



NOTES:

- (a) CABLE LENGTHS AS MENTIONED ARE EXCLUDING THE LENGTH OF STRAND IN GRIP LENGTH BEYOND THE ANCHORAGES, ON EITHER SIDE, & SHALL BE VERIFIED AT SITE BEFORE CUTTING.
- (b) THE EXTENSIONS ARE BASED ON THE CABLE LENGTH BETWEEN ANCHORAGES ONLY. IN CASE OF ANCHORAGE SLIP OF EXCEEDS 6mm IT SHALL BE REPORTED BACK TO CONSULTANT. EXTENSIONS SHALL BE SUITABLY INCREASED TO ACCOUNT FOR THE GRIP LENGTHS OF JACKS AS PER INSTRUCTION OF THE MANUFACTURER / JACKING AGENCY.

LEGEND:

- POST-TENSIONED CABLES
- ANCHORAGE POINT
- START OF CURVED SEGMENT OF CABLE IN ELEVATION
- END OF CURVED SEGMENT OF CABLE IN ELEVATION
- CABLE MARK

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS STATED OTHERWISE.
- DIMENSIONS SHALL NOT BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- PRESTRESSING SYSTEM:
  - PRESTRESSING STEEL : CLASS II, UNCOATED STRESS RELIEVED, LOW RELAXATION, 7 PLY, 15.2 mm STRANDS WITH MINIMUM BREAKING LOAD OF 260.7 KN CONFORMING TO IS:14268-1995.
  - SHEATHING : 105mm ID FOR 19 T 15 & 85mm ID FOR 12 T 15 HDPE CORRUGATED SHEATHING CONFORMING TO IRC:112-2011
  - ANCHORAGES : 19 T 15
- CLEAR COVER TO SHEATHING DUCTS SHALL BE 75mm.
- DESIGN PARAMETERS ARE AS FOLLOWS:
  - FRICTION COEFFICIENT = 0.17/rad
  - WOBBLE COEFFICIENT = 0.002/m
  - SLIP AT STRESSING END = 6 mm
  - NOMINAL AREA OF EACH STRAND= 139sqmm (A)  
MODULUS OF ELASTICITY OF HIGH TENSION STEEL =  $1.95 \times 10^5$  MPa (E)  
ALL THE DESIGN PARAMETERS SHALL BE VERIFIED AT SITE.
- ALL CABLES SHALL BE LAID AS PER PROFILE AND SUPPORTED BY U SHAPED 16mm DIA HOOKS TIED WITH VERTICAL REINFORCEMENT AT AN INTERVAL NOT MORE THAN 1000mm.
- FIRST STAGE STRESSING SHALL BE DONE AFTER GIRDER CONCRETE ATTAINS MINIMUM STRENGTH OF 40mpa. SECOND STAGE STRESSING SHALL BE DONE AFTER GIRDER CONCRETE ATTAINS FULL STRENGTH.
- CABLES SHALL BE STRESSED FROM OPPOSITE ONE END. HOWEVER STRESSING ENDS CAN BE INTERCHANGED AS PER THE SITE REQUIREMENT.  
ALL THE STRANDS OF CABLES SHALL BE STRESSED SIMULTANEOUSLY. JACKING FORCES INDICATED IN TABLE SHALL BE INCREASED BY A RELEVANT PERCENTAGE TO ACCOUNT FOR ANCHORAGE & JACK FRICTION & EFFICIENCY AS PER THE MANUFACTURERS INSTRUCTIONS.
- INITIAL SLACK IN CABLES SHALL BE REMOVED BY APPLYING SMALL TENSION. THE INITIAL TENSION REQUIRED TO REMOVE SLACK SHALL BE TAKEN STARTING POINT FOR MEASURING ELONGATION & CORRECTION SHALL BE APPLIED AS PER CL.12.2.1.3 OF IS:1343-1980.
- THE JACK PRESSURE SHALL BE CALCULATED AS UNDER  
JACKING EDGE  
$$\text{JACK PRESSURE} = \frac{\text{RAM AREA} \times \text{EFFICIENCY OF JACK}}{\text{ACTUAL AREA}}$$
- THE EXTENSION GIVEN IN TABLE SHALL BE MODIFIED AT SITE IN CASE ACTUAL VALUE OF AREA OF STRANDS 'A' & MODULUS OF ELASTICITY 'E' VARY FROM THOSE ASSUMED IN DESIGN. REVISED EXTENSION SHALL BE CALCULATED AS UNDER  
$$\text{REVISED EXTENSION} = \frac{(1.95 \times 10^5) \times \text{ORIGINAL EXTENSION}}{\text{NEW MODULUS OF ELASTICITY}} \times \text{ACTUAL AREA}$$
- IF AT A SPECIFIED JACK PRESSURE, REQUIRED ELONGATION IS NOT ACHIEVED, THEN THE TENSIONING MAY BE CONTINUED UNTIL THE DESIRED ELONGATION IS REACHED. HOWEVER AT NO STAGE THE JACK PRESSURE SHALL BE MORE THAN 5% OF THE PRESSURE INDICATED IN THE ELONGATION SCHEDULE. ANY SHORT FALL NOTED IN THE ELONGATION SHALL BE INTIMATED TO THE CONSULTANT FOR PROPER REMEDIAL MEASURES.
  - IF AT A SPECIFIED ELONGATION REQUIRED JACK PRESSURE IS NOT ACHIEVED THEN THE TENSIONING MAY BE CONTINUED UNTIL THE REQUIRED JACK PRESSURE IS REACHED. HOWEVER AT NO STAGE THE ELONGATION BE MORE THAN 5% OF THE ELONGATION INDICATED IN THE ELONGATION SCHEDULE.
- EXTENSIONS SHALL BE RECHECKED AT 24 HOURS AFTER ANCHORING TO OBSERVE SLOW SLIPPAGE. THE MATTER SHALL BE REPORTED FOR EXCESSIVE SLIPPAGE IF ANY.
- CABLE SHALL BE GROUTED ONLY AFTER OBSERVING 24 Hr. SLOW SLIP IF ANY.
- GROUTING SHALL BE DONE STRICTLY AS PER RECOMMENDATIONS GIVEN IN IRC:112-2011 ABOUT MATERIALS, EQUIPMENTS, METHOD, TIME, ETC. AND SHALL COMMENCE FROM BOTTOM CABLE UPWARDS.
- ALL ANCHORAGE POCKETS SHALL BE FILLED WITH SAME GRADE OF CONCRETE THAT OF MAIN GIRDER.
- PRESTRESSING STEEL AND ACCESSORIES SHALL BE SUBJECT TO ACCEPTANCE TEST PRIOR TO THEIR ACTUAL USE ON THE SITE.
- ANCHORAGE & END BEARING PLATE & END BLOCK DETAILING SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS CONSIDERING STRENGTH OF CONCRETE AND DIMENSIONS OF GIRDER. ALL THE END BLOCK DETAILING SHALL BE GOT APPROVED FROM THE ENGINEER PRIOR TO EXECUTION.

REFERENCE DRAWINGS:

- 022077-BSRP-CR2-C-VD-GEN-20-5201.....CONCRETE DIMENSIONS FOR POST TENSIONED I GIRDER SUPERSTRUCTURE 28m SPAN
- 022077-BSRP-CR2-C-VD-GEN-20-5203.....REINFORCEMENT DETAILS OF GIRDER FOR POST TENSIONED I GIRDER SUPERSTRUCTURE 28m & 28.772m STRAIGHT SPAN
- 022077-BSRP-CR2-C-VD-GEN-20-5204.....REINFORCEMENT DETAILS OF DECK SLAB, DIAPHRAGM AND CRASH BARRIER FOR POST TENSIONED I GIRDER SUPERSTRUCTURE 28.772m, 28m, 22m, 20.75m, 17.75m & 14m STRAIGHT SPAN

PRESTRESSING CABLE DETAILS FOR STRAIGHT SPAN 28M

CABLE NO.	CABLE TYPE	NO. OF STRANDS IN CABLE	STRESSING SEQUENCE	STAGE OF PRESTRESSING	ELONGATION AT STRESSING END (mm)	LENGTH OF CABLE (M)	JACKING FORCE (KN)	REMARKS
①	19T15	19	1	FIRST	175.990	24.57	3847	
②	19T15	15	2	SECOND	175.590	24.59	3037	

PRESTRESSING CABLE DETAILS FOR STRAIGHT SPAN 28.772M (P153-P155 & P155 TO P156)

CABLE NO.	CABLE TYPE	NO. OF STRANDS IN CABLE	STRESSING SEQUENCE	STAGE OF PRESTRESSING	ELONGATION AT STRESSING END (mm)	LENGTH OF CABLE (M)	JACKING FORCE (KN)	REMARKS
①	19T15	19	1	FIRST	181.360	25.340	3847	
②	19T15	16	2	SECOND	181.030	25.370	3239	

SCHEDULE OF CABLE CO-ORDINATE AT DISTANCE 'X' FROM FACE OF ANCHORAGE:

CABLE NO.	0		1000		2000		3000		4000		5000		6000		7000		8000		9000		10000		11000		UP TO MID SPAN	
	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z
①	800	0	692	0	585	0	477	0	369	0	262	0	176	0	141	0	140	0	140	0	140	0	140	0	140	0
②	1150	0	1064	0	979	0	893	0	807	0	722	0	636	0	550	0	465	0	403	0	390	0	390	0	390	0

NOTES:

LEGEND:

REFERENCE DRAWINGS:

REFERENCE DOCUMENTS:

KEY PLAN

STATION BOX KEY PLAN

REVISIONS:

CONTRACTOR:

TRANSPORTATION INFRASTRUCTURE IC

EDRC-SPECIAL BRIDGES

DETAILED DESIGN CONSULTANT (DDC):

STUP Consultants Pvt. Ltd.

PROOF CONSULTANT (PC):

Indian Institute of Technology Madras

QUALITY ASSURANCE:

GENERAL CONSULTANTS:

CHECKED & APPROVED:

COUNTER SIGN:

PROJECT DIRECTOR:

CIVIL GAD:

CIVIL ALIGNMENT:

CIVIL GEOTECH:

DATE:

NAME:

PREPARED BY:

CHECKED BY:

APPROVED BY:

ISSUED BY:

EMPLOYER:

RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED

GENERAL CONSULTANTS:

ASCOM

egis

AECOM-EGIS-WSP

PROJECT:

BENGALURU SUBURBAN RAILWAY PROJECT (BSRP)

K-RIDE CORRIDOR - 2

DRAWING TITLE:

CABLE PROFILE FOR POST TENSIONED I GIRDER SUPERSTRUCTURE 28m & 28.772m STRAIGHT SPAN

DRAWING NO.:

O22077-BSRP-CR2-C-VD-GEN-20-5202

REVISION:

DWG STATUS:

SCALE:

AS SHOWN

DATE:

25.06.2024

SHEET SIZE:

A1