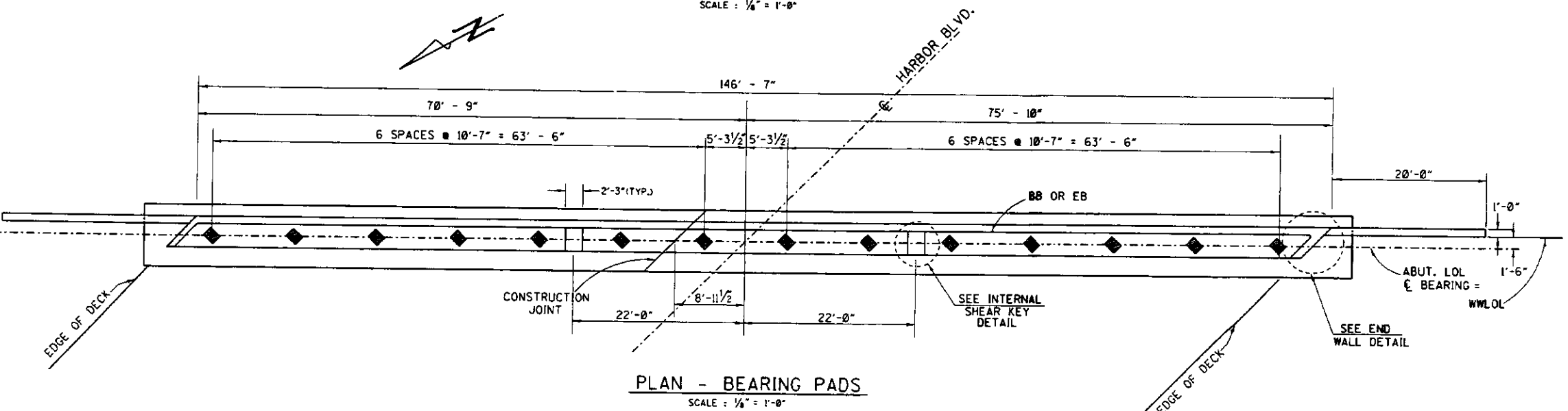
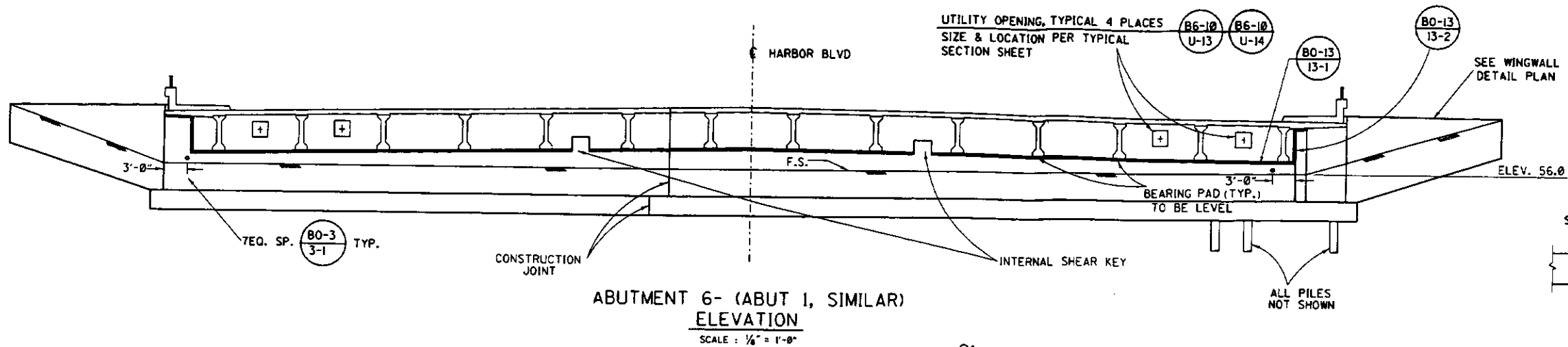
BRIDGE DEMOLITION
PLANS

MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	DATE	SHEET
REVISIONS			RC of 3/9/93	15/03/93	34
DE SIGNED	SCALE	DATE	DATE	DATE	34
DRAWN	AS SHOWN	3/93	DATE	DATE	OF 60



- REMOVE ENTIRE BRIDGE DECK, SIDEWALK, PARAPET, AND SUPERSTRUCTURE FROM NORTHERLY AND SOUTHERLY BRIDGES.
- THIS PLAN DEPICTS THE EXISTING BRIDGE SUPERSTRUCTURES AS REPRODUCED HEREON FROM THE MICROFILMED RECORD DRAWINGS.
- SEE SPECIAL PROVISIONS FOR PHASING OF DEMOLITION.

		ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
		HARBOR BLVD. IMPROVEMENTS	
		BRIDGE DEMOLITION PLANS	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF <i>REC 34545</i>
DESIGNED		SCALE	DATE
DRAWN		AS SHOWN	3/93
CHECKED		DATE	
		SHEET	
		35	
		OF 60	

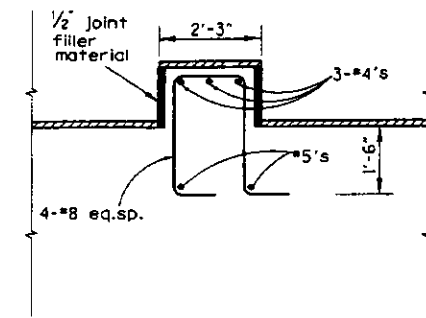


○ STRAIGHT DRIVEN PILE
▽ 1:3 BATTER DRIVEN PILE

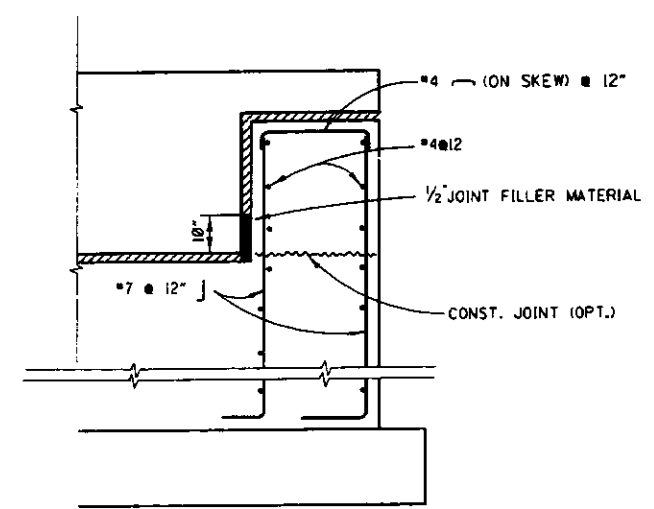
1 1/2 0 1 2
3 inches on original drawing

55C-0631

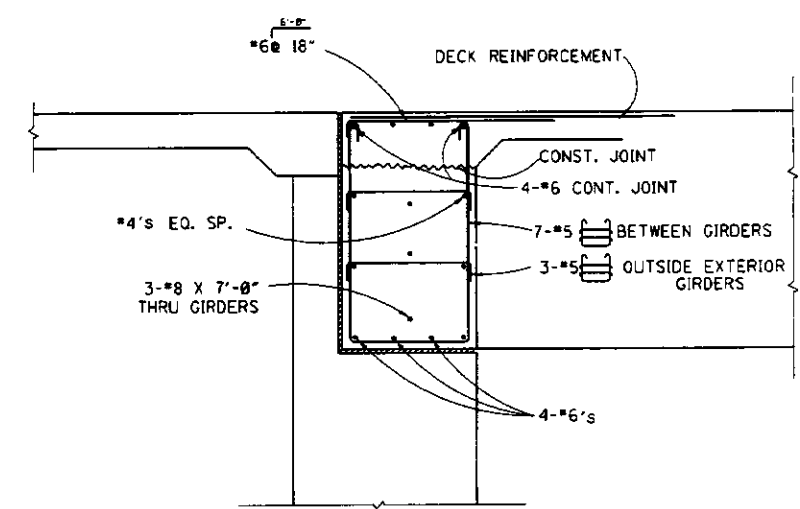
ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
ABUTMENT	
DESIGNED: RB/RH	SHEET
SCALE: AS SHOWN	20 OF 60
DATE: 3/93	DRAWING NO.
RICHARD A. HART RCE 39595 (EXP. 12-31-93)	



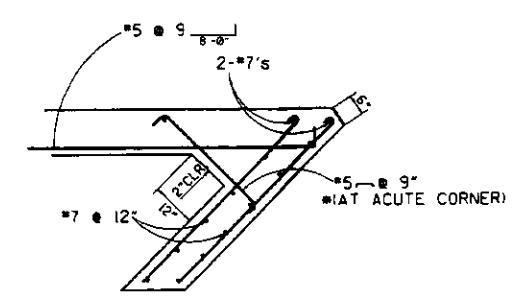
INTERNAL SHEAR KEY DETAIL
SCALE : 1/2" = 1'-0"



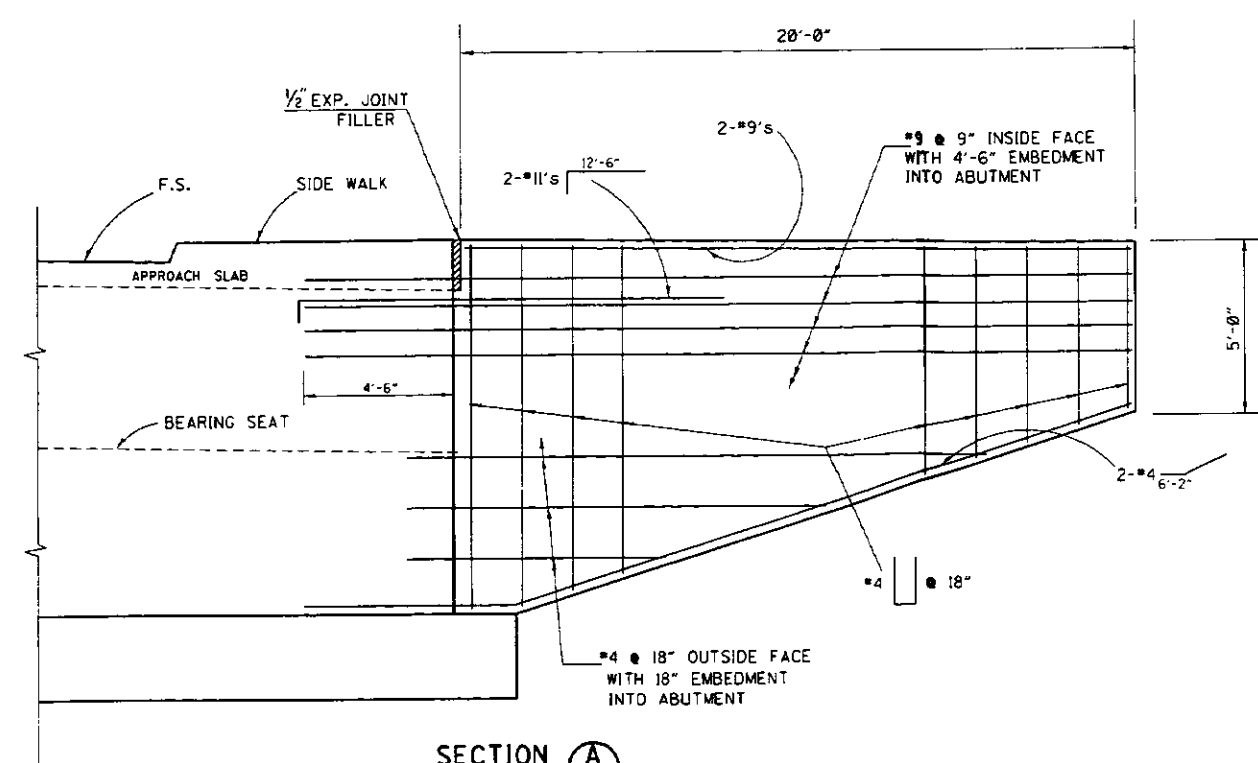
END WALL SHEAR KEY DETAIL
SCALE : 1/2" = 1'-0"



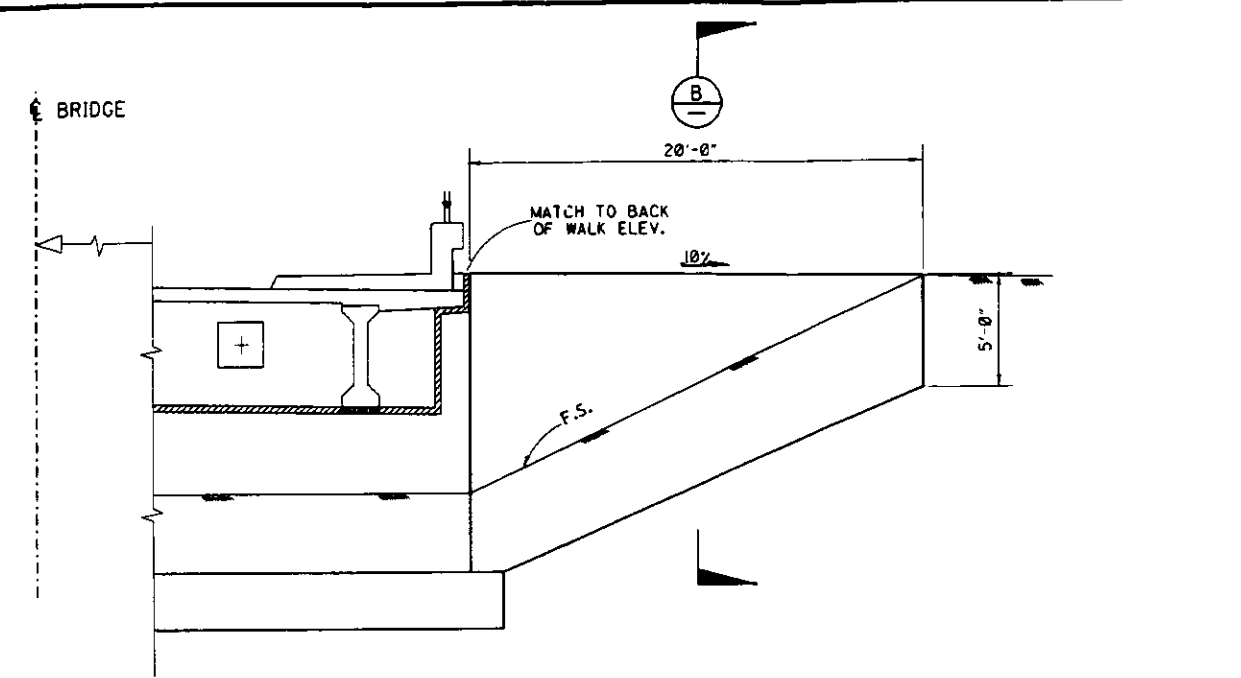
END DIAPHRAGM
SCALE : 1/2" = 1'-0"



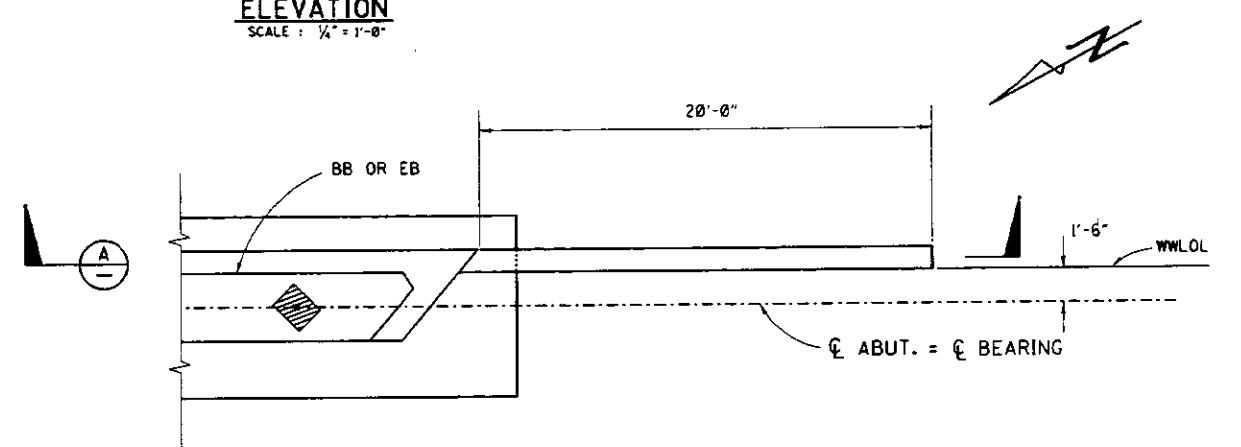
END WALL DETAIL
SCALE : 1/2" = 1'-0"
* ACUTE CORNER SHOWN.
OBTUSE CORNER SIMILAR W/O #5 @ 9"



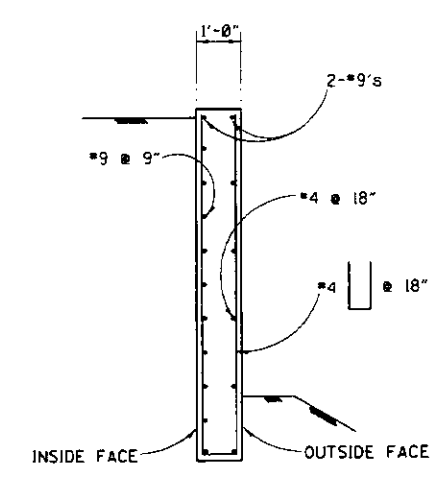
SECTION A
SCALE : 1/8" = 1'-0"



ELEVATION
SCALE : 1/4" = 1'-0"



PLAN VIEW
SCALE : 1/4" = 1'-0"



SECTION B
SCALE : 1/2" = 1'-0"

55C-0631

ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

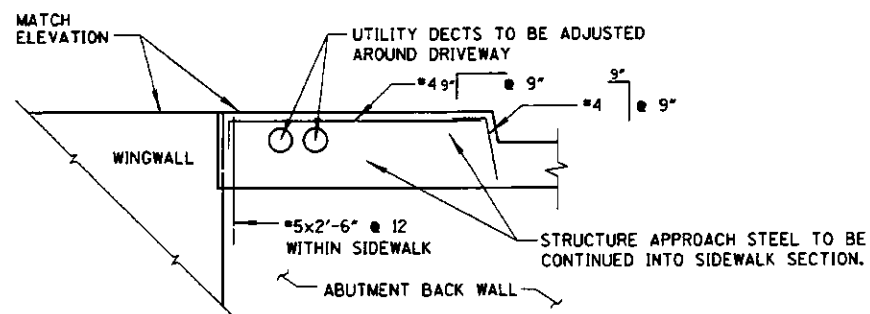
HARBOR BLVD. IMPROVEMENTS
BRIDGE

ABUTMENT DETAILS

DATE	DESCRIPTION
3/4/93	REVISED

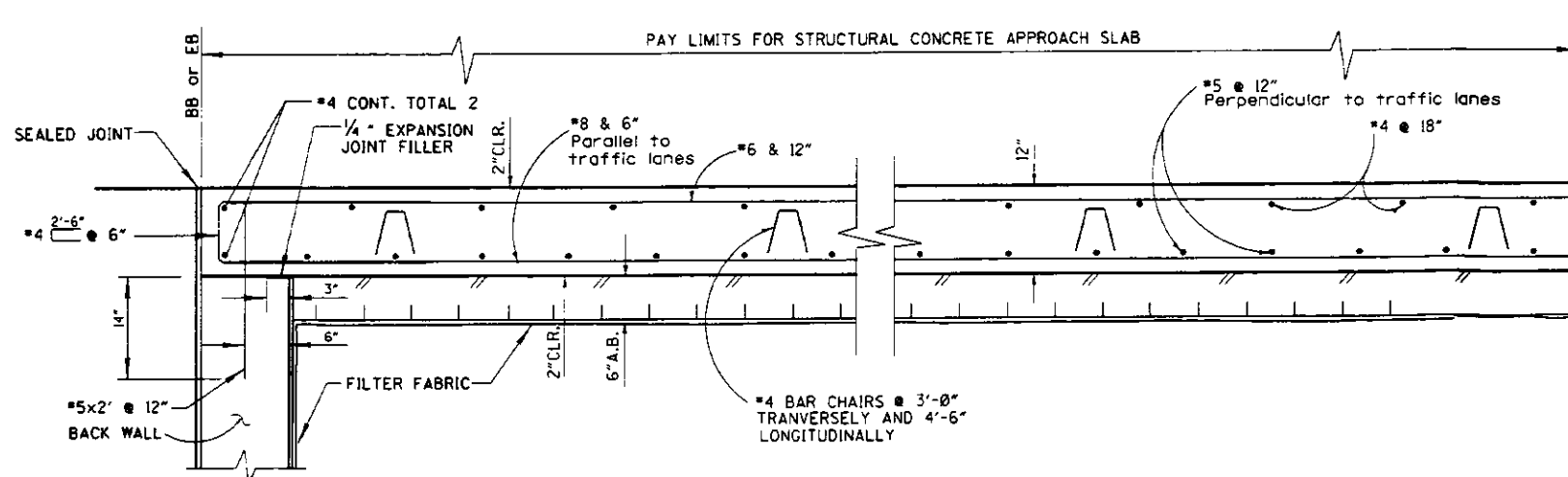
DESIGNED: RB/RH
CHECKED: RH
SCALE: AS SHOWN
DATE: 3/93
DRAWING NO.: 21
SHEET: 60

RICHARD A. HART
RCE 39595 (EXP. 12-31-93)



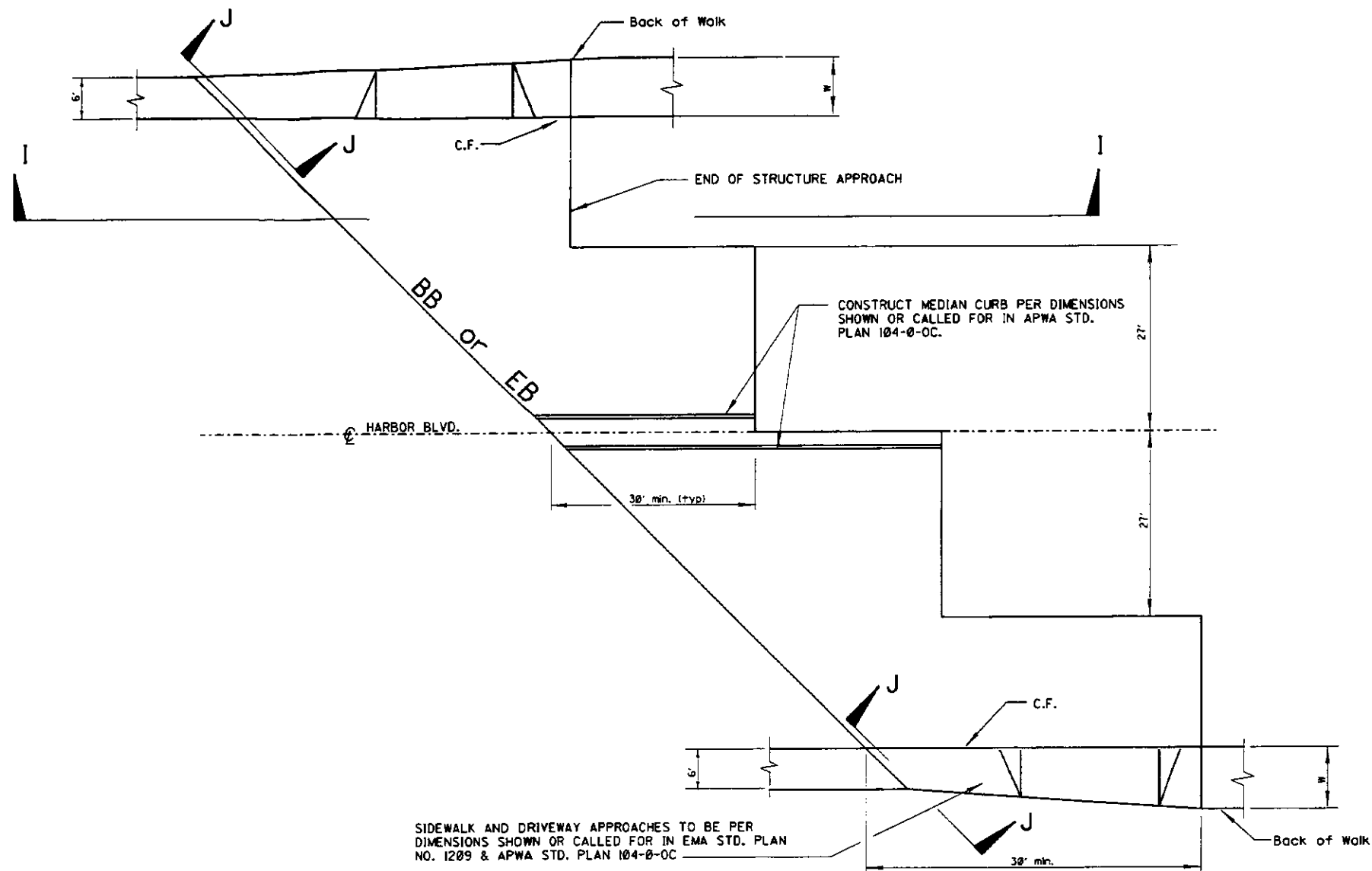
SECTION J - J

Scale: 1/2" = 1'-0"



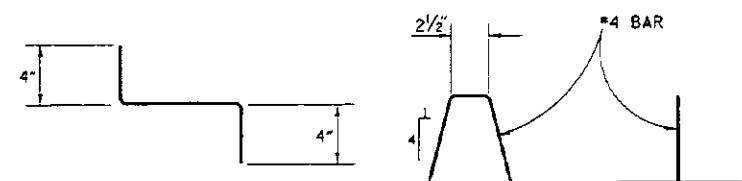
SECTION I - I

Scale: 1" = 1'-0"



STRUCTURE APPROACH - END STAGGER DETAIL

Scale: 1" = 10'-0"



BAR CHAIR DETAIL

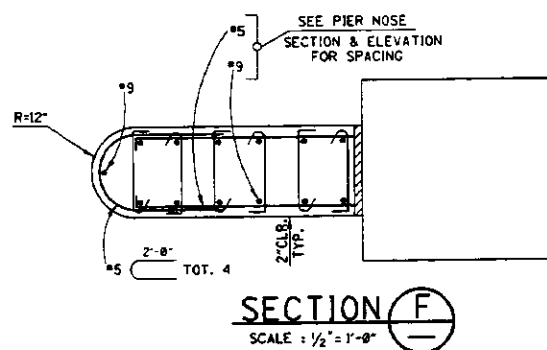
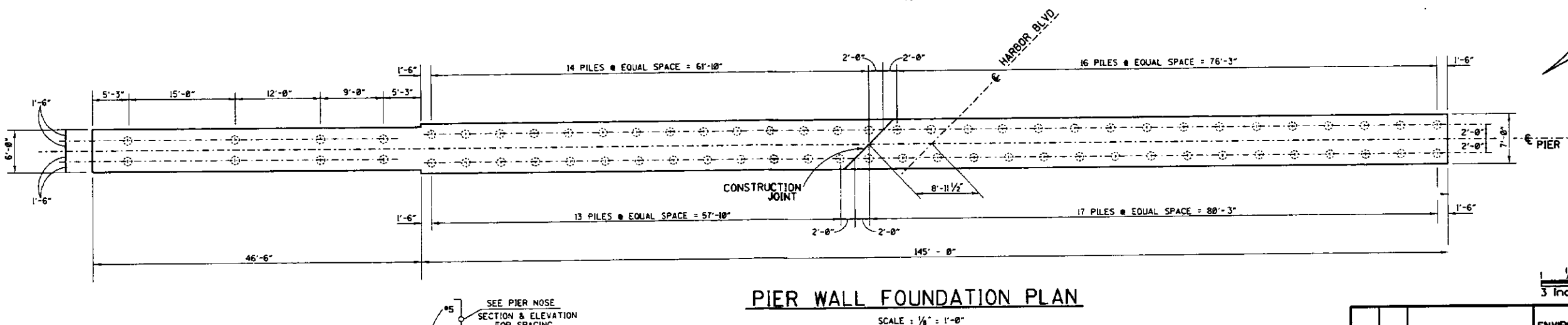
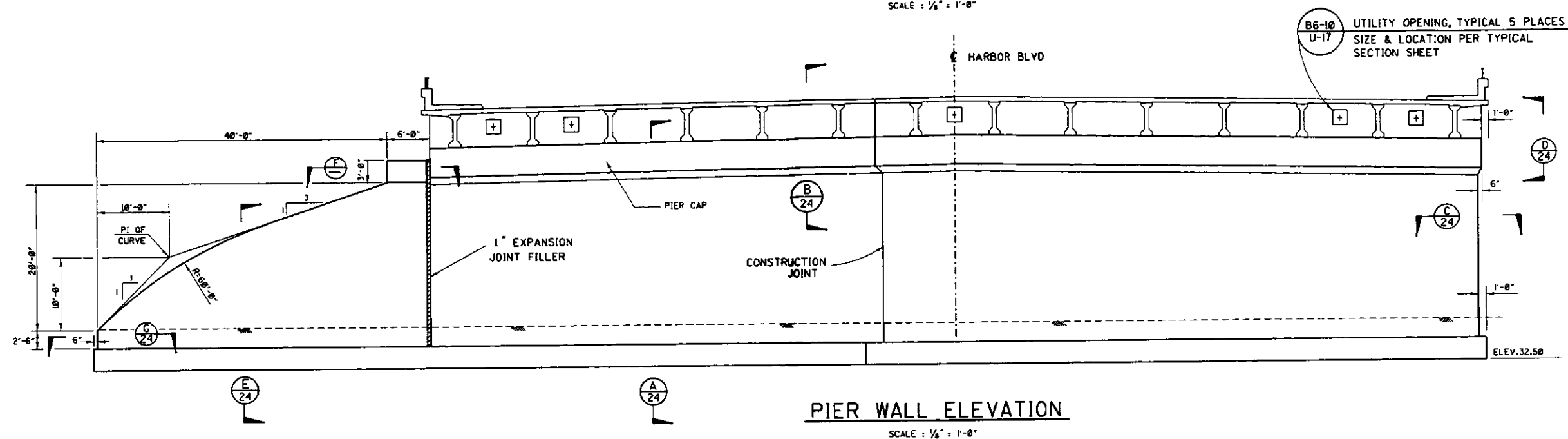
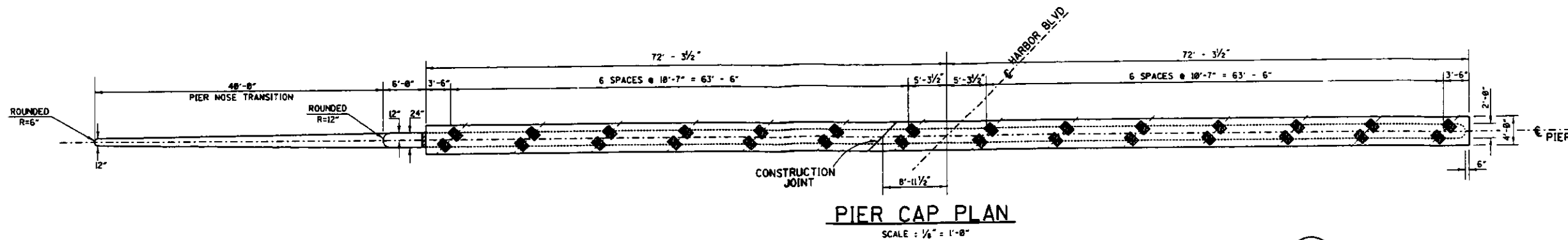
Scale: 2" = 1'-0"

3 inches on original drawing 55C-0631

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
APPROACH SLAB	
DESIGNED: RB/RH	CHECKED: RAH
DRAWN: HP/SG	DATE: 3/93
SCALE: AS SHOWN	DRAWING NO. 22 OF 60

RICHARD A. HANCOCK
RCE 39595 (exp. 12-31-93)

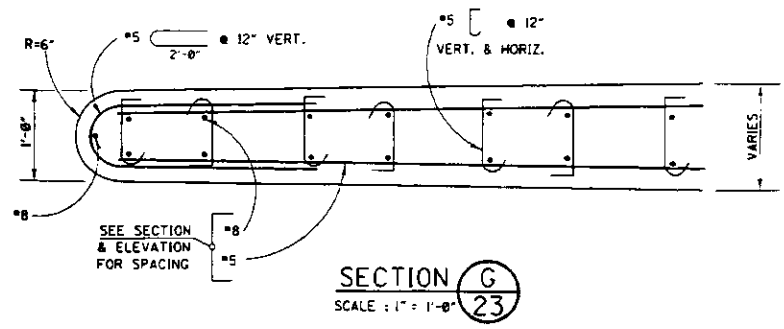
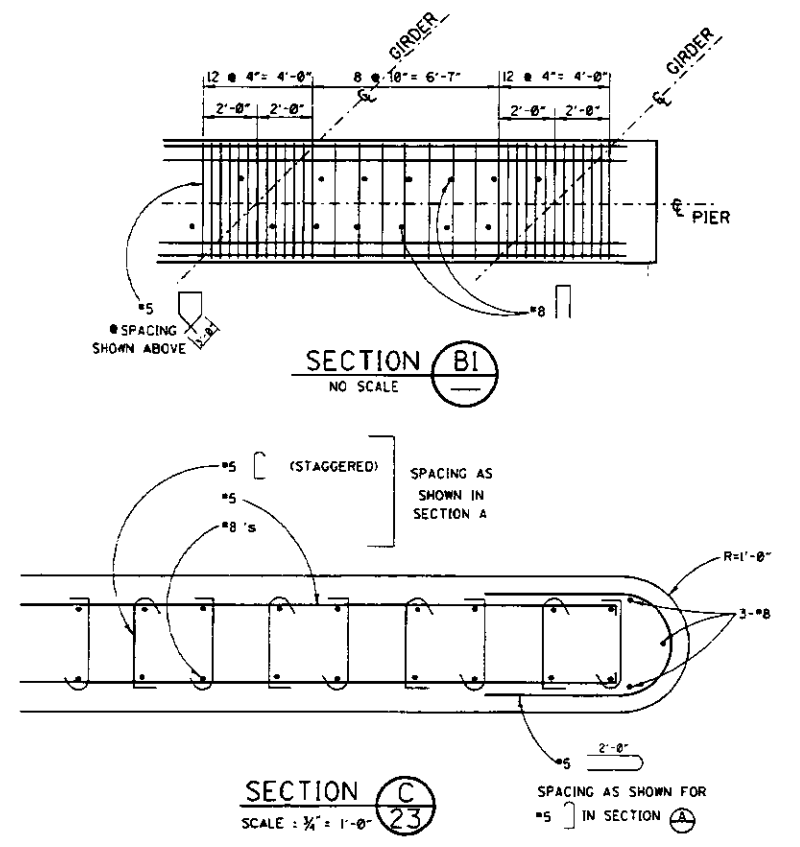
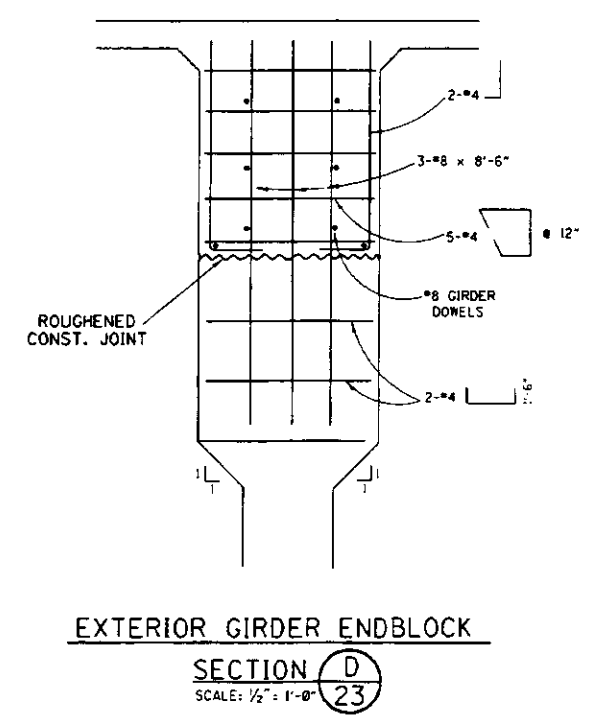
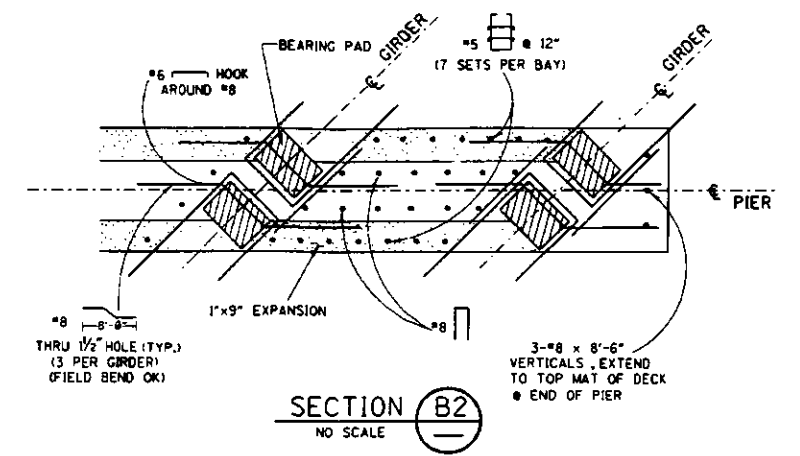
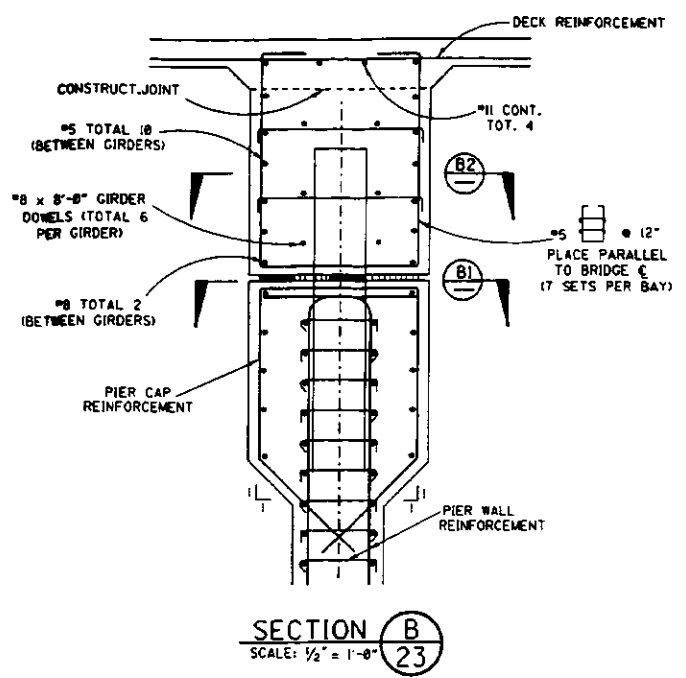
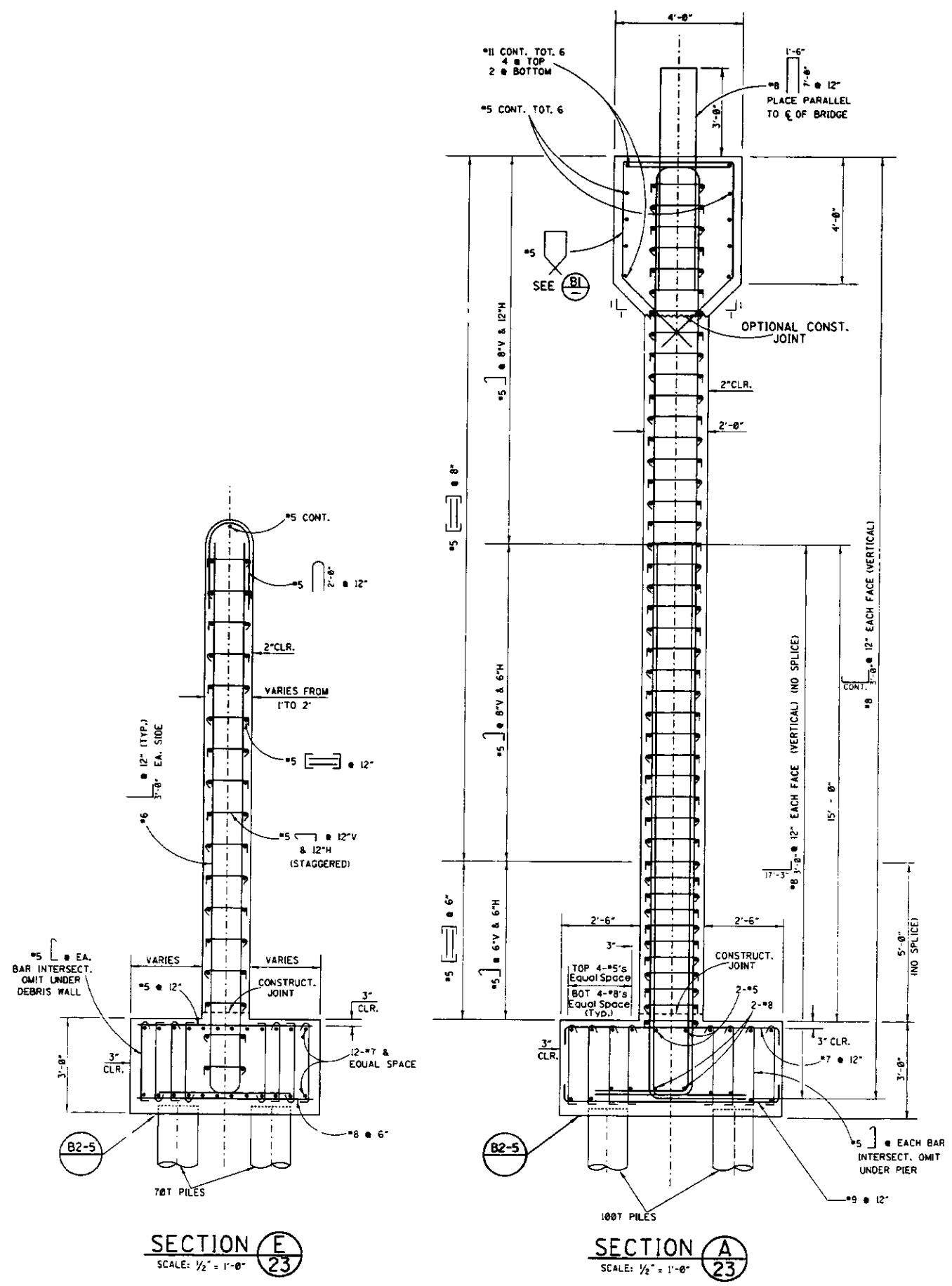
3/4/93



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1/2" = 0' 1" 2"
3 inches on original drawing

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
PIERS	
DESIGNED: RB/RH	SHEET
DRAWN: HP	23
SCALE: AS SHOWN	OF 60
DATE: 3/93	DRAWING NO.
CHECKED: RH	
DATE: 3/4/93	
RICHARD A. RICE 39595 (EXPI. 12-31-93)	



55C-0631

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
HARBOR BLVD. IMPROVEMENTS BRIDGE	
PIER WALL DETAILS	
DESIGNED: RB/RH	SHEET: 24 OF 60
CHECKED: RH	DATE: 3/93
SCALE: AS SHOWN	DRAWING NO. 39595 (EXP. 12-31-93)