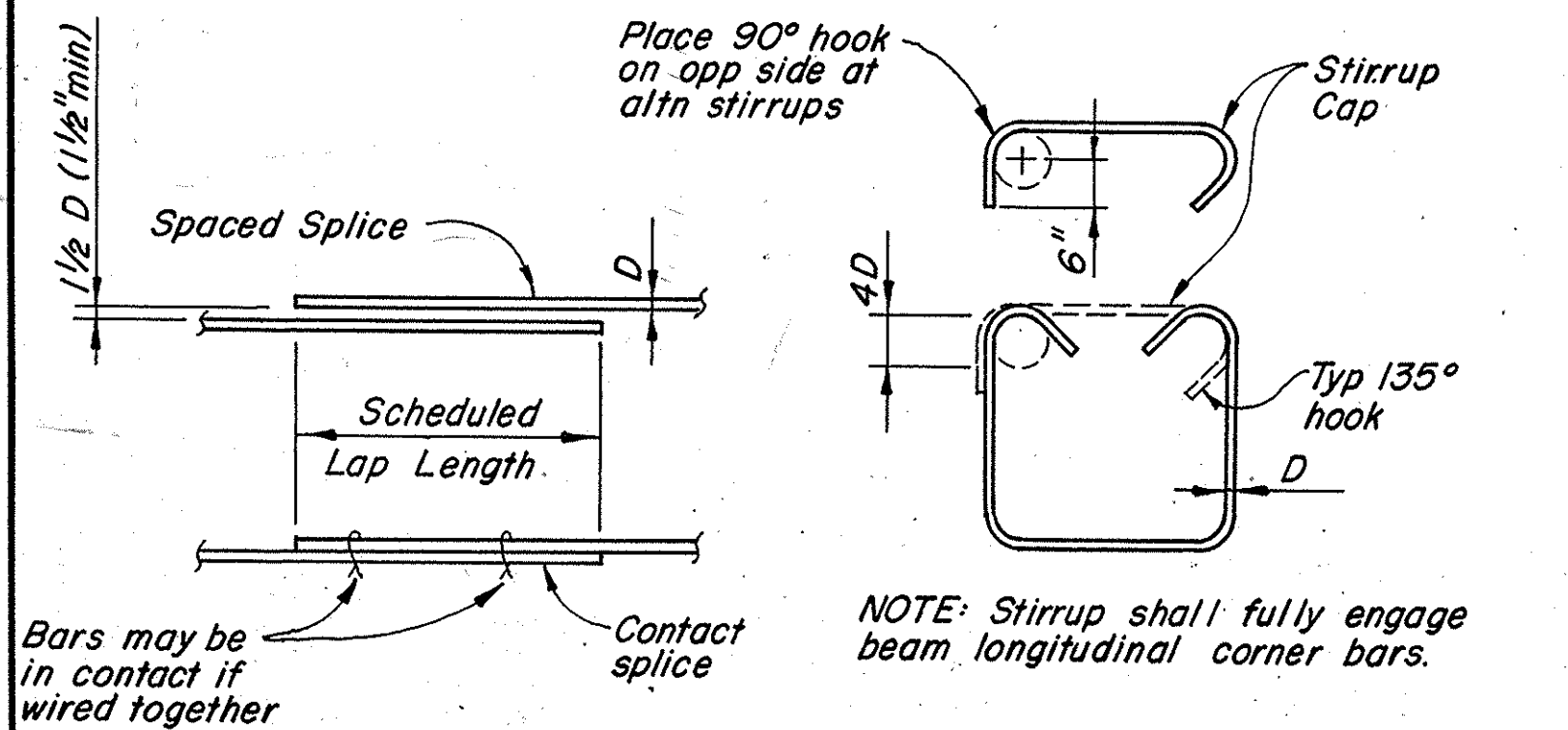
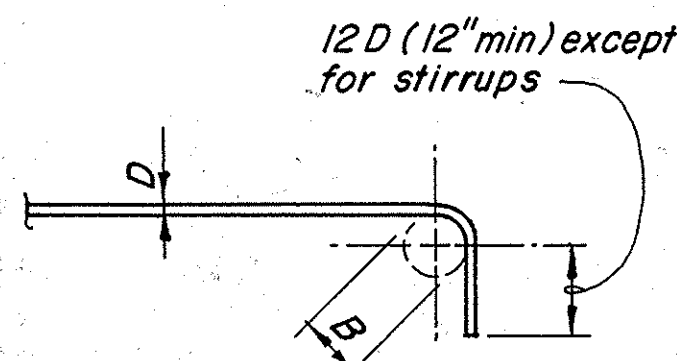
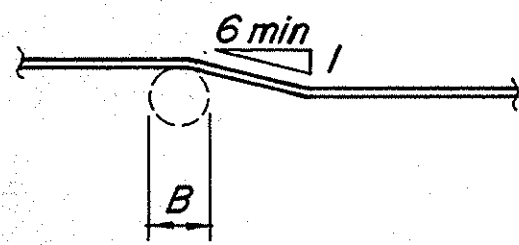




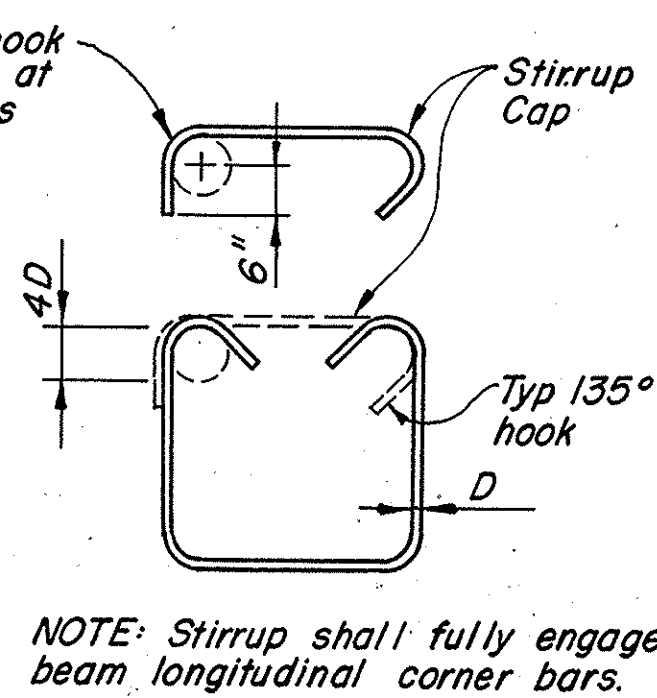
LAP SPLICE



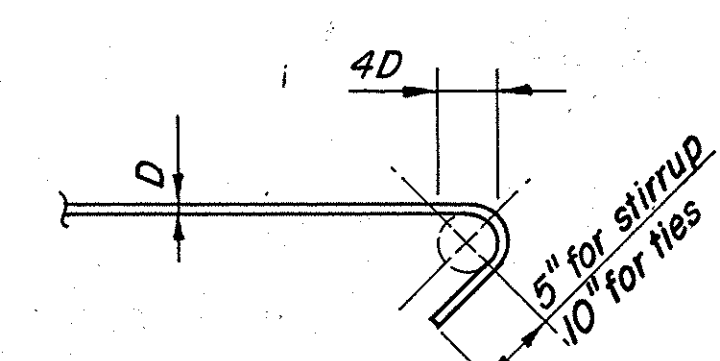
90° HOOK



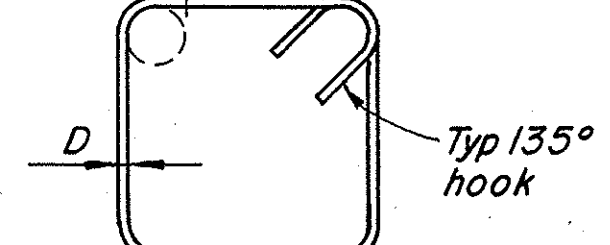
OFFSET



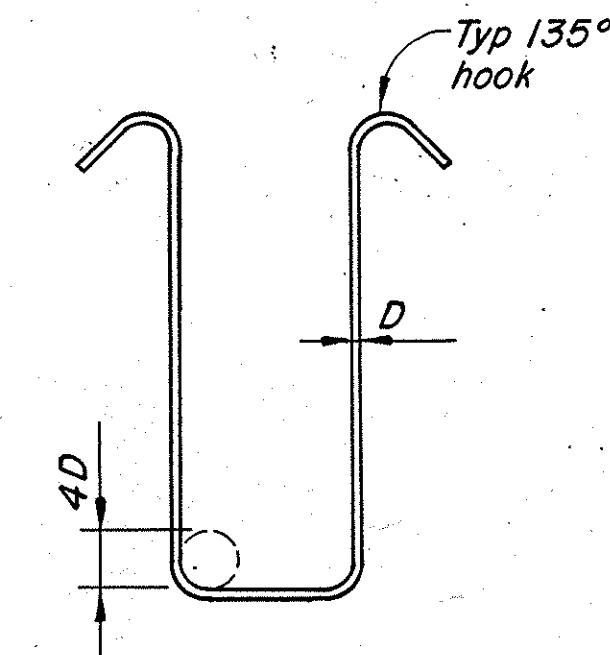
PIER CAP STIRRUP



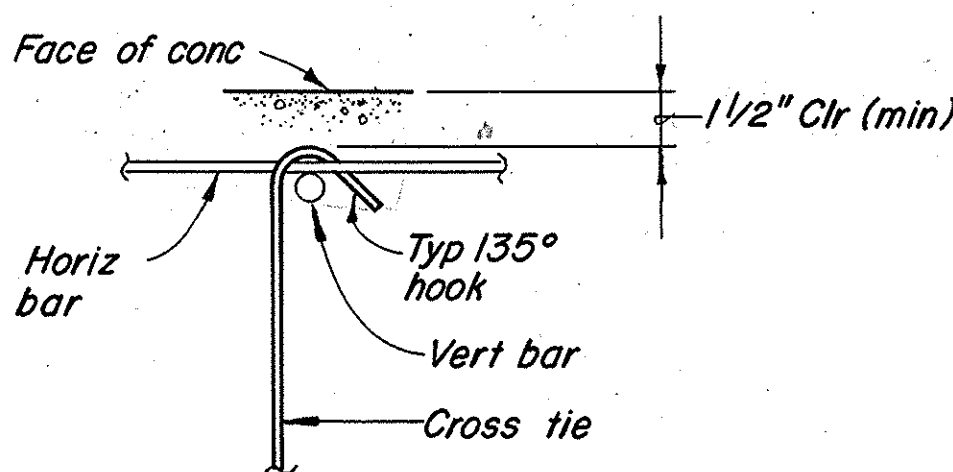
135° HOOK



HOOP TIE



GIRDER STIRRUP



CROSS TIE

BAR LAP SCHEDULE		
Bar Size	Lap Length	
	Top Bars	All Other Bars
#3	22"	18"
#4	30"	24"
#5	36"	28"
#6	42"	34"
#7	48"	40"
#8	60"	46"
#9	78"	68"
#10	88"	76"
#11	110"	94"

BAR BEND SCHEDULE	
Bar Size	B
#3 Thru #8	6D
#9 Thru #11	8D

TYPICAL RST BAR BENDS & LAPS

NO SCALE

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABT	ABOUT
ABUT	ABUTMENT
AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
ADJ	ADJACENT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL	ALUMINUM
ALTN	ALTERNATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AVE	AVENUE
AW	AMERICAN WELDING SOCIETY

BAGR	BRIDGE APPROACH GUARD RAILING
BAL	BALANCE
BARR	BARRIER
BC	BEGIN CURVE
BETW	BETWEEN
BLT	BOLT
BLVD	BOULEVARD
BLW	BELOW
BM	BENCH MARK
BOT	BOTTOM
BRG	BEARING
BS	BOTH SIDES
BVC	BEGIN VERTICAL CURVE

CAM	CAMBER
cf	CUBIC FOOT; CUBIC FEET
CG	CENTER OF GRAVITY
CHAN	CHANNEL
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCT
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CSP	CORRUGATED STEEL PIPE
CTR	CENTER
CU	CUBIC
cy	CUBIC YARD

DBL	DOUBLE
DET	DETAIL
DIA (Ø)	DIAMETER
DIAPH	DIAPHRAGM
DIM	DIMENSION
DK	DECK
DN	DOWN
DWG	DRAWING
DWL	DOWEL

E	EAST
EA	EACH
EB	EXPANSION BOLT
EC	END CURVE
EF	EACH FACE
EJS	ELASTOMERIC JOINT SEALANT
EL	ELEVATION
ELAST	ELASTOMERIC
E'LY	EASTERLY
EQ	EDGE OF PAVEMENT
EQ	EQUAL
EOL	EQUALLY
EVC	END VERTICAL CURVE
EW	EACH WAY
EXP	EXPANSION
EXST	EXISTING

FDN	FOUNDATION
FG	FINISH GRADE
FL	FLOW LINE
FS	FAR SIDE
ft (')	FOOT; FEET
FTG	FOOTING
FUT	FUTURE

GA	GAGE
GALV	GALVANIZED
GR	GRADE
GV	GRAVEL

HORIZ	HORIZONTAL
HS	HIGH-STRENGTH
HSB	HIGH-STRENGTH BOLT
HWL	HIGH-WATER LINE

ID	INSIDE DIAMETER
IF	INSIDE FACE
in (")	INCH
IND	INDICATE
INFO	INFORMATION
INTMD	INTERMEDIATE
INV	INVERT

JT	JOINT
----	-------

kip	1000 POUND-FORCE
kcf	1000 POUND-FORCE PER SQUARE FOOT
ksi	1000 POUND-FORCE PER SQUARE INCH

lb	POUND (MASS)
lbf	POUND-FORCE
lf	LINEAR FOOT; LINEAR FEET
LONG	LONGITUDINAL

MATL	MATERIAL
MAX	MAXIMUM
MBGR	METAL BEAM GUARD RAILING
MIN	MINIMUM
MH	MANHOLE

N	NORTH
NIC	NOT IN CONTRACT
N'LY	NORTHERLY
NO. (#)	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE

OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE

PC	PRECAST CONCRETE
pcf	POUND PER CUBIC FOOT
PEJF	PREMOLDED EXPANSION JOINT FILLER
PEJS	PREFORMED ELASTOMERIC JOINT SEAL
PI	POINT OF INTERSECTION
PJF	POLYSTYRENE JOINT FILLER
PL	PLATE
PP	PRECAST PRESTRESSED
psf	POUND-FORCE PER SQUARE FOOT
psi	POUND-FORCE PER SQUARE INCH
PSP	PERFORATED STEEL PIPE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT

QTY	QUANTITY
-----	----------

R/W	RIGHT OF WAY
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REF	REFER; REFERENCE
REINF	REINFORCE
REQD	REQUIRED
RST	REINFORCING STEEL
RTNG	RETAINING

S	SOUTH
SCHED	SCHEDULE; SCHEDULED
SECT	SECTION
sf	SQUARE FOOT; SQUARE FEET
SHT	SHEET
SIM	SIMILAR
S'LY	SOUTHERLY
SP	SPACE
SPEC	SPECIFICATION
SQ	SQUARE
ST	STREET
STA	STATION
STD	STANDARD
STIF	STIFFENER
STIR	STIRRUP
STL	STEEL
STRL	STRUCTURAL
SYMM	SYMMETRICAL

T&B	TOP AND BOTTOM
TAN	TANGENT
THD	THREAD; THREADED
THK	THICK
THRU	THROUGH
TJS	THERMOPLASTIC JOINT SEALANT
TRANSV	TRANSVERSE
TYP	TYPICAL

UOS	UNLESS OTHERWISE SPECIFIED
-----	----------------------------

VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL

W	WEST
W/	WITH
W/O	WITHOUT
W'LY	WESTERLY
WW	WING WALL

APPROXIMATE QUANTITIES

1	CLEARING & GRUBBING	LS
2	STRUCTURAL EXCAVATION	398 CY
3	STRUCTURAL BACKFILL	224 CY
4	JOINT SEAL	112 LF
5	GUARD RAIL (TYPE 9-11A)	480 LF
6	BAR REINFORCING STEEL	205,000 LB
7	FURNISH H-PILING	1,600 LF
8	DRIVE H-PILING	56 EA
9	REGULAR CONCRETE	361 CY
10	COLOR CONCRETE	576 CY
11	TEXTURED CONCRETE SURFACE	1,280 SF
12	SANDBLAST CONCRETE SURFACE	4,800 SF

STRUCTURAL NOTES

1. GENERAL REQUIREMENTS

MATERIALS, PRODUCTS, WORKMANSHIP, TESTING AND INSPECTION SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION," 1976 EDITION, AND THE MARCH 1977 EDITION OF THE "STANDARD PLANS" ISSUED BY THE STATE OF CALIFORNIA BUSINESS AND TRANSPORTATION AGENCY DEPARTMENT OF TRANSPORTATION, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS AND/OR THESE PLANS.

2. MATERIALS, PRODUCTS AND CONSTRUCTION

MATERIALS, PRODUCTS AND CONSTRUCTION SHALL CONFORM TO THE FOLLOWING DESCRIPTIONS, MEASUREMENTS, QUALITY STANDARDS, AND/OR STRENGTH REQUIREMENTS, UNLESS OTHERWISE SPECIFIED.

2.1 FILES

2.1.1	TYPE	STEEL HP 10x57
2.1.2	CAPACITY	70 tons

2.2 CONCRETE

2.2.1	CEMENT	ASTM C 150, TYPE II
2.2.1.1	SUPERSTRUCTURE	ASTM C 150, TYPE V
2.2.1.2	ALL OTHER CONCRETE	ASTM C 150, TYPE V
2.2.2	MINIMUM 28-DAY ULTIMATE COMPRESSIVE STRENGTH	3,250 psi
2.2.3	APPROXIMATE AIR-DRY DENSITY	145 pcf
2.2.4	CONCRETE COVERAGE OF REINFORCING STEEL	
2.2.4.1	UNFORMED SURFACE CAST DIRECTLY AGAINST EARTH	3"
2.2.4.2	FORMED AND/OR FINISHED SURFACES	2"
2.2.5	MINIMUM CONSTRUCTION JOINT PREPARATION	SANDBLAST

2.3 REINFORCING STEEL BARS

ASTM A 615, GRADE 60, DEFORMED

2.4 METALS

2.4.1	STRUCTURAL STEEL	ASTM A 36
2.4.1.1	ALL SHAPE TYPES EXCEPT PIPE	ASTM A 53, TYPE B OR S, GRADE B
2.4.1.2	PIPE	ASTM A 53, TYPE B OR S, GRADE B
2.4.1.3.1	HIGH-STRENGTH BOLTS	ASTM A 325
2.4.1.3.2	ALL OTHER BOLTS	ASTM A 307
2.4.1.4	BOLT HOLES	
2.4.1.4.1	MINIMUM EDGE DISTANCE	AISC TABLE 1.16.5
2.4.1.4.2	MINIMUM SPACING	3 BOLT DIAMETERS
2.4.1.5	MINIMUM FILLET WELD SIZE	AISC TABLE 1.17.5

3. DESIGN CRITERIA

THE FOLLOWING STRUCTURAL DESIGN CRITERIA ARE INCLUDED ON THE DRAWINGS FOR ENGINEERING REFERENCE PURPOSES ONLY, AND ARE NOT A PART OF THE CONTRACT UNLESS SPECIFICALLY INDICATED ELSEWHERE IN THE CONTRACT DOCUMENTS.

3.1 DESIGN CODES

CURRENT EDITION OF THE "BRIDGE PLANNING AND DESIGN MANUAL" ISSUED BY THE STATE OF CALIFORNIA BUSINESS AND TRANSPORTATION AGENCY DEPARTMENT OF TRANSPORTATION AND AASHTO'S 1973 EDITION OF "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", INCLUDING THE 1974, 1975, 1976 AND 1977 "INTERIM SPECIFICATIONS"

3.2 DESIGN LOADS AND COEFFICIENTS

3.2.1	BRIDGE SUPERSTRUCTURE LIVE LOADING	AASHTO HS20-44 AND ALTERNATE
3.2.2	TRANSVERSE FORCE APPLIED TO TRAFFIC RAILING	10,000 lbf
3.2.3	TOTAL LATERAL SEISMIC FORCE DESIGN COEFFICIENT (CF) TRANSVERSE	0.12
		LONGITUDINAL 0.25

3.3 SOILS AND FOUNDATION DESIGN

3.3.1	REFERENCE	REPORT OF SOILS AND FOUNDATION INVESTIGATION, DATED 9 JUN 1977 AND ADDENDUM REPORTS, DATED 12 JAN 1979, 21 DEC 1979 AND 15 FEB 1980 PREPARED BY COUNTY OF ORANGE ENVIRONMENTAL MANAGEMENT AGENCY
3.3.2	ALLOWABLE SOIL DESIGN VALUES	
3.3.2.1	LATERAL PASSIVE BEARING PRESSURE	300 psf/ft (4,500 psf MAX)
3.3.2.2	LATERAL ACTIVE PRESSURE OF RETAINED EARTH WITH LEVEL SURFACE	36 psf/ft
3.3.2.3	LATERAL AT-REST PRESSURE OF RETAINED EARTH WITH LEVEL SURFACE	50 psf/ft
3.3.2.4	FILE LATERAL CAPACITY	0.0000

3.4 DESIGN METHODS

3.4.1	ALL MATERIALS	LOAD FACTOR DESIGN
3.4.2	FOUNDATIONS	SERVICE LOAD DESIGN

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

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
EL TORO ROAD BRIDGE NO. AL 0.5 AT ALISO CREEK			
STRUCTURAL NOTES, ABBREVIATIONS & TYP DETS			
MARK	DATE	DESCRIPTION	SHEET
DESIGNED		SCALE	DATE
DRAWN		CHECKED	AS SHOWN
PREPARED UNDER SUPERVISION OF		DWG. NO.	
REVISIONS		42	