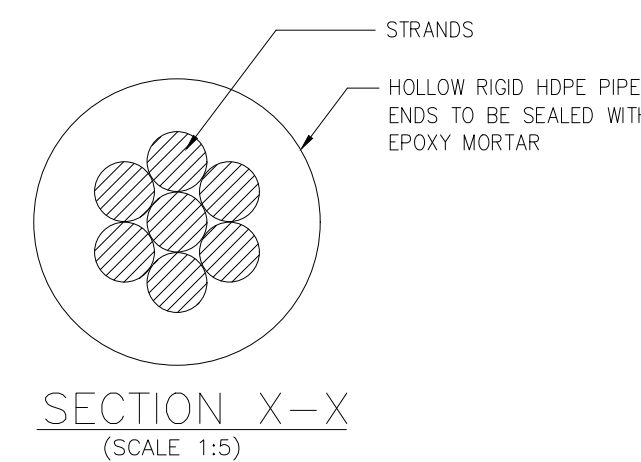
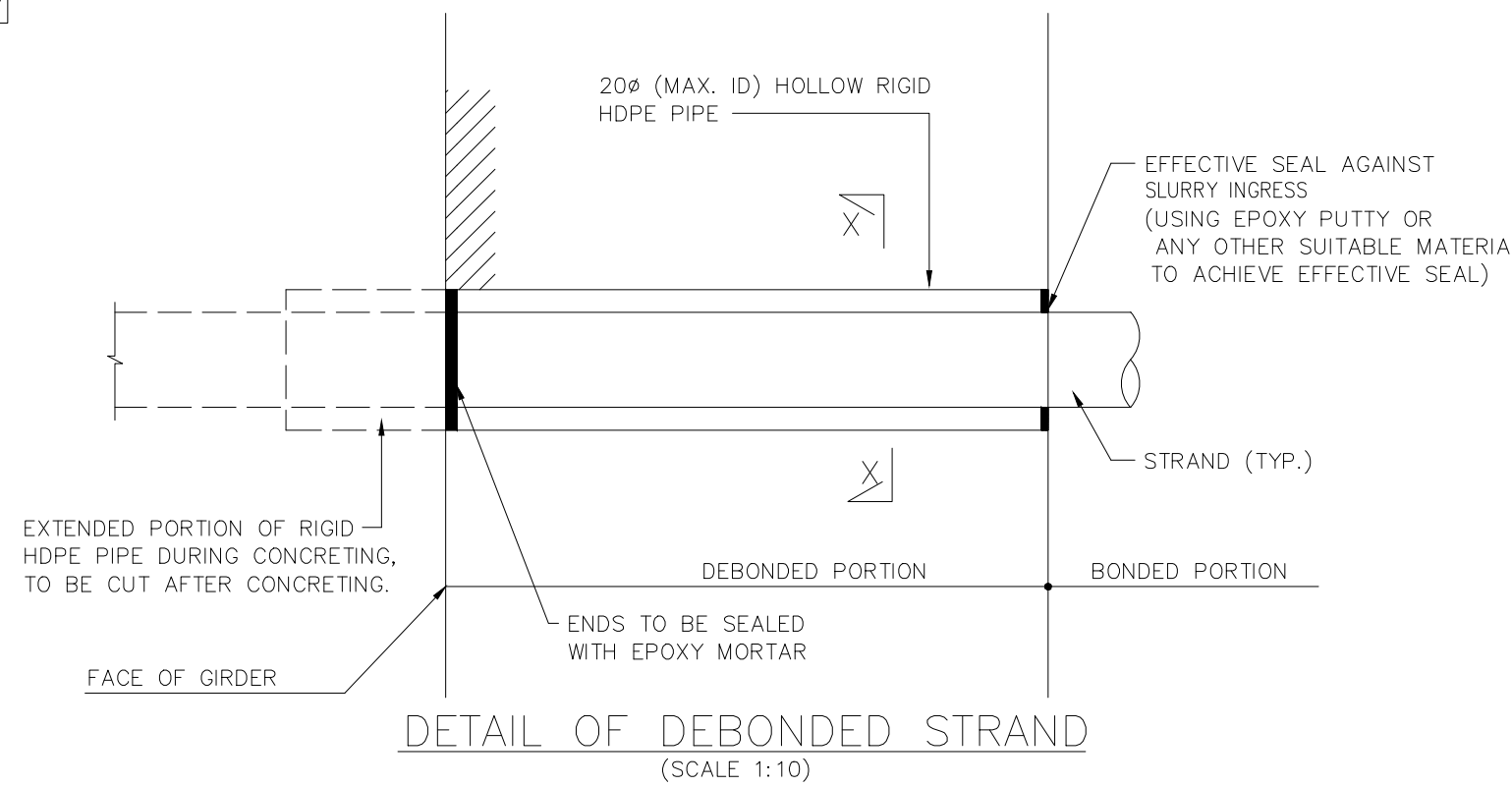
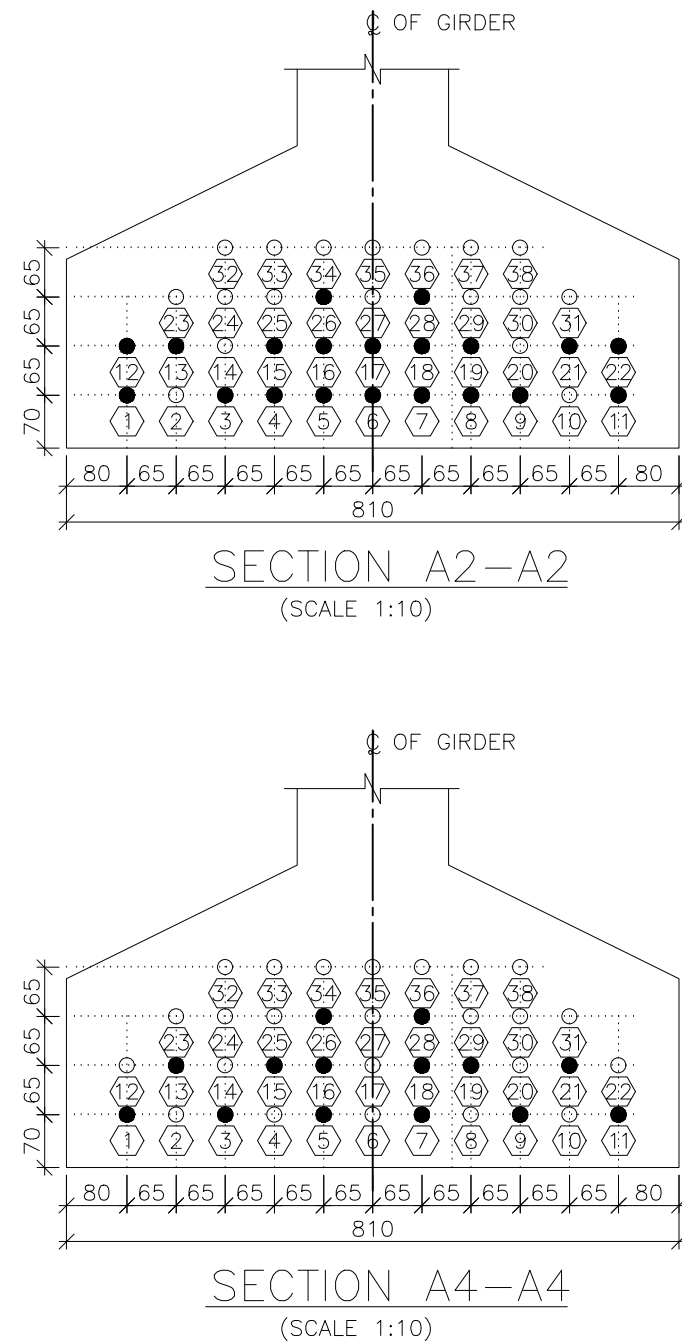
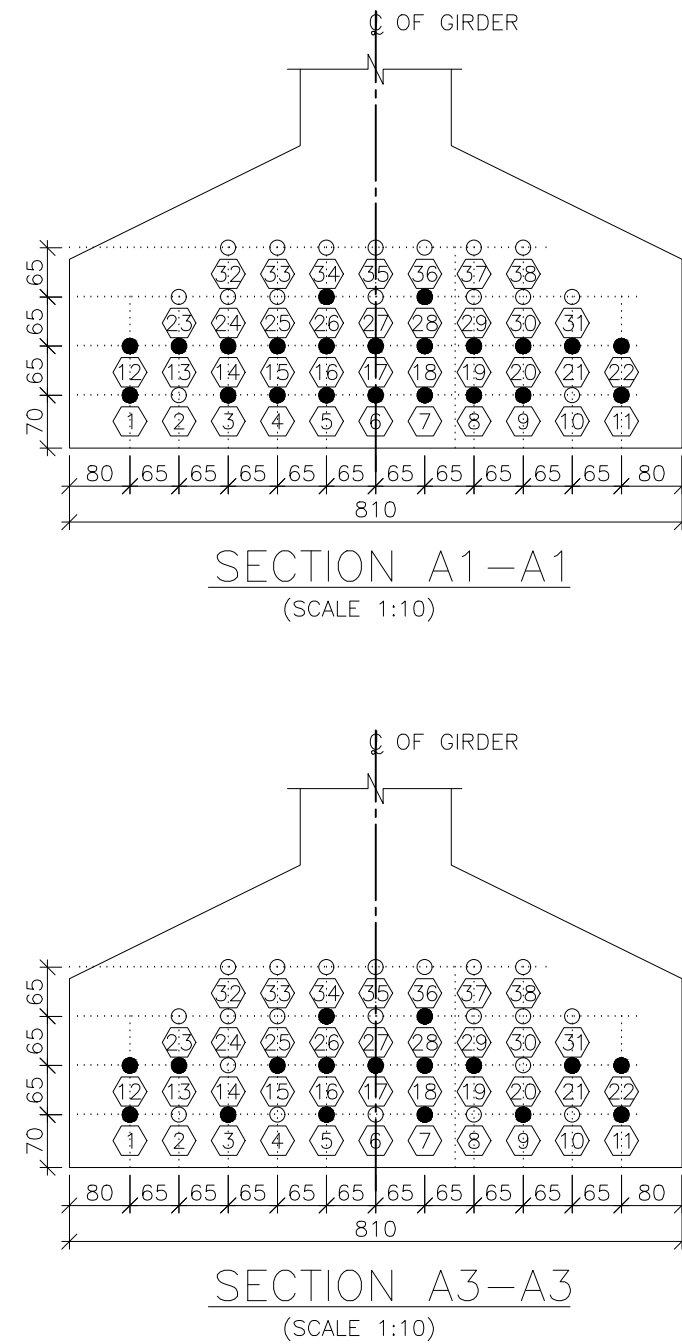
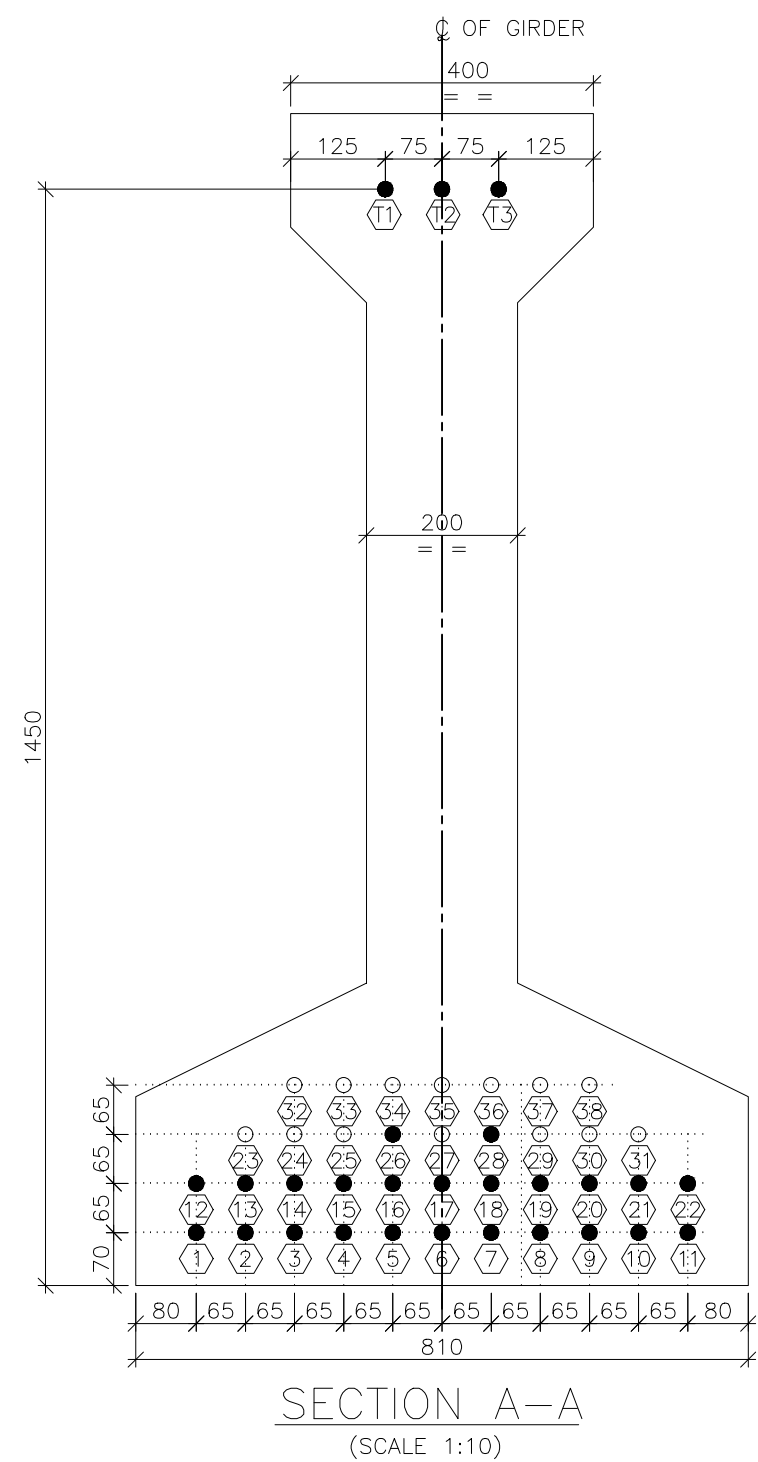


ELEVATION OF INNER GIRDER-G2 & OUTER GIRDER-G1
(SHOWING PRESTRESSING STRANDS ONLY)
(SCALE 1:20)

FULL LENGTH DEBONDED STRANDS. (23 , 24 , 25 , 27 , 29 , 30 , 31 , 32 TO 39)	
ACTIVE STRAND	= 27
INACTIVE STRAND	= 14
TOTAL NO OF STRAND	= 41



DEFLECTION OF GIRDER AT MID SPAN

STAGE	STAGE	G1,G2
1	DL+PSC	-8.137
2	STAGE-1 + SLAB	-5.453
3	STAGE-2 + SIDL	-4.356
4	STAGE-3 + LL	1.225

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 I-GIRDER	45 MPa
4	CASTING OF DECK SLAB, DIAPHRAGM AND PARAPET AT CASTING YARD	21 DAYS OF CONCRETING OF I-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	-	-

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS. UNLESS OTHERWISE MENTIONED.
- THIS DRAWING SHALL NOT BE SCALED, ONLY WRITTEN DIMENSIONS SHOULD BE FOLLOWED.
- MATERIALS:**
 - CONCRETE : GRADE OF CONCRETE IN PSC GIRDER = M60
 - 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 = 1.95×10^5 Mpa.
 - JACKING FORCE FOR EACH STRAND SHALL BE 195.510 kN 7 PLY WITH A CROSS SECTION AREA OF 140sqmm.
- DEBONDING OF STRANDS SHALL BE DONE WITH 20mm DIA HOLLOW RIGID HDPE PIPE.
- MINIMUM CLEAR COVER TO PRESTRESSING STEEL SHALL BE 35mm.
- ALL PRECAUTION ARE TO BE TAKEN AS PER IRC-SP-71-2018 & IRC C80-1997 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:**
 - THE GIRDER SHALL BE CAST IN ONE CONCRETING OPERATION WITHOUT ANY CONSTRUCTION JOINT.
 - OPERATION TO BE FOLLOWED DURING CASTING OF GIRDER:
 - PLACE UNTENSIONED REINFORCEMENT CAGE (PRE-FORMED).
 - INSERT THE PRE-STRESSING STRANDS THROUGH THE REINFORCEMENT CAGE.
 - PRE-TENSION THE STRAND.
 - PLACE THE MOULDS AFTER APPLYING THE MOULD RELEASE AGENT.
 - POUR THE CONCRETE & COMPACT AS PER THE STANDARD & ACCEPTED PRACTICE.
 - RELEASE THE STRANDS BY RELEASING THE HYDRAULIC JACKS MINIMUM CONCRETE STRENGTH AT TRANSFER SHALL BE 40MPa.
 - REMOVE THE MOULDS & LIFT THE BEAMS FROM SPECIFIC LIFTING POINTS & SHIFT IT TO THE STACKING YARD.
 - SUDDEN CUTTING OF STRANDS PROHIBITED THIS OPERATION SHALL BE DONE CAREFULLY & GRADUALLY.
 - COMPACTION OF CONCRETE AT GIRDER ENDS (WHERE REINFORCEMENT IS CONGESTED) IS TO BE DONE CAREFULLY.
 - THE END SURFACES OF GIRDERS SHALL BE HACKED TO REMOVE LAITANCE BEFORE ERECTION.
 - CASTING OF DECK SLAB, DIAPHRAGM AND PARAPET AT CASTING YARD. MINIMUM STRENGTH OF CONCRETE = 60 N/mm2 OR 21 DAYS, WHICHEVER IS LATER.
 - 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.
 - START OF LAUNCHING ACTIVITY IMMEDIATELY AFTER PLACING OF SUPERSTRUCTURE ON PIERCAP.
 - APPLICATION OF SUPER IMPOSED DEAD LOAD AFTER COMPLETION OF LAUNCHING ACTIVITY.
- ELONGATION:**

THE ELONGATION SHOULD BE MEASURED AT A RATE $(0.75 \times 1862 \times 1000 / 1.95 \times 10^5) = 7.161 \text{ mm/m}$ SUITABLE CORRECTION SHALL BE APPLIED BASED ON DIFFERENT MATERIAL PROPERTIES GIVEN AGAINST 3b ABOVE.
- ELONGATION GIVEN SHALL BE MODIFIED AT SITE IN CASE ACTUAL AREA VALUE OF STRAND 'A' AND MODULUS OF ELASTICITY 'E' VARIES FROM THOSE ASSURED IN DESIGN, REVISED EXTENSION SHALL BE CALCULATED AS UNDER
$$\text{REVISED EXTENSION} = \frac{\text{EXT} \times X}{(\text{NEW AREA} \times \text{NEW MODULUS})}$$
- 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.
- 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.
- DIAMOND BIT SAW OR GRINDER WITH CUTTING WHEEL SHALL BE USED TO CUT THE STRANDS.
- 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 IRS-CBG-71.
- RECOMMENDED DIMENSIONAL TOLERANCES FOR PRECAST GIRDERS:
 - LENGTH : $\pm 10 \text{ mm}$
 - FLANGE WIDTH & THICKNESS : $\pm 5 \text{ mm}$
 - DEPTH : $\pm 5 \text{ mm}$
 - WEB THICKNESS : $\pm 3 \text{ mm}$
 - POSITION OF TENDONS : $\pm 3 \text{ mm}$
 - MAXIMUM SURFACE ROUGHNESS : 1.5mm ON 3.0m TEMPLATE
- 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.
- DEVELOPMENT LENGTH REPRESENTED BY L_d SHALL BE EQUAL TO 41 TIMES THE DIA. OF THE BAR.
- 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.
- ALL LAPS SHALL BE STAGGERED, NOT MORE THAN 50% OF REINFORCEMENT SHALL BE LAPPED AT ANY SECTION.
- ADEQUATE LINKS/SPACER BARS SHALL BE PROVIDED FOR PROPER POSITIONING OF REINFORCEMENT.
- DOWEL BARS FOR DIAPHRAGM SHALL BE LEFT BEFORE CONCRETING.

REFERENCE DRAWINGS :

- 022077-BSRP-CR2-C-V-D-GEN-20-2419..... GENERAL ARRANGEMENT FOR 17.75M STRAIGHT SPAN SUPERSTRUCTURE AT MATHIKERE STATION FOR CR2 FOR P160 TO P161 & P162 TO P163 (UP & DOWN TRACK)- SINGLE TRACK
- 022077-BSRP-CR2-C-V-D-GEN-20-2420..... REINFORCEMENT DETAILS OF 17.75M STRAIGHT SPAN SUPERSTRUCTURE AT MATHIKERE STATION FOR CR2 FOR P160 TO P161 & P162 TO P163 (UP & DOWN TRACK)- SINGLE TRACK
- 022077-BSRP-CR2-C-V-D-GEN-20-2422..... REINFORCEMENT DETAILS OF 17.75M STRAIGHT SPAN SUPERSTRUCTURE AT MATHIKERE STATION FOR CR2 FOR P160 TO P161 & P162 TO P163 (UP & DOWN TRACK) - SINGLE TRACK (DECK SLAB AND DIAPHRAGM)

NOTES:	NOTES:	LEGEND:	REFERENCE DRAWINGS:	REFERENCE DOCUMENTS:	KEY PLAN	STATION BOX KEY PLAN	EMPLOYER:																					
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REVISIONS	CONTRACTOR:	QUALITY ASSURANCE	GENERAL CONSULTANTS	EMPLOYER:	PROJECT:																							
	TRANSPORTATION INFRASTRUCTURE IC EDRC-SPECIAL BRIDGES	The responsibility of control, check and verification of accuracy, correctness, completeness, integration and full compliance of Contract provisions in respect of design analysis and drawing rests with Design & Build Contractor.	CHECKED NAME SIGN	RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED	BENGALURU SUBURBAN RAILWAY PROJECT (BSRP) K-RIDE CORRIDOR - 2																							
	DETAILED DESIGN CONSULTANT (DDC):	DDC	NAME SIGN	GENERAL CONSULTANTS:	DRAWING TITLE:																							
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	Indian Institute of Technology Madras	CONTRACTOR:	NAME SIGN	AECOM-EGIS-WSP	DRAWING NO.:																							
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			DATE		PRELIMINARY DWG (P), DEFINITIVE DWG (D), CONSTRUCTION DWG (C), AS BUILT DWG (S), SHOP DWG (S), MANUFACTURED DWG (M)																							
			DATE		SHEET SIZE - A1																							