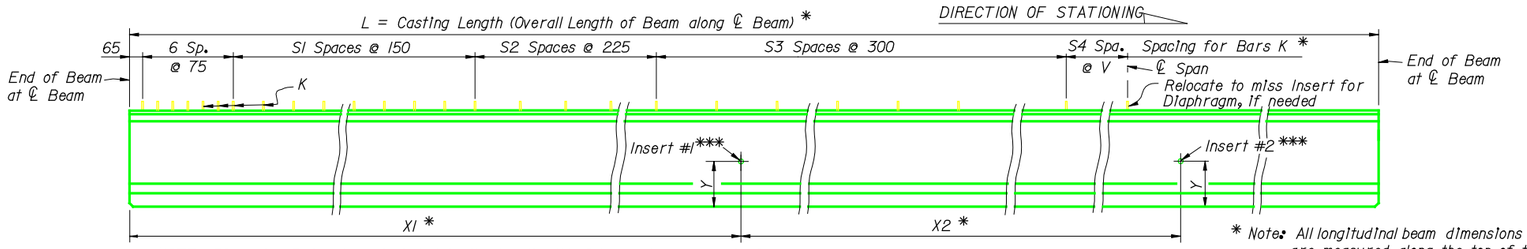
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



NOTE: Dimension R has been included in the lengths (L) of beams to compensate for elastic and time-dependent shortening effects.

ELEVATION

* Note: All longitudinal beam dimensions shown on this sheet with a single asterisk (*) are measured along the top of the beam at the centerline of beam.

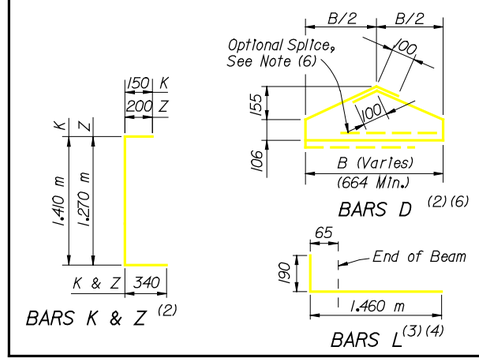
** Note: End of beam bearing dimensions "J" and "K" are measured along the bottom of the beam.

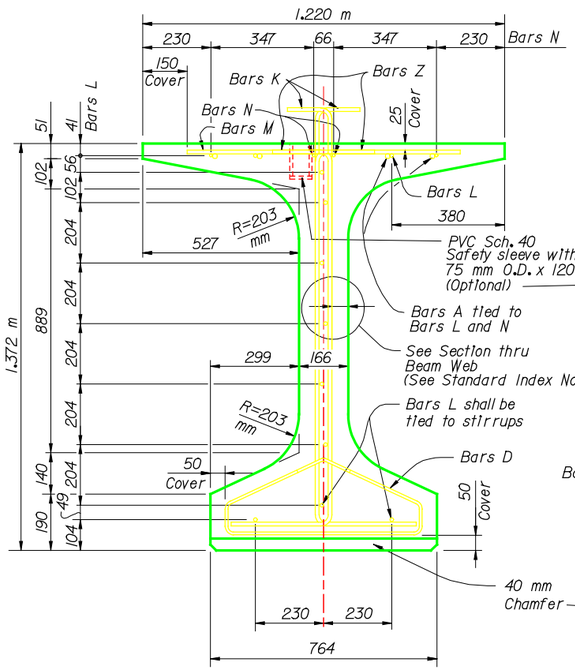
*** Note: Locations of inserts in beam web for intermediate diaphragm reinforcing. When inserts are required the dimensions and orientation will be shown in the Table. For insert details, see the "Typical Notes and Details" sheet.

BILL OF REINFORCING STEEL FOR ONE BEAM ONLY

MARK	SIZE	NO. REQUIRED	LENGTH (1)
A	#16	8	See Table
D (2)(6)	#10	30	Varies (1.809 m Min.)
K (2)	#13	See Table	1.900 m
L (3)(4)	#13	22	1.650 m
M (10)	#13	14	Varies (920 Min.)
N (5)	No. 9 Strand	4	See Table
Z (2)	#13	24	1.810 m

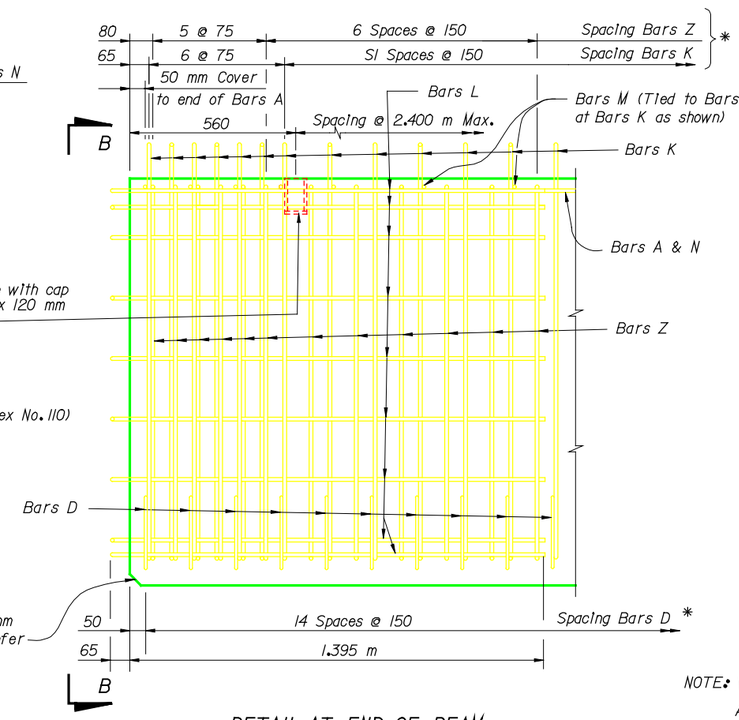
BENDING DIAGRAMS (1)





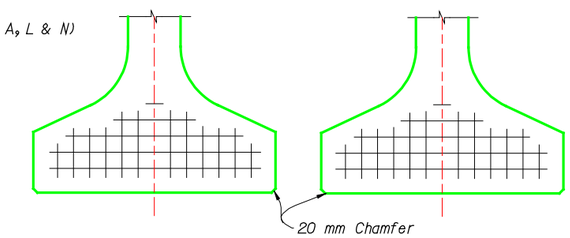
VIEW B-B

(With strands omitted, see Table for reference to strand pattern.)



DETAIL AT END OF BEAM

NOTE: Bars K & Z shall be placed and tied to the top of the fully bonded prestressing strands in the bottom row.



TYPE 1 TYPE 2

STRAND PATTERNS AND DEBONDING SCHEDULE

NOTE: ○ -Indicates fully bonded strands.

□ -Indicates referenced pair of strands to be debonded the length shown which is measured from the end of the beam. *

NOTE: Work this sheet with Standard Index No. 110.

All Dimensions are in millimeters (mm), except as noted.

NOTES:

(1) All bar dimensions are out-to-out.

(2) Bars D, K, and Z shall be bent around pins having the following diameters for respective sizes:

Bar Size	Pin Diameters
#10	40 mm
#13	50 mm

(3) Bars L shall be bent prior to the beam leaving the prestressing yard. For treatment of Bars L at skewed beam ends, see "Plan Ends of Beams".

(4) Caution should be used with Bars L in the ends of exterior beams to assure that the bent portion of the bar is properly oriented so that the bar will be embedded in the diaphragm concrete.

(5) Bars N shall be either ASTM A416/A416M, Grade 1725 or 1860, seven-wire strands size No. 9 or larger, stressed to 45 kN each.

(6) The minimum Dimension B and length of Bars D shown apply to one-piece Bars D placed perpendicular to the centerline of the beam. Dimension B and the length of Bars D for beams with skewed ends vary with the skew (See "Plan Ends of Beams").
At the Contractor's option, Bars D may be fabricated either as a two-piece bar with a 360 mm lap splice of the bottom legs or may be welded wire fabric, one or two-piece, provided the wire size and spacing furnishes the same steel area as the #10 Bars shown.

(7) (NS) means Near Side and (FS) means Far Side, both referring to which face of the beam web is to receive the insert for the dimensioned location. (NS) and (FS) are referenced to the DIRECTION OF STATIONING shown.

(8) CONTRACTOR'S OPTION: Welded deformed wire fabric may be used in lieu of Bars D, K, L and Z provided that the wire sizes and spacing match those shown on this sheet for these bars. In this event, Bars K and Z may be fabricated with the omission of the lower outstanding leg provided that two longitudinal wires are placed (welded) at the lower end of the bar. The first (lower) wire shall be located 25 mm from the end of Bars K and Z and the second wire 50 mm minimum from the first wire, but no less than 1/4 of the beam depth from mid-depth of the beam. In addition, Bars Z may consist of pairs of bars with the cross sectional area of the pair equal to or greater than the shown conventional single bar.

(9) Welded wire fabric shall conform to ASTM A497.

(10) Bars M vary at the ends of sharply skewed beams. Place first two bars parallel to skewed end of beam and the remainder so as to transition from skewed end to an axis perpendicular to centerline of beam.

NOTE: Place Bars K and Z one (1) each space (alternate).

TABLE OF BEAM VARIABLES																								REINFORCING STEEL		
BEAM ID.	CONCRETE PROPERTIES			STND PTRN TYPE	PLAN VIEW CASE	END ELEV COND.	END OF BEAM AND BEARING DIMENSIONS **				BEAM DIMENSIONS *			NUMBER OF SPACES FOR STIRRUP BARS K				DIAPHRAGM INSERT LOCATIONS*					A	K	N
	CLASS	STRENGTHS REL. (f'ci)	STRENGTHS 28-DAY (f'c)				ANGLE Ø	DIM P	DIM J	DIM K	DIM L	DIM R	DIM V	S1	S2	S3	S4	DIM X1	DIM X2	DIM Y	NS/FS (7) #1	NS/FS (7) #2	LENGTH *	NO. REQ'D	LENGTH *

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
4-97	SHM	Added (Optional) to PVC Safety sleeve note	97R		
8-97	SHM	Changed D, K & Z Bar Sizes and Spacings, and modified Notes (2), (5) and (6)			

	NAMES	DATES
DRAWN BY		
CHECKED BY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		

ENGINEER OF RECORD.

LOGO.

SEAL.

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	PROJECT NO.

SHEET TITLE: FLORIDA BULB-T 54 BEAMS

DRAWING NO. 1 of 1

PROJECT NAME.

INDEX NO. S-111

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DATE "" TIME