

ERECTION DIAGRAM

* FOR ANGLE OF CROSSING ≥ 80°, DIAPHRAGMS SHALL BE INLINE. FOR ANGLE OF CROSSING < 80°, DIAPHRAGMS SHALL BE STAGGERED.

SERVICE BEAM REACTIONS (KIPS)			
BEAM SPAN (€ BRG-€ BRG) (FT)	DC	DW	LL+I
70	86	9	126
80	98	10	132
90	115	11	137
100	130	13	142
110	140	14	147

THIS TABLE IS FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THE FINAL DESIGN DRAWINGS

DC DENOTES SERVICE DEAD LOADS DUE TO BEAM SELF WEIGHT, DECK WEIGHT, & DIAPHRAGMS
 DW DENOTES SERVICE BEAM REACTION DUE TO FUTURE WEARING SURFACE
 LL+I DENOTES SERVICE LIVE LOAD PLUS IMPACT REACTION PER LANE

BEAM DEPTH (INCHES)	PRESTRESSING STRAND LIFTING DEVICES					
	NUMBER OF STRANDS AND SIZE					
	3 - 1/2"	3 - 0.6"	4 - 1/2"	4 - 0.6"	6 - 1/2" Δ	6 - 0.6" Δ
36	32	39	41	49	64	78
42	39	47	49	60	78	94
48	45	54	57	68	90	108

THIS TABLE SHOULD INCLUDE ONLY APPLICABLE INFORMATION ON THE FINAL DESIGN DRAWINGS

Δ DOUBLE LOOPS WITH 3 STRANDS EACH

NOTES:

CONCRETE INSERTS FOR INTERMEDIATE DIAPHRAGMS SHALL BE 7/8" DIAMETER; DAYTON SUPERIOR, TYPE B-1 HEAVY OR TYPE B-18; WILLIAMS FORM, TYPE C 12 OR TYPE C -19; MEADOW BURKE, TYPE CT-2 OR TYPE CX-4; OR EQUAL. INSERTS (COIL OR FERRULE) MUST BE ELECTROPLATE GALVANIZED IN ACCORDANCE WITH ASTM B633, SERVICE CONDITION 4. INSERTS SHALL BE CAST WITH THE BEAMS. FIELD INSTALLATION OF INSERTS IS NOT ALLOWED.

CONCRETE INSERTS FOR BACKWALLS SHALL BE 1" DIAMETER (AT EXPANSION ABUTMENT) & 1/2" DIAMETER (AT FIXED ABUTMENT); DAYTON SUPERIOR, TYPE B-1 HEAVY OR TYPE B-18; WILLIAMS FORM, TYPE C 12 OR TYPE C -19; MEADOW BURKE, TYPE CT-2 OR TYPE CX-4; OR EQUAL. INSERTS (COIL OR FERRULE) MUST BE ELECTROPLATE GALVANIZED IN ACCORDANCE WITH ASTM B633, SERVICE CONDITION 4. INSERTS SHALL BE CAST WITH THE BEAMS. FIELD INSTALLATION OF INSERTS IS NOT ALLOWED.

ALL STEEL FOR DIAPHRAGMS SHALL BE COATED ACCORDING TO SUBSECTION 716 OF THE STANDARD SPECIFICATIONS AND SHALL BE HOT-DIPPED GALVANIZED.

THE ESTIMATED BEAM CAMBER AT RELEASE IS [XX"]. THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.

THE ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE IS [XX"].

PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS AS FOLLOWS:
 0.6" DIA. - 44,000 lbs. PRESTRESS.

TOTAL ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE IS [X"].

LIFTING DEVICES SHALL BE REMOVED AFTER BEAMS ARE ERECTED. REMOVAL IS INCLUDED IN THE BID ITEM "PREST CONC BULB-TEE BEAM, ERECT, [XX] INCH BY [XX] INCH".

USE NON-DEFORMED STEEL RODS IN ACCORDANCE WITH AASHTO M 270 GRADE 36 AND HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M 111, AS POSITION DOWELS FOR PRECAST BEAMS.

THE COMPRESSIVE STRENGTH OF THE CONCRETE AT THE TIME OF PRESTRESSING FORCE RELEASE SHALL NOT BE LESS THAN 7000 psi.

THE COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE NOT LESS THAN 8000 psi AT 28 DAYS.

ITEMS CAST INTO THE BEAMS TO FACILITATE BRIDGE CONSTRUCTION (FORMING, FINISHING, ETC.) SHALL BE GALVANIZED OR EPOXY COATED.

PRESTRESSING STRAND SHALL BE 0.6" NOMINAL DIAMETER MEETING THE REQUIREMENTS OF AASHTO M203 (ASTM A416), GRADE 270, LOW RELAXATION STRAND.

BEAM STEEL REINFORCEMENT, INCLUDING STIRRUPS, SHALL BE GRADE 60 (KSI).

ANY HOLES CAST OR FORMED IN THE BEAM SHALL BE FILLED WITH NON-SHRINKING GROUT.

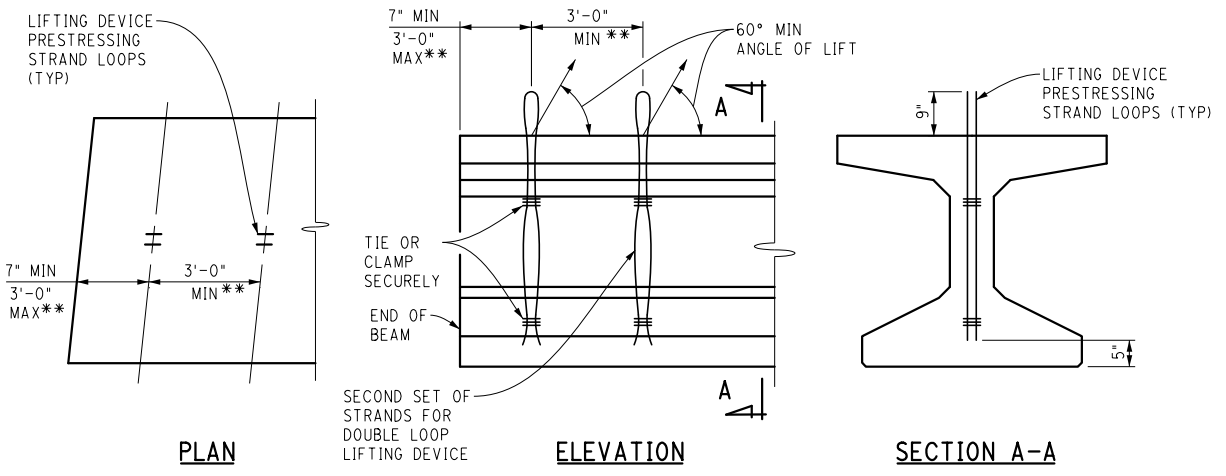
THE OUTER 6" OF THE TOP SURFACE OF THE BEAM SHALL BE FABRICATED TO A SMOOTH TROWEL FINISH, AND THEN COATED WITH A BOND BREAKER AS SPECIFIED IN SECTION 708 OF THE STANDARD SPECIFICATIONS.

COAT ALL BEAMS EXCEPT BEAM TOPS USING A MATERIAL SELECTED FROM THE SPECIAL PROVISION FOR CONCRETE SURFACE COATINGS. APPLY THE COATING ACCORDING TO THE SPECIAL PROVISION. SEE AESTHETIC DETAILS FOR ADDITIONAL DETAILS.

STEEL FOR DIAPHRAGMS, SOLE PLATES, AND OTHER BEARING COMPONENTS SHALL MEET THE REQUIREMENTS OF AASHTO M270 GRADE 36.

COST OF PIPE SLEEVES IS INCLUDED IN THE BID ITEM "PREST CONC BULB-TEE BEAM, FURN, [XX] INCH BY [XX] INCH".

ITEMS CAST INTO STRUCTURAL PRECAST CONCRETE TO FACILITATE BRIDGE CONSTRUCTION (FORMING, FINISHING, ETC.) SHALL BE GALVANIZED OR EPOXY COATED.



DETAILS OF LIFTING DEVICE

LIFTING OF BEAM SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES.

LIFTING DEVICES SHALL BE REMOVED.

** INCREASE AS REQUIRED TO MAKE BEAM LATERALLY STABLE DURING HANDLING.

FOR INFORMATION ONLY:

THE DESIGN OF THESE STRUCTURES IS BASED ON 1.2 TIMES THE CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATION HL-93 LOADING WITH THE EXCEPTION THAT THE DESIGN TANDEM PORTION OF THE HL-93 LOAD DEFINITION SHALL BE REPLACED BY A SINGLE 60 KIP AXLE LOAD BEFORE APPLICATION OF THIS 1.2 FACTOR. THE RESULTING LOAD IS DESIGNATED HL-93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH.

A 4" HAUNCH SECTION WAS USED FOR THE LOADING ON ALL BEAMS. THE HAUNCH SECTION WAS NOT INCLUDED IN THE COMPOSITE SECTION PROPERTIES FOR THE DESIGN OF THE BEAMS.

A 9" DECK SECTION WAS USED FOR THE LOADING ON ALL BEAMS. THE EFFECTIVE DECK SECTION IS 7 1/2" AND THE SACRIFICIAL DECK SECTION IS 1 1/2".

THE LONGITUDINAL "EA" BARS IN THE TOP AND BOTTOM FLANGES OF THE BEAMS ARE NOT INCLUDED TO PROVIDE ADDITIONAL CAPACITY.

BEAM DESIGNS DO NOT INCLUDE PRESTRESSING STRANDS IN THE TOP FLANGES.

"A" & "B" ARE MEASURED FROM BRIDGE CONST € TO ADJACENT BEAM €.

THE ABOVE NOTES ARE FOR INFORMATION ONLY AND SHOULD NOT BE INCLUDED ON THIS SHEET.

□ VALUES TO BE DETERMINED BY DESIGNER

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE:)								NO SCALE	DATE: 05/09/18	CS:	PRESTRESSED BEAM DETAILS		DRAWING	SHEET
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION		DESIGN UNIT:	JN:	BULB-TEE BEAM		BTB	SECT
									TSC:				001	