



NOTE: -Ve UPWARD, +Ve DOWNWARD
THE DEFLECTION HAS BEEN CHECKED AS PER UIC 776:3R
TABLE 3 AND FOUND TO SAFE.

Sr. No.	ACTIVITY	DAYS	STRENGTH
1	PLACING REINFORCEMENT & STRANDS PRESTRESSING OF STRANDS.	0	—
2	PLACING MOULDS & POURING OF CONCRETE.	0	—
3	TRANSFER OF PRESTRESS	8 DAYS OF CONCRETING OF 1-GIRDER	45 MPa
4	CASTING OF DECK SLAB, DIAPHRAGM AND PARAPET AT CASTING YARD	21 DAYS OF CONCRETING OF 1-GIRDER	60 MPa
5	TRANSFER OF ENTIRE SUPERSTRUCTURE (GIRDER+SLAB) ON BEARING	28 DAYS OF CONCRETING OF DECK SLAB	100% STRENGTH OF CONCRETE OF DECK SLAB
6	START OF LAUNCHING ACTIVITY IMMEDIATELY AFTER PLACING OF SUPERSTRUCTURE ON PIERCAP	—	—
7	APPLICATION OF SUPER IMPOSED DEAD LOAD AFTER COMPLETION OF LAUNCHING ACTIVITY	—	—

(a) CONCRETE : GRADE OF CONCRETE IN PSC GIRDER = M60

(b) PRESTRESSING STEEL

- PRESTRESSING STEEL SHALL BE STRESS RELIEVED LOW RELAXATION CLASS II STRANDS CONFORMING TO IS: 14268 WITH MINIMUM ULTIMATE STRENGTH OF 1862 Mpa.
- NOMINAL DIA OF STRANDS SHALL BE 15.2mm 7 PLY WITH A CROSS SECTION AREA OF 140sqmm.
- MODULUS OF ELASTICITY = 1.95×10^6 Mpa.
- JACKING FORCE FOR EACH STRAND SHALL BE 195.50 kN 7 PLY WITH A CROSS SECTION AREA OF 140sqmm.

DEBONDING OF STRANDS SHALL BE DONE WITH 20mm DIA HOLLOW RIGID HDPE PIPE. MINIMUM CLAMP COVER TO PRESTRESSING STEEL SHALL BE 35mm.

ALL PRECAUTION ARE TO BE TAKEN AS PER IRC-SP-71-2018 & IRC CBC-1997 DURING CASTING & ERECTION.

PRESTRESS SHALL BE RELEASED SYMMETRICAL TO VERTICAL AXIS OF GIRDER.

ADJUSTMENT FOR ACTUAL AREA & MODULUS OF ELASTICITY SHALL BE DONE AS PER STANDARD PRACTICE.

CONSTRUCTION:

- (a) THE GIRDER SHALL BE CAST IN ONE CONCRETION OPERATION WITHOUT ANY CONSTRUCTION JOINT.
- (b) OPERATION TO BE FOLLOWED DURING CASTING OF GIRDER:
 - i) PLACE TENSIONED REINFORCEMENT CAGE (PRE-FORMED).
 - ii) INSERT THE PRE-STRESSING STRANDS THROUGH THE REINFORCEMENT CAGE.
 - iii) PRE-TENSION THE STRAND.
 - iv) PLACE THE MOULDS AFTER APPLYING THE MOULD RELEASE AGENT.
 - v) POUR THE CONCRETE & COMPACT AS PER THE STANDARD & ACCEPTED PRACTICE.
 - vi) TIE THE STRANDS BY RELEASING THE HYDRAULIC JACKS MINIMUM CONCRETE STRENGTH AT TRANSFER SHALL BE 45MPa & MINIMUM AGE OF CONCRETE IS 8 DAYS, WHICHEVER IS LATER.
- (c) REMOVE THE MOULDS & LIFT THE BEAMS FROM SPECIFIC LIFTING POINTS & SHIFT THEM TO THE STACKING YARD.
- (d) SUDDEN CUTTING OF STRANDS PROHIBITED THIS OPERATION SHALL BE DONE CAREFULLY & GRADUALLY.
- (e) COMPACTION OF CONCRETE AT GIRDER ENDS (WHERE REINFORCEMENT IS CONGESTED) IS TO BE DONE CAREFULLY.
- (f) THE TOP SURFACES OF GIRDERS SHALL BE HACKED TO REMOVE LATANCE BEFORE ERECTION.
- (g) CASTING OF DECK SLAB, DIAPHRAGM AND PARAPET AT CASTING YARD. MINIMUM STRENGTH OF CONCRETE = 60 N/mm² OR 21 DAYS, WHICHEVER IS LATER.
- (h) TRANSFER OF ENTIRE SUPERSTRUCTURE (GIRDER+SLAB) ON BEARING. AFTER 100% OF STRENGTH OF DECK SLAB IS ACHIEVED OR 28 DAYS AFTER CONCRETING OF DECK SLAB, WHICHEVER IS LATER.
- (i) START OF LAUNCHING ACTION IMMEDIATELY AFTER PLACING OF SUPERSTRUCTURE ON PIERCAP
- (j) APPLICATION OF SUPER IMPOSED DEAD LOAD AFTER COMPLETION OF LAUNCHING ACTION

10. ELONGATION:
THE ELONGATION SHOULD BE MEASURED AT A RATE $(0.75 \times 1862 \times 1000 / 1.95E) = 7.161 \text{ mm/m}$
SUITABLE CORRECTION SHALL BE APPLIED BASED ON DIFFERENT MATERIAL
PROPERTIES GIVEN AGAINST 3b ABOVE.

11. ELONGATION GIVEN SHALL BE MODIFIED AT SITE IN CASE ACTUAL AREA VALUE OF STRAND 'A'
MODULUS OF ELASTICITY 'E' VARIES FROM THOSE ASSURED IN DESIGN, REVISED EXTENSION
SHALL BE CALCULATED AS UNDER

$$\text{REVISED EXTENSION} = \frac{\text{EXT.X (140mm2X1.95X10}^5\text{)}}{(\text{NEW AREA X NEW MODULUS})}$$

12. STRAND CUTTING SEQUENCE SHALL BE SYMMETRIC WITH RESPECTIVE CENTER LINE OF GIRDER AT A TIME THERE SHALL NOT BE ECCENTRICITY OF MORE THAN 1 STRAND.

13. AFTER PRETENSIONING THE STRANDS AND BEFORE CONCRETING, A RECHECK SHALL BE MADE TO ENSURE THAT THE DEBONDING TUBES ARE PLACED AT THE INTENDED LOCATIONS. BOTH ENDS OF THE DEBONDING TUBES SHALL BE EFFECTIVELY SEALED AGAINST INGRESS OF ANY CEMENT SLURRY USING EPOXY PUTTY OR ANY OTHER SUITABLE MATERIAL.

14. DIAMOND BIT SAW OR GRINDER WITH CUTTING WHEEL SHALL BE USED TO CUT

15. PRE-TENSIONING OF STRANDS MAY BE CARRIED OUT USING MULTI PULL JACK.

ELONGATION AT THE PRESTRESSING END SHALL BE CHECKED AS PER

CL. NO. 4.2 OF IS: 6867-1

16. RECOMMENDED DIMENSIONAL TOLERANCES FOR PRECAST GIRDERS:

(a) LENGTH : $\pm 10\text{mm}$
(b) FLANGE WIDTH & THICKNESS : $\pm 5\text{mm}$
(c) DEPTH : $\pm 5\text{mm}$
(d) WEB THICKNESS : $\pm 3\text{mm}$
(e) POSITION OF TENDONS : $\pm 3\text{mm}$
(f) MAXIMUM SURFACE ROUGHNESS : 1.5mm ON 3.0m TEMPLATE

17. WHILE CALCULATING EFFECTIVE ELONGATION OF PRESTRESSING STRANDS, ACTUAL DEFORMATION OF THE BUTTRESSES SHALL BE ACCOUNTED AND SUBTRACTED FROM THE ELONGATION OF THE PRESTRESSING STRANDS MEASURED AT SITE DURING STRESSING.

18. DEVELOPMENT LENGTH REPRESENTED BY L_d SHALL BE EQUAL TO 41 TIMES THE DIA OF THE BAR

19. LAP LENGTH SHALL BE EQUAL TO 58 TIMES THE DIA. OF BAR AND NOT MORE THAN 50% OF THE BARS SHALL BE LAPPED AT A SECTION.

20. ALL LAPS SHALL BE STAGGERED. NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY SECTION.

21. ADEQUATE LINKS/SPACER BARS SHALL BE PROVIDED FOR PROPER POSITIONING OF REINFORCEMENT

22. DOWEL BARS FOR DIAPHRAGM SHALL BE LEFT BEFORE CONCRETING.

1.	022077-BSRP-CR2-C-VD-GEN-20-2423.....	GENERAL ARRANGEMENT FOR 14M STRAIGHT SPAN SUPERSTRUCTURE AT MATKHERE STATION FOR CR2 FOR P159 TO P160 & P161 TO P162 & P163-P164 (UP & DOWN TRACK) - SINGLE TRACK
2.	022077-BSRP-CR2-C-VD-GEN-20-2424.....	REINFORCEMENT DETAILS OF 14M STRAIGHT SPAN SUPERSTRUCTURE AT MATKHERE STATION FOR CR2 FOR P159 TO P160 & P161 TO P162 & P163-P164 (UP & DOWN TRACK) - SINGLE TRACK
3.	022077-BSRP-CR2-C-VD-GEN-20-2426.....	REINFORCEMENT DETAILS OF 14M STRAIGHT SPAN SUPERSTRUCTURE AT MATKHERE STATION FOR CR2 FOR P159 TO P160 & P161 TO P162 & P163-P164 (UP & DOWN TRACK) - SINGLE TRACK (DECK SLAB AND DIAPHRAGM)

NOTES :		LEGEND :		REFERENCE DRAWINGS :		REFERENCE DOCUMENTS :		KEY PLAN		STATION BOX KEY PLAN		EMPLOYER :																																
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