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रेल इन्फ्रास्ट्रक्चर डेवलपमेंट कंपनी (कर्नाटक) लिमिटेड

Rail Infrastructure Development Company (Karnataka) Limited

K-RIDE

(A Joint Venture of Govt. of Karnataka and Ministry of Railways)

Tender Number: KRIDE/2024-25/OW/WORK_INDENT30/CALL-2

DATE: 15.05.2025

TENDER DOCUMENT

NAME OF WORK:

“RELOCATION, SHIFTING, AND DIVERSION OF BWSSB WATER AND SEWER LINES AT MOHAN KUMAR ROAD, JAYARAM COLONY SLUM, AND OTHER LOCATIONS ALONG CORRIDOR-2 (BENNIGANAHALLI TO CHIKKABANAVARA) OF BENGALURU SUBURBAN RAILWAY PROJECT INCLUDING COORDINATION WITH UTILITY STAKEHOLDERS FOR NECESSARY PERMISSIONS AND APPROVALS”.

RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED (K-RIDE)

Samparka Soudha,
1st Floor, Dr. Rajkumar Road,
Opposite Orion Mall,
Rajajinagar 1st Block, Bengaluru-560010
Email: gmprocurement@kride.in

TENDER DOCUMENT

(Through e-Tendering Mode)

NAME OF WORK

“RELOCATION, SHIFTING, AND DIVERSION OF BWSSB WATER AND SEWER LINES AT MOHAN KUMAR ROAD, JAYARAM COLONY SLUM, AND OTHER LOCATIONS ALONG CORRIDOR-2 (BENNIGANAHALLI TO CHIKKABANAVARA) OF BENGALURU SUBURBAN RAILWAY PROJECT INCLUDING COORDINATION WITH UTILITY STAKEHOLDERS FOR NECESSARY PERMISSIONS AND APPROVALS”.

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SCHEDULE OF BIDDING PROCESS:

SL. NO.	EVENT DESCRIPTION	DATE
1	TENDER NO:	KRIDE/2024-25/OW/WORK_INDENT30/ CALL-2 Dated 14.05.2025
2	TENDER DOCUMENT CAN BE DOWNLOADED FROM	As per KPP Portal
3	PERIOD OF SALE OF TENDER DOCUMENT	NA
4	LAST DATE FOR SALE OF TENDER DOCUMENT	NA
5	LAST DATE FOR RECEIVING QUERIES	The tenderer is requested to submit any questions in writing or by cable to reach the Employer two days before the Pre-Bid
6	PRE-BID MEETING DATE and TIME	As per KPP Portal
7	AUTHORITY RESPONSE TO QUERIES LATEST BY	7 days from the date of pre-bid meeting
8	LAST DATE FOR SALE OF TENDER DOCUMENT	Up to Bid Due Date
9	LAST DATE AND TIME FOR RECEIPT OF BIDS	As per KPP Portal
10	DATE AND TIME OF OPENING OF COVER ONE OF TENDER (TECHNICAL BID)	As per KPP Portal
11	PLACE OF OPENING OF COVER ONE OF TENDERS (TECHNICAL BID)	The opening of the Technical Bid shall take place at e-procurement portal of K-RIDE i.e., https://www.kppp.karnataka.gov.in
12	PLACE OF OPENING OF COVER TWO OF TENDERS (FINANCIAL BID)	The opening of the Technical Bid shall take place at e-procurement portal of K-RIDE i.e. https://www.kppp.karnataka.gov.in
13	DATE AND TIME OF OPENING OF COVER TWO OF TENDERS (FINANCIAL BID)	Will be intimated to the Qualified Tenderers through Karnataka Public Procurement Portal.
14	ADDRESS FOR COMMUNICATION	General Manager / Procurement & Contracts K-RIDE (Rail Infrastructure Development Company (Karnataka) Limited) #8, 1 st Floor, Samparka Soudha, Dr. Rajkumar Road, Opposite Orion Mall Rajajinagar 1 st Block, Bengaluru E Mail: gmprocurement@kride.in

LIST OF ABBREVIATIONS	
ABBREVIATION	FULL FORM
AASHTO:	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS.
AC:	ALTERNATING CURRENT
AEN:	ASST. DIVISIONAL ENGINEER
AFC:	AUTOMATIC FARE COLLECTION
AMCP:	AIR MONITORING AND CONTROL PLAN
API:	AMERICAN PETROLEUM INDUSTRY
ASCE:	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASM:	ASST. STATION MASTER
ASME:	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASS:	AUXILIARY SUB STATION
ASTM:	AMERICAN SOCIETY FOR TESTING MATERIALS
AWS:	AMERICAN WELDING SOCIETY
BBMP:	BRUHAT BENGALURU MAHANAGARA PALIKE
BC:	BITUMINOUS CONCRETE
BESCOM:	BANGALORE ELECTRICITY SUPPLY COMPANY
BG:	BANK GUARANTEE
BIFR:	BUREAU OF INDUSTRIAL AND FINANCIAL RECONSTRUCTION
BIM:	BUILDING INFORMATION MODELLING
BMRL:	BANGALORE METRO RAIL CORPORATION LIMITED
BOCW:	BUILDING AND OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) CENTRE RULES
BS:	BRITISH STANDARD
BSNL:	BHARAT SANCHAR NIGAM LIMITED
BSRP:	BENGALURU SUBURBAN RAILWAY PROJECT
BWSSB:	BANGALORE WATER SUPPLY AND SEWERAGE BOARD
C-1:	CORRIDOR-1 OF BSRP
C-2:	CORRIDOR-2 OF BSRP
C-4:	CORRIDOR-4 OF BSRP
CAD:	COMPUTER AID DESIGN
CAO/C:	CHIEF ADMINISTRATIVE OFFICER/ CONSTRUCTION
CBR:	CALIFORNIA BEARING RATIO
CBTC:	COMMUNICATION BASED TRAIN CONTROL
CC CRIBS:	CHRIST CHURCH CRIBS
CC:	CONDITIONS OF CONTRACT
CCA:	CONTROLLER OF CERTIFYING AUTHORITIES
CCTV:	CLOSED CIRCUIT TELEVISION
CD ROM:	COMPACT DISC, READ ONLY MEMORY
CDPC:	CONSTRUCTION DESIGN PACK CERTIFICATE
CDR:	CORPORATE DEBT. RESTRUCTURING
CFL:	COMPACT FLUORESCENT LAMP
CGM:	COMPUTOR GRAPHICS METAFILE
CH:	CHAINAGE
CIP:	CO-ORDINATED INSTALLATION PROGRAMME
CIP:	CO-ORDINATE INSTALLATION PLAN
CIRIA:	CONSTRUCTION INDUSTRY RESEARCH AND INFORMATION ASSOCIATION

LIST OF ABBREVIATIONS	
ABBREVIATION	FULL FORM
CNC:	COMPUTERISED NUMERICAL CONTROL
COE:	CONTRACTOR'S OWN EARTH
COL:	CUT-OFF LEVEL
CPM:	CRITICAL PATH METHOD
CPVC:	CHLORINATED POLYVINYL CHLORIDE
CPWD:	CENTRAL PUBLIC WORKS DEPARTMENT
CR:	CORE RECOVERY
CSDR:	CHENNASANDRA RAILWAY STATION
CV:	CURRICULLUM VITAE
DBM:	DENSE BITUMINOUS MACADAM
DBR:	DESIGN BASIS REPORT
DC:	DIRECT CURRENT
DDC:	DETAILED DESIGN CONSULTANT
DFC:	DEDICATED FREIGHT CORRIDOR
DFCCIL:	DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LTD.
DFT:	DRY FILM THICKNESS
DG:	DISTRIBUTED GENERATION
DGPS:	DIFFERENTIAL GLOBAL POSITIONING SYSTEM
DIN:	DEUTSCHES INSTITUT FUR NORMUNG e.V.
DIPP:	DEPARTMENT OF INDUSTRIAL POLICY AND PROMOTION
DL:	DANGER LEVEL
DLP:	DEFECT LIABILITY PERIOD
DODL:	DRAWING OFFICE DISPATCH LIST
DPIIT:	DEPARTMENT FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE
DPT:	DYE PENETRATION TEST
DSC:	DIGITAL SIGNATURE CERTIFICATE
DTI:	DIRECT TENSION INDICATORS
Dy.CE/C:	DEPUTY CHIEF ENGINEER/CONSTRUCTION
Dy.CSTE/C:	DEPUTY CHIEF SIGNALLING TELECOMMUNICATION ENGINEER/CONSTRUCTION
EMD:	EARNEST MONEY DEPOSIT
EOT CRANE:	ELECTRIC OVERHEAD TRAVELLING CRANE
EPC:	ENGINEERING, PROCUREMENT AND CONSTRUCTION
EPF:	EMPLOYEES PROVIDENT FUND
EQM:	ENVIRONMENTAL QUALITY MANAGEMENT MANUAL
ESIC:	EMPLOYEES STATE INSURANCE SCHEME
EWC:	EUROPEAN WATER CLOSET
FBIL:	FINANCIAL BENCHMARK INDIA PRIVATE LIMITED
FDR:	FIXED DEPOSIT RECEIPT
FDT:	FOREST DEVELOPMENT TAX
FOIS:	FREIGHT OPERATIONS INFORMATION SYSTEM
FY:	FINANCIAL YEAR
GAD:	GENERAL ARRANGMENT DRAWING
GAIL:	GAS AUTHORITY OF INDIA LIMITED
GCC:	GENERAL CONDITIONS OF CONTRACT
GFC:	GOOD FOR CONSTRUCTION

LIST OF ABBREVIATIONS	
ABBREVIATION	FULL FORM
GGBS:	GROUND GRANULATED BLAST FURNACE SLAG
GIF:	GRAPHICS INTERCHANGE FORMAT
GM:	GENERAL MANAGER
GPR:	GROUND PENETRATION TEST
GSB:	GRANULAR SUB BASE
GTI:	GEO TECHNICAL INVESTIGATION
HAZ:	HEAT AFFECTED ZONE
HDPE:	HIGH DENSITY POLY ETHELENE
HFL:	HIGH FLOOD LEVEL
HLE:	HEELALIGE RAILWAY STATION
HSFG:	HIGH STRENGTH FRICTION GRIP
HTML:	HYPER TEXT MARKUP LANGUAGE
IBH:	INTERMEDIATE BLOCK HUT
ID:	IDENTIFICATION
IDCC:	INDEPENDENT DESIGN CHECKER CERTIFICATE
IFC:	INDUSTRY FOUNDATION CLASSES
IFT:	INVITATION FOR TENDERS
IISC:	INDIAN INSTITUTE OF SCIENCES
IITM:	INDIAN INSTITUTE OF TECHNOLOGY MADRAS
IMP:	INTERFACE MANAGEMENT PLAN
INR:	INDIAN RUPEE
IPC:	INTERIM PAYMENT CERTIFICATE
IR:	INDIAN RAILWAYS
IRBM:	INDIAN RAILWAY BRIDGE MANUAL
IRC:	INDIAN ROAD CONGRESS
IRMRA:	INDIAN RUBBER MANUFACTURERS RESEARCH ASSOCIATION
IRP:	INTERIM RESOLUTION PROFESSIONAL
IRP:	INTERIM RESOULTION PROFESSIONAL
IRPWM:	INDIAN RAILWAY PERMANENT WAY MANUAL
IRS:	INDIAN RAILWAY STANDARD
IRS: CBC	INDIAN RAILWAY STANDARDS: CONCRETE BRIDGE CODE
IS:	INDIAN STANDARD
IST:	INDIAN STANDARD TIME
ITBT:	INSTRUCTIONS TO BIDDERS/TENDERERS
ITT:	INSTRUCTIONS TO TENDERERS
IWC:	INDIAN WATER CLOSET
JAG:	JUNIOR ADMINISTRATIVE GRADE
JIS:	JAPANESE INDUSTRIAL STANDARD
JPEG:	JOINT PHOTOGRAPHIC EXPERTS GROUP
JPO:	JOINT PROCEDURE ORDER
JV:	JOINT VENTURE
JVA:	JOINT VENTURE AGREEMENT
KD	KEY DATE
KM:	KILOMETRE
KPTCL:	KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

LIST OF ABBREVIATIONS	
ABBREVIATION	FULL FORM
KPWD:	KARNATAKA PUBLIC WORKS DEPARTMENT
K-RIDE:	RAIL INFRASTRUCTURE DEVELOPMENT COMPANY(KARNATAKA) LIMITED
KTPP:	KARNATAKA TRANSPARENCY IN PUBLIC PROCUREMENTS
KTPP:	KARNATAKA TRANSPARENCY IN PUBLIC PROCUREMENT
L SECTION:	LONGITUDINAL SECTION
LD:	LIQUIDATED DAMAGES
LDPE:	LOW DENSITY POLYETHYLENE
LED:	LIGHT EMITTING DIODE
LG:	LAUNCHING GIRDER
LL:	LIVE LOAD
LLP:	LIMITED LIABILITY PARTERSHIP
LOA:	LETTER OF ACCEPTANCE
LPB:	LETTER OF PRICE BID
LS COST:	LUMP SUM COST
LTB:	LETTER OF TECHNICAL BID
MARS:	MONTHLY AUDIT RATING SCORE
MCLR:	MARGINAL COST OF FUNDS BASED LENDING RATE
MD:	MANAGING DIRECTOR
MEP:	MECHANICAL, ELECTRICAL AND PLUMBING
MIG:	METAL INERT GAS
MMAW:	MANUAL METAL ARC WELDING
MOHUA:	MINISTRY OF HOUSING AND URBAN AFFAIRS
MORTH:	MINISTRY OF ROAD TRANSPORT AND HIGHWAYS
MPR:	MONTHLY PROGRESS REPORT
MPT:	MAGNETIC PARTICLE TEST
MSP:	MICRO SOFT PROJECT
NABL:	NATIONALACCREDITATIONBOARDFORTESTINGANDCALIBRATION LABORATORIES
NCLT:	NATIONAL COMPANY LAW TRIBUNAL
NHAI:	NATIONAL HIGHWAY AUTHORITY OF INDIA
NI :	NON-INTERLOCKING
NMCP:	NOISE MONITORING AND CONTROL PLAN
NOC:	NO OBJECTION CERTIFICATE
NONO:	NOTICE OF NO OBJECTION
NOR:	NOTICE OF REJECTION
NTP:	NOTICE TO PROCEED
OD:	OUTER DIAMETER
ODBC:	OPEN DATA BASE CONNECTIVITY
OFC :	OPTICAL FIBER CABLE
OHE:	OVER HEAD EQUIPMENT
OMC	OPTIMUM MOISTURE CONTENT
OPC:	ORDINARY PORTLAND CEMENT
OWG:	OPEN WEB GIDER
P.Way:	PERMANENT WAY
PAN:	PERMANENT ACCOUNT NUMBER
PCC:	PARTICULAR CONDITIONS OF CONTRACT

LIST OF ABBREVIATIONS	
ABBREVIATION	FULL FORM
PDF:	PORTABLE DOCUMENT FORMAT
PDM:	PRECEDENCE DIAGRAMMING METHOD
PERT:	PROGRAM EVALUATION REVIEW TECHNIQUE
PH:	POTENTIAL OF HYDROGEN
PMC:	PROJECT MANAGEMENT CONSULTANT
PMIS:	PROJECT MANAGEMENT INFORMATION SYSTEM
POA:	POWER OF ATTORNEY
PPE:	PERSONAL PROTECTIVE EQUIPMENTS
PQMP:	PROJECT QUALITY MANAGEMNT PLAN
PQR:	PROCEDEEE FOR QUALIFICATION RECORD
PRS:	PASSENGER RESERVATION SYSTEM
PSC:	PRE-STRESSED CONCRETE
PSU:	PUBLIC SECTOR UNIT
PVC:	PRICE VARIATION CLAUSE
PVC:	POLYVINYL CHLORIDE
PWD:	PUBLIC WORKS DEPARTMENT
QA:	QUALITY ASSURANCE
QAP:	QUALITY ASSURANCE PLAN
QC:	QUALITY CONTROL
QSC:	QUALITY SYSTEM CERITIFICATE
RA BILL:	RUNNING ACCOUNT BILL
RCC:	REINFORCED CEMENT CONCRETE
RDSO:	RESEARCH DESIGNS AND STANDARDS ORGRANISATION
RE WALLS:	REINFORCED EARTH WALLS
UTES:	RAIL INDIA TECHNICAL AND ECONOMIC SERVICE
RM:	RUNNING METER
RMC:	READY MIXED CONCRTE
RNN:	RAJANUKUNTE RAILWAY SATATION
ROB:	ROAD OVER BRIDGE
ROR:	RAIL OVER RAIL
ROW:	RIGHT OF WAY
RPF:	RAILWAY PROTECTION FORCE
RQD:	ROCK QUALITY DESIGNATION
RRI:	ROUTE RELAY INTERLOCKING
RSI:	RAIL STRUCTURAL INTERACTION ANALYSIS
RT:	RADIOGRAPHY TEST
RUB:	ROAD UNDER BRIDGE
S&T:	SIGNALLING AND TELECOMMUNICATION
SAP:	SYSTEMS APPLICATIONS AND PRODUCTS IN DATA PROCESSING
SAW:	SUBMERGED-ARC-WELDING
SBI:	STATE BANK OF INDIA
SCADA:	SUPERVISORY CONTROL AND DATA ACQUISITION
SCC:	SPECIAL CONDITIONS OF CONTRACT
SCC:	SPECIAL CONDITIONS OF CONTRACT
SD:	SECURITY DEPOSIT

LIST OF ABBREVIATIONS	
ABBREVIATION	FULL FORM
SDR:	STRATEGIC DEBT RESTRUCTURING
SDR:	STRATEGIC DEBT. RESTRUCTURING
SE:	SECTION ENGINEER
SFMS:	STRUCTURED FINANCIAL MANAGING SYSTEM
SHE MANUAL:	SAFETY, HEALTH AND ENVIRONMENT MANUAL
SLS:	SERVICEABILITY LIMIT STATE
SOD:	SCHEDULE OF DIMENSION
SPCB:	STATE POLLUTION CONTROL BOARD
SPT:	STANDARD PENETRATION TEST
SPV:	SPECIAL PURPOSE VEHICLE
Sr. DSTE:	SENIOR DIVISIONAL SIGNALLING AND TELECOMMUNICATION ENGINEER
Sr.DEE:	SENIOR DIVISIONAL ELECTRICAL ENGINEER
Sr.DEN:	SENIOR DIVISIONAL ENGINEER
SRR:	SUBMISSION RESPONSE REQUEST
SRR:	SUBMISSION RESPONSE REQUEST
STR:	SCHEDULE OF TECHNICAL REQUIREMENT
STR:	SCHEDULE OF TECHNICAL REQUIREMENTS
SWR:	SOUTH WESTERN RAILWAY
T&P:	TOOLS AND PLANTS
TAD:	TEMPORARY ARRANGEMENT DRAWINGS
TBM:	TEMPORARY BENCH MARK
TDS:	TAX DEDUCTION AT SOURCE
TPIA:	THIRD PARTY INSPECTING AGENCY
TRD:	TRACTION DISTRIBUTION
TSS:	TRACTION SUB STATION
UPS:	UNINTERRUPTIBLE POWER SUPPLY
UPV:	ULTRA SONIC PULSE VELOCITY
UPVC:	UNPLASTICIZED POLYVINYL CHLORIDE
USD:	U S DOLLAR
USSOR:	UNIFIED STANDARD SCHEDULE OF RATES
UT:	ULTRASONIC TEST
VC:	VIDEO CONFERENCING
WBS:	WORK BREAKDOWN STRUCTURE
WMM:	WET MIX MACADAM
WPQRS:	WELDING PROCEDURE QUALIFICATION RECORDS
WPSS:	WELDING PROCEDURE SPECIFICATION SHEET

SECTION - 1

NOTICE FOR INVITATION FOR TENDERS (IFT)

K- RIDE [Rail Infrastructure Development Company (Karnataka) Limited]
**INVITATION FOR BIDS
(Through e-tendering mode)**

Tender Notice No. KRIDE/2024-25/OW/WORK_INDENT30/CALL-2

Date:15.05.2025

THE RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED (K-RIDE), having its corporate office, at #8, 1st Floor, Samparka Soudha, Dr. Rajkumar Road, Opposite Orion Mall, Rajajinagar 1st Block, Bengaluru-560010, India, which is a Joint Venture of Government of Karnataka and Ministry of Railways invites Bids from eligible Bids, for Relocation, Shifting, And Diversion Of BWSSB Water And Sewer Lines At Mohan Kumar Road, Jayaram Colony Slum, And Other Locations Along Corridor-2 (Benniganahalli To Chikkabanavara) Of Bengaluru Suburban Railway Project Including Coordination With Utility Stakeholders For Necessary Permissions And Approvals detailed in the table below under Single stage: Two tender document system (Technical Bid and Financial Bid).

NAME OF WORK	TENDER SECURITY / EMD	APPROX.VALUE OF WORK	PERIOD
RELOCATION, SHIFTING, AND DIVERSION OF BWSSB WATER AND SEWER LINES AT MOHAN KUMAR ROAD, JAYARAM COLONY SLUM, AND OTHER LOCATIONS ALONG CORRIDOR-2 (BENNIGANAHALLI TO CHIKKABANAVARA) OF BENGALURU SUBURBAN RAILWAY PROJECT INCLUDING COORDINATION WITH UTILITY STAKEHOLDERS FOR NECESSARY PERMISSIONS AND APPROVALS	₹ 15,00,000/- Refer ITT clause 13.7	₹ 15,00,00,000/- Excl GST	12 months

NOTES:

- The detailed terms and conditions of the Project, including the scope of the works, services and obligations are mentioned in Employer's Requirement, Conditions of Contract (CC, SCC, PCC, and Contract Data) and all other related documents in the Bid Document.
- The tenderers are advised to examine the Project in greater detail, and to carry out, at their cost, all such studies and analysis as may be required for submitting their respective Bids for award of the contract.
- The tenderers shall submit the tender through e - procurement portal. The tenderers shall submit scanned copies of their registration certificate, work done certificates and any other documents online. More information can be had from the website <https://www.kppp.karnataka.gov.in>.
- On the schedule date of opening of Tenders, initially, only the Technical Bids will be opened through Karnataka Public Procurement Portal. The Technical Bids will be evaluated by K-RIDE in accordance with the stipulated Qualification and Evaluation criteria. No amendments or changes to the Bids would be permitted after the opening of Bids.
- Financial Bids of tenderers, qualified in the Technical Evaluation, will be opened on the date and at the time advised by K-RIDE through e-tendering portal. The Financial Bids are evaluated, and the Contract is awarded to the tenderer, whose tender has been determined to be the lowest evaluated substantially responsive tender.
- The tenderers are advised to note the eligibility and minimum qualifying criteria specified in the Section 2: Instruction to Tenderers.

7. Tenders must be accompanied by a Tender Security / EMD as per ITT 13.7 in the form mentioned in Section 3: Qualification Information / Bidding Forms - in any one of the forms as specified. The Tender Security / EMD shall have to be valid for 45 days beyond the validity of the tender, specified in the tender documents. Any tenders received without Bid security will be summarily rejected.
8. Incomplete tenders will be considered non-responsive and such tenders will not be considered for further evaluation.
9. Tender Documents can be downloaded as per in e-procurement portal free of cost i.e., <https://www.kppp.karnataka.gov.in> and the tenders must be submitted online via Karnataka Public Procurement Portal only.
10. Drawings referred in the tender document, if any, but not uploaded with the tender document, can be viewed in this office on any working day. The tenderer can also have a copy of the same on payment of non-refundable cost of ₹5,000/- (Rupees Five Thousand only) by an e-Payment mode (credit card/debit card/net banking/UPI) in favour of Rail Infrastructure Development Company (Karnataka) Limited (K-RIDE), Bengaluru.
11. It will be the responsibility of the tenderers, who are submitting their tender based on the tender documents downloaded by them on a particular date, to check for any Addendum/Corrigendum issued in this regard after the date of their downloading, from the relevant website from time to time and to ensure submission of their bids along with all Addenda/Corrigenda. Bids submitted without all Addenda/Corrigenda will be treated as incomplete.
12. **Validity** of the tender: The tenders shall remain valid for a period of **180 days** after the submission deadline prescribed by the Employer. A tender valid for a shorter period will be summarily rejected as non-responsive.
13. In case of need, K-RIDE may request the tenderers to extend the period of validity of their tenders. The request will be made in writing. If a Bid security is requested in accordance with ITT 13.7, it shall also be extended up to the date mentioned in the letter of request for extension. The tenderers may refuse the request without forfeiting their Tender Security. Tenderers extending the validity of their tenders shall not be either required or permitted to modify their tender.
14. **Pre-Bid meeting:** A Pre- Bid meeting will be held on as notified in GoK e-procurement portal in the office of K-RIDE, Bengaluru to understand / discuss the issues / queries with regard to the Bid Document, if any, as stated in Clause – 8.3 of ITT of the Tender document. The queries may be answered subsequently, based on their merits. However, the **queries** shall be sent to K-RIDE by bidders on or before as notified in GoK e-procurement portal **through E-mail** (gmprocurement@kride.in).

The tenderers are advised to submit a copy of the queries in soft copy (word/excel) also in the following format only.

S. N	Reference section	Reference clause	Queries

The tenderer or his authorized representative is invited to attend a pre-bid meeting which will take place at the office of K-RIDE Bengaluru and or @ VC as per the date and time specified in the e -procurement portal. If the tenderer is willing to attend Pre- Bid meeting online then the tenderer is requested to communicate via email- gmprocurement@kride.in at least 02 days prior to date of pre bid meeting so that link can be communicated to the tenderers.

Prospective bidders shall keep checking the websites for any change in the above dates and times.

15. REGISTRATION IN E-TENDERING PORTAL:

- a. The tenderers are required to enroll on the e-tendering Portal (<https://www.kppp.karnataka.gov.in>) by clicking on the link "Tenderers Registration" on the e-tender Portal by paying requisite registration fee, as applicable.
- b. As part of the enrolment process, the tenderers will be required to choose a unique user name and assign a password for their accounts.
- c. The tenderers are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication with the tenderer.
- d. Upon enrolment, the tenderers will be required to register their valid Digital Signature Certificate (Only Class III Certificates with signing & encryption key) issued by any Certifying Authority recognized by CCA, India with their profile.
- e. Only one valid DSC should be registered by a tenderer. Please note that the tenderers are responsible to ensure that they do not lend their DSCs to others, which may lead to misuse.

- f. The tenderers shall then login to the site through the secured log-in process by entering their user ID/password and the password of the DSC / e-Token.
- g. Once the tenderers have searched and selected the proposals, they are interested in, they can pay nonrefundable processing fee as mentioned in the Karnataka Public Procurement Portal.
- h. The scanned copies of all original documents shall be uploaded on e-tendering Portal (<https://www.kppp.karnataka.gov.in>).
- i. For any query regarding e-procurement on the Karnataka Public Procurement Portal, the tenderers can contact helpdesk number **+91-80-46010000**, support@eprochelpdesk.com

16. PRECAUTIONS FOR SUBMITTING/PREPARATION OF PROPOSALS THROUGH E-TENDERING PORTAL

- a. The tenderers, in advance, shall make ready the proposal documents to be submitted, as indicated in the proposal documents / schedule and they shall be in PDF/JPEG formats.
 - b. The tenderers, without waiting till last minute, shall log into the website, well in advance, for the submission of the proposal, so that it gets uploaded well in time i.e., on or before the deadline of the proposal submission time. The bidders themselves will be responsible for any delay in the last minute due to any issues whatsoever viz., server issues, connectivity issues etc.
 - c. The tenderer has to digitally sign and upload the required proposal documents as indicated in the Bid Document.
 - d. The server time (which is displayed on the Employer's dashboard) will be considered as the standard time for referencing the deadlines for submission of the proposals by the bidders, opening of proposals etc.
17. The tenderers shall furnish the Name of the individual / firm / Company with address and telephone number with place of registration, year of incorporation etc.
 18. Tenders by contractors are permitted subject to conditions indicated in tender document.
 19. The application made by the firm / company shall be signed by a person holding the Power of Attorney, in which case the tenderer shall furnish a copy of Power of Attorney.
 20. Bids submitted through any other mode will not be entertained.
 21. Deleted.
 22. All necessary certificates/documents in support fulfilling qualifying criteria stipulated shall be scanned separately and attached to bid document. The original documents if required by the Employer shall be produced whenever asked by Employer on Technical Bid/ Financial Bid.
 23. Deleted.
 24. Site visit and verification of information:

The tenderers are, in their own interest, encouraged to submit their respective Bids after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, water & other utilities for construction, access to site, handling and storage of materials, weather data, all applicable laws and regulations, and any other matter considered relevant by them. The tenderers are advised to visit the site and familiarize themselves with the Project within the stipulated time of submission of the bids. No extension of the deadline either for submission of pre-bid queries or for submission of bids is likely to be considered on this pretext.

It will be deemed that by submitting a bid, the tenderers have:

- (a) made a complete and careful examination of the Bidding Documents, Schedules annexed to the bid document.
- (b) received all relevant information requested from K-RIDE.
- (c) accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters referred to in Clause 25 above. Technical details and drawings provided in the Bid Document are tentative and for indicative purpose. No claim will be admissible at any stage on this account.
- (d) satisfied themselves about all matters, things, and information, including matters referred to in Clause 25 herein above, necessary and required for submitting an informed Bid in the interest of complete execution of the Project in accordance with the Bidding Documents and performance of all obligations there under.

- (e) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in Clause 25 herein above shall not be a basis for any claim for compensation, damages, extension of time for performance of their obligations, loss of profits etc. from the Authority, or a ground for termination of the Agreement by the Contractor.
 - (f) acknowledged that there is no Conflict of Interest, and
 - (g) agreed to be bound by the undertakings provided by them under and in terms hereof.
25. K-RIDE will not be liable for any omission, mistake, or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the Tender document, including any error or mistake therein or in any information or data given in this bid document.
 26. The qualification criteria as indicated in bid document shall be met by the tenderers intending to submit bids.
 27. The tenderers shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Govt. of Karnataka, Govt of India, and any PSUs thereof.
 28. Conditional Tenders will not be accepted and will be summarily rejected.
 29. K-RIDE will not be responsible for any delay by the bidder in accessing Karnataka Public Procurement Portal.
 30. The rates quoted by the tenderer shall be inclusive of all Taxes, Levies & Duties etc. excluding GST.
 31. Building and other construction workers welfare: The tenderer shall subscribe 1% of gross amount of each bill payable to him in respect of contract to the building and other construction workers' welfare cess as per GO No: LD 300 LET 2006, Bengaluru, dated: 18-01-2007. The amount of subscription will be recovered out of payable amount to him in each bill. This component is deemed to have been included in the quoted rate.
 32. **Last Date of Receipt and opening of Bids:** The tenders, complete in all respects, shall be submitted through Karnataka Public Procurement Portal <https://www.kppp.karnataka.gov.in> not later than **as notified in GoK e-procurement portal** and will be opened on **as notified in GoK e-procurement portal**. If the office of K-RIDE happens to be closed on the date of opening of tender, the tenders will be opened on the next working day at the same time and venue.
 33. K-RIDE will not be responsible for any delays in the receipt of tenders by K-RIDE. Late Tenders (received after stipulated date and time of submission of Tenders) will not be accepted under any circumstances. K-RIDE reserves the right to accept/reject any or all the proposals without assigning any reason thereof.
 34. K-RIDE reserves the right to either postpone or to cancel the entire process of the tender.
 35. Any suit or application, arising out of any dispute or differences on account of this tender shall be filed in a competent court at Bengaluru, Karnataka only and no other court or any other district of the country or any other country shall have any jurisdiction in the matter.
 36. For any **Query regarding e tendering portal / tender submission**, the following **help desk numbers** can be contacted **on any working day from 10:30 am to 05:00 pm**, till closing date and time of bids: **+91-80-46010000**
Email: support@eprochelpdesk.com
 37. **Communication:** Interested eligible bidders may obtain further information (with regard to the bid document) required, if any, shall email to gmprocurement@kride.in only. Pre-bid queries will not be entertained after the deadline for their submission.
 38. Queries regarding e tendering portal, tender submission and related minor issues shall not be addressed to the address below and shall be got clarified from helpdesk mentioned above.

General Manager / Procurement & Contracts

K-RIDE [Rail Infrastructure Development Company (Karnataka) Limited],

#8, 1st Floor, Samparka Soudha,

Dr. Rajkumar Road, Opposite Orion Mall

Rajajinagar 1st Block, Bengaluru-560010

E-mail: gmprocurement@kride.in

SECTION – 2
INSTRUCTIONS TO TENDERERS
(ITT)

SECTION 2: INSTRUCTIONS TO TENDERERS (ITT)**TABLE OF CLAUSES**

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K-RIDE

A. GENERAL**1. SCOPE OF THE TENDER**

- 1.1** RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED (K-RIDE), a Joint Venture of Government of Karnataka and Ministry of Railways, with its corporate office at # 8, 1st Floor, Samparka Soudha, Dr. Rajkumar Road, Opposite Orion Mall, Rajajinagar 1st Block, Bengaluru -560010, India, invites tenders from eligible tenderers, for the works detailed in the invitation for the Tenders (IFT).

2. ELIGIBLE TENDERERS

- 2.1** The tenderers, who wish to participate, shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by Govt. of Karnataka / Govt. of India / PSUs.

2.2 JOINT VENTURES- Deleted.**3. QUALIFICATION OF THE TENDERER.**

All the tenderers shall provide the requested information accurately and sufficient details in Section 3:

- 3.1 Qualification information.** Pre-qualification will be based on tenderers meeting all the following minimum pass-fail criteria regarding their general and particular construction experience, financial position, personnel and equipment capabilities, and other relevant information as demonstrated by the Tenderer's responses in the Information Forms attached to the Letter of Technical Bid.

3.2 The following qualification criteria should be met by the intending tenderers.

a)

- 1. The intending Tenderer / firm / company should be a Civil Contractor currently listed for Public Works Department (PWD) or the Central Public Works Department (CPWD) or SPV.**
- 2. Required average annual turnover (In all classes of engineering construction work only): The intending tenderer/firm/ company should have achieved a **MINIMUM AVERAGE ANNUAL CONSTRUCTION TURNOVER of ₹ 30 Crore in Five Financial Years from 2019-20 to 2023-24 (both inclusive)****

NOTE: The tenderers shall submit certificates to this effect which may be **attested certificates** from the concerned **Departments/Client or Audited balance sheet** duly certified by the statutory Auditor duly supported by audited balance sheet. The Turnover certificate duly certified by statutory Auditor should be uploaded. Financial turnover of previous years will be given a weightage of 5% per year or part thereof up to the month previous to the Bid submission month as indicated in qualification information (Tender Forms) Form FIN-2 based on the rupee value to bring them to **FY: 2024-25 price level**.

- b) I) The Tenderer/Firm/company should have satisfactorily completed at least one similar work* of value not less than value **7.5 Crore** at current FY: 2024-25 price level (5% escalation per year) in the last five financial years. (FY 2019-20 to FY 2023-24).**

II) Deleted.

NOTE:

- 1.** The criteria above apply to the Individual tenderer/Firm/company/Joint venture also. Certificate regarding the same duly signed by an officer not below the rank of the Executive Engineer shall be submitted along with the Technical Bid. (The certificate from Project Manager of Client / Concessionaire OR Independent Engineer (Project Management Consultant of Client/Concessionaire) duly validated by the Employer / SPV / Corporation can also be considered).
- 2. * Similar Work** is defined as below:

For para 3.2 b (I) Execution of "**Similar Work**" for this contract shall mean of Shifting /diversion/laying of all type of BWSSB sewer & water lines and any type of civil works done for PSCs, Govt departments of State & Central.

3. The contract is to be substantiated by a certificate from the Employer, who has awarded the contract to the Bidder and the contract amount so received should be equal to or more than the minimum value as per eligibility criteria. **3.2 (b).** The certificate from Project Manager of Client/Concessionaire considered as substantially completed if 80% or more of the work is physically completed which is OR Independent Engineer (Project Management Consultant of Client/Concessionaire) duly validated by the Employer / SPV / Corporation shall also be considered.
4. For completed works, the value of work done shall be updated to current FY 2024-25 price level assuming 5% inflation for Indian rupees every year or part thereof up to the month previous to the Bid submission month. The value of work done shall be inclusive of all taxes (Excluding GST), duties and Price Variations. Credentials if submitted in foreign currency shall be converted into Indian currency i.e., Indian Rupee as under: Bids will be compared in Indian Rupees only. The exchange rate of foreign currency shall be applicable 28 days before the tender submission date. For conversion of foreign currency to Indian Rupee exchange rates published by Reserve Bank of India 28 (twenty-eight) days before the date of bid submission will be considered. In case the particular day happens to be a holiday the exchange rate published on the next working day will be considered. In case of works in foreign currency the effect of inflation is considered as included, as the exchange rate prevailing 28 (twenty-eight) days before tender submission is being considered for conversion to Indian Rupees.

3.2 (c) The intending tenderer / firm/ company should have executed any Civil works any One year (Any continuous 12 months) within last five financial years.

SI No.	Nature of work	Minimum Component of work
1	Should have successfully completed one project of BWSSB similar type of work	1 Nos
2	Should have successfully completed one project of BWSSB water & sewer line maintenance work	01 No

NOTES:

1. The criteria above apply to the Individual tenderer / Firm / company. Certificate regarding the same duly signed by an officer not below the rank of the Executive Engineer should be submitted along with the technical Tender. The certificate from Project Manager of Client / Concessionaire OR Independent Engineer (Project Management Consultant of Client / Concessionaire) duly validated by the Employer / SPV / Corporation shall also be considered.
2. The qualifications, capacity, and resources of proposed subcontractors will not be taken into account in assessing those of individual or joint venture applicants, unless they are named specialist subcontractors.
3. DELETED.

3.3 Each tenderer should further demonstrate the following:

3.3 a) KEY PLANT AND EQUIPMENT:

The intending tenderer / firm / company /Joint venture should furnish details of ownership / lease certificates of the following minimum requirement of machineries:

The bidder must furnish an undertaking with the details of the Key Equipment's to be deployed either owned/ to be made available on Hire/ Lease for this works as listed below and Appendix-05 of section 8-A.

PLANT AND EQUIPMENT

(I) KEY AND CRITICAL EQUIPMENTS

Sl. no	Item Description	Unit	Qty
1	Excavator	Nos	02
2	Dumpers (10t)	Nos	04
3	Concrete mixer	Nos	02
4	Water tanker	Nos	01
5	Pick & Carry (14T)	Nos	01

Notes:

- The above equipment is the minimum requirement and the contractor shall mobilize additional resources as and when required, based on the work requirements without any additional cost to the Employer.
- Deleted.
- The contractor will be penalized as deemed fit by the Employer, in case of any shortage.

3.3 b)

LIQUID ASSETS: The tenderer / firm / company should furnish details of liquid assets and or availability of **credit facilities of ₹ 3.75 Crore for the work** mentioned above for meeting the required funds in the form of own funds/credit lines/certificate from scheduled Nationalized Bank. The tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements for the subject contract in the event of stoppage, startup, or other delays in payment, of the minimum estimated amount stated above, net of the applicant's commitments for other contracts.

The Bidder should have access to or has available liquid assets, lines of credit and other financial means to meet cash flow. The audited balance sheet and/or banking reference certified by Statutory Auditor with their stamp, signature and membership number shall be submitted by the tenderer along with the Tender.

Banking reference should contain in clear terms the amount that bank will be in position to lend for this work to the applicant/member of the joint venture. In case the Net Current Assets (as seen from the balance sheet) are negative, only the banking references will be considered. Otherwise, the aggregate of Net Current Assets and submitted banking references will be considered for working out the Liquidity.

The banking reference should be, from a scheduled Bank in India it should not be more than three months old as on date of submission of Bids.

3.3 c)

LIST OF MINIMUM KEY TECHNICAL PERSONNEL: Deleted

Added: List of Minimum Key Technical personnel required for the work should be enrolled in company / firm /Joint Venture under Employment register and document should be uploaded. The Contractor shall have a competent team of Managers, Engineers, Technical staff etc. so as to complete the work satisfactorily as per various requirements of the contract. Contractor Shall deploy the Project Manager and Site Engineer as per the requirement of work to be completed with in the timeline specified in Work order issued from time-to-time basis. The deployment of Key technical personnel will be based on the work front availability. No additional claims will be admissible, whatsoever, for idling of the key personnel.

Notes:

- Deleted.
- The above equipment is the minimum, and the contractor shall mobilize additional resources as and when required based on the work requirement without any additional cost to the Employer.

3) Deleted.

- 3.4 To qualify for a package of contracts made up of this and other contracts for which tenders are invited in this IFT, the tenderer must demonstrate having experience and resources to meet the aggregate of the qualifying criteria for the individual contracts.
- 3.5 Deleted
- 3.6 **BID CAPACITY:** tenderers who meet the above specified minimum qualifying criteria, will only be qualified, if their **available tender capacity is more than 15 Cr. tendered value**. The available tender capacity will be calculated as under:

Assessed available tender capacity = (A*N*1.5 - B) Where,

A = Maximum value of works executed in any one year during the last five financial years updated to the current price level @5% per year.

N =Number of years prescribed for completion of the works for which tenders are invited.

B = Value of existing commitments and on-going works to be completed during the period of completion of the work for which tenders are invited.

The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Employer in charge not below the rank of an Executive Engineer or equivalent.

Note: Enclose Certificate(s) from Engineer(s) In charge (not below the rank of Executive Engineer) for value of outstanding work. In case it is not feasible to furnish certificate from all the units the bidder should record the following certificate on Fin-3:

"Certified that current commitments on all the contracts have been awarded or for which a letter of intent or acceptance has been received or for the works in progress or the works approaching completion, value of outstanding work has been indicated in the above table correctly. It is further certified that if later on the employer discovers that information provided in the table is incorrect then the employer will treat our bid invalid and it will be liable for rejection".

The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be counter signed by the Employer in charge, not below the rank of an Executive Engineer or equivalent.

3.7 **NETWORTH:**

The Bidder's net worth for the last Financial Year calculated as the difference between **total** assets and **total** liabilities **should be Positive**.

The Bidder's net worth for the last Financial Year calculated as the difference between **current** assets and **current** liabilities **should be Positive**.

3.8 **Even though the tenderers meet the above criteria, they are subject to be disqualified if they have:**

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous Tender for the same work and had quoted unreasonably high tender prices and could not furnish rational justification.

3.9 ELIGIBILITY CRITERIA TABLE / MATRIX:

Pursuant ITT Clause 3, The Employer shall assess bidder against the following qualification criteria.

Requirement	Single Entity	Submission Requirements
Clause: 3.2.(a) Minimum Average Annual Construction Turnover of Rs 30 Crore In Five Financial Years From 2019-20 To 2023-24 (Both Inclusive).	Must meet 100% of the requirement	Form FIN-2
Clause: 3.2 (b) - One Similar work with value not less than Rs 7.50 Crores .	Must meet 100% of the requirement	Form at para 1.3/section:3
Clause: 3.2 (c) - Minimum component of the work to be done	Must meet 80% of the requirement	Form at para 1.4/section:3
Clause: 3.3 a (I) – Key and Critical Equipment's	Must meet 100% of the requirement	Form at para 1.6/section:3
Clause: 3.3 (II) – Deleted	NA	NA
Clause: 3.3(b) LIQUID ASSETS: The tenderer / firm / company / Joint Venture should furnish details of liquid assets and or availability of credit facilities of Rs 3.75 Crores for the work mentioned above for meeting the required funds in the form of own funds/credit lines/certificate from scheduled Nationalized Bank	Must meet 100% of the requirement	Form at para 1.10/section:3
Clause: 3.3(c) Minimum Key Technical Staff	Must meet 100% of the requirement	Form No.5 & 6 of Section 3
Clause: 3.7 BID CAPACITY: tenderers who meet the above specified minimum qualifying criteria, will only be qualified, if their available tender capacity is more than the tendered value. The available tender capacity will be calculated Evaluation of Bid Capacity: The Bidders will be qualified only if their available bid capacity is more than 15 Cr cost of work as per Employer assessment. Available bid capacity will be calculated based on the following formula: Available Bid Capacity = 1.5xAxN – B Where, A = Maximum of the value of construction works executed in any one year during the last 05 (five) financial years reckoned up to 31st March'2025 (Updated to price level shall be done at 5% per year. N = Number of years prescribed for completion of the present work B = Value of existing commitments as on first day of the month of this Bid submission i.e. for on-going construction works during completion period of proposed work. Proportionate value will be taken if it falls during the financial year	Must meet 100% of the requirement	Form at para 1.5/section:3 and Form FIN-3/Section:3

Requirement	Single Entity	Submission Requirements
Clause: 3.7 NETWORTH: The Bidder's net worth for the last Financial Year calculated as the difference between total assets and total liabilities should be Positive.	Must meet the requirement	Form FIN-1/ Section:3

- 3.10 The applicant must attach with their application, a note giving a general description on the approach to the construction methods, technologies, quality assurance schemes proposed, deployment schedule of equipment proposed to be used, etc., for ensuring completion of the work as per specifications within the desired time-frame.

4. ONE TENDER PER TENDERER:

- 4.1 Each tenderer shall submit only one tender for one package. A tenderer who submits or participates in more than one Tender (other than as a sub-contractor) will cause all the proposals with the Tenderer's participation to be disqualified for that particular package.

5. COST OF TENDERING:

- 5.1 The tenderer shall bear all costs associated with the preparation and submission of his tender, and the Employer will in no case be responsible and liable for those costs.

6. SITE VISIT:

- 6.1 The tenderer at his own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Tender and entering into a contract for construction of the Works. The cost of visiting the Site shall be at the Tenderer's own expense.

B. TENDER DOCUMENTS

7. CONTENT OF TENDER DOCUMENTS

- 7.1 The set of tender documents shall have all the Sections given in content page.

8. CLARIFICATION OF TENDER DOCUMENTS

- 8.1 A prospective tenderer requiring any clarification of the tender documents may notify the Employer in writing through an email as indicated in the invitation to tender. The Employer will respond to any request for clarification which he receives earlier than the date mentioned in the e-procurement portal of Karnataka for queries. Copies of the Employer's response will be uploaded on KPP portal and KRIDE website.

8.2 Pre-Bid meeting:

- 8.2.1 The tenderer or his authorized representative is invited to attend a pre-bid meeting which will take place at the office of K-RIDE Bengaluru and or @ VC as per the date and time specified in the e – procurement portal.

If the tenderer is willing to attend Pre- Bid meeting online then the tenderer is requested to communicate via [email- gmpurchasement@kride.in](mailto:gmpurchasement@kride.in) at least 02 days prior to date of pre bid meeting so that link can be communicated to the tenderers.

Venue:

#8, 1st Floor, Samparka Soudha, Dr. Rajkumar Road,
Opposite Orion Mall, Rajajinagar 1st Block,
Bengaluru-560010

Date and Time: As per IFT

Prospective bidders shall keep checking the website of Karnataka public procurement Portal for any change in the above date/time.

- 8.2.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

- 8.2.3 The tenderer is requested to submit any questions in writing through an email to reach the Employer not later than the date and time 2 days before the meeting.
- 8.2.4 Any modification of the tender documents listed in Sub-Clause 7.1 which may become necessary as a result of the pre-bid meeting will be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 9 and not through the minutes of the pre-tender meeting.
- 8.2.5 Attending Pre-Bid meeting is not mandatory for the tenderers. Non-attendance at the Pre-Bid meeting will not be a cause for disqualification of any tenderer.

9. AMENDMENT OF TENDER DOCUMENTS

- 9.1 Before the deadline for submission of Tenders, the Employer may modify the tender documents by issuing addendum.
- 9.2 Any corrigendum / addendum issued shall be part of the tender documents and shall be made available only on e – procurement portal. The Provisions in corrigenda /addenda shall take priority over the Tender Documents issued previously.

To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend as necessary the deadline for submission of Tenders, in accordance with Sub-Clause 16.2 below.

C. PREPARATION OF TENDERS

10. DOCUMENTS COMPRISING THE TENDER

- 10.1 The Tender submitted by the tenderer shall be in shall contain the documents as follows:

10.1.1 Technical Bid

- i. Earnest Money Deposit;
- ii. Qualification Information as per formats given in Section 3;

10.1.2 Financial bid

- i. The Tender (in the format indicated in Section: 4) (as per Karnataka Public Procurement Portal)
- ii. Priced Schedule (Section 9); online through Karnataka Public Procurement Portal, no hardcopy of commercials should be attached or disclosed. (As per Karnataka Public Procurement Portal)

And any other materials required be completing and submitting by tenderers in accordance with these instructions. The documents listed under Sections 3, 4, 6 and 9 shall be filled in without exception. (As per Karnataka Public Procurement Portal).

10.2 DELETED

11. TENDER PRICES

- 11.1 The contract shall be for the whole works as described in Sub-Clause 1.1, based on the Price Schedule submitted by the tenderer.
- 11.2 Deleted.
- 11.3 All duties, taxes (excluding GST) and other levies payable by the contractor under the contract, or for any other cause, shall be included in the Price schedule, prices and total Tender percentage submitted by the tenderer.
- 11.4 Deleted.
- 11.5 The tenderer shall fill the percentage for the schedule of the Works described in the Price Schedule along with total tender price (both in % and words). Corrections, if any, shall be made by crossing out, initialing, dating and rewriting

12. TENDER VALIDITY

- 12.1** Tenders shall remain valid for a period not less than **180 (one hundred and eighty) days** after the deadline date for tender submission specified in Clause 16. A tender valid for a shorter period will be rejected by the Employer as non-responsive.
- 12.2** In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the tenderers may extend the period of validity for a specified additional period. The request and the tenderers' responses shall be made in writing or by cable. A tenderer may refuse the request without forfeiting his earnest money deposit. A tenderer agreeing to the request will not be required or permitted to modify his tender, but will be required to extend the validity of his earnest money deposit till the period of the extension, and in compliance with Clause 13 in all respects.

13. EARNEST MONEY DEPOSIT (TENDER/BID SECURITY)

- 13.1** Earnest Money Deposit/Tender security (as per Karnataka Public Procurement Portal). The tenderer shall furnish, as part of his tender, earnest money deposit in the amount as shown in column 2 of the Table of Section 1 for this particular work. This earnest money deposit shall be paid as per clause 13.7 of Section 2.
- 13.2** Instruments having fixed validity issued as earnest money deposit for the tender shall be valid for 45 days beyond the validity of the tender.
- 13.3** Any tender not accompanied by an acceptable earnest money deposit and not secured as indicated in Sub-Clauses 13.1 and 13.2 above shall be rejected by the Employer as non-responsive.
- 13.4** The earnest money deposit of unsuccessful tenderers will be returned within 30 days of the end of the tender validity period specified in Sub-Clause 12.1.
- 13.5** The earnest money deposit of the successful tenderer will be discharged when the tenderer has signed the Agreement and furnished the required Performance Security.
- 13.6** The earnest money deposit may be forfeited:
- (A) If the tenderer withdraws the Tender after tender opening during the period of tender validity;
 - (B) If the tenderer does not accept the correction of the Tender Price, pursuant to Clause 24 ;or
 - (C) In the case of a successful tenderer, if the tenderer fails within the specified time limit to
 - (i) sign the Agreement; or
 - (ii) furnish the required Performance Security.

14. FORMAT AND SIGNING OF TENDER

The tenderer shall submit the Tender electronically before the submission date and time published in Karnataka Public Procurement Portal. The tenderer must submit Technical and Financial Tender as described in ITT.

All pages of the tender where entries or amendments have been made shall be initialed by the person signing the tender. The Tender shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person signing the Tender.

Language of Tender	The language of the Tender: English
Technical Tender	Alternative technical solutions are not permitted.
Technical Tender Documents	All the Forms of Section 3: Qualification Information/Bidding Forms.
Alternative Bids/Tenders	Alternative Bids are not permitted.
Currencies of Tender and Payment	The amount/percentage (Lump sum Price) shall be quoted by the tenderer entirely in Indian Rupees (INR) only. The rates quoted by the bidder in schedule through Karnataka e-procurement portal will only be considered for Evaluation and comparison purposes, the currencies of the Tender shall be converted in to Indian Rupees.

Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the Person signing the Tender	<p>The written confirmation of authorization to sign on behalf of the tenderer shall consist of:</p> <ol style="list-style-type: none"> In case of Private/Public Companies, a POA from the Director of the Company who has been authorized by the Board of Directors through resolution to sign on behalf of the Company. Copy of Board Resolution shall also be submitted. In case of proprietorship tenderers, Power of Attorney by the Proprietors. In case of partnership tenderers, Power of Attorney duly signed by all the partners. In case of Limited Liability Partnership (LLP), a POA from the Director of the Company who has been authorized by the Board of Directors through resolution to sign on behalf of the Company. Copy of Board Resolution shall also be submitted. In case of Joint Venture, Power of Attorney duly signed by individual partners to the Lead partner as per the form given in Section-4 with stipulated documents.
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The Bid shall be signed by person who is duly authorized to sign on behalf of the bidder. This authorization shall consist of a written confirmation as specified in the BDF and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. If either the Letter of Technical Bid or Letter of Price Bid or Bid-Security Declaration (if applicable) is not signed, the Bid shall be rejected. All pages of the bid, except for un-amended printed literature, shall be signed or initialed by the person signing the bid.

- If the Tender is submitted by proprietary firm, it shall be signed by the proprietor above his full name, full name of his firm with his current address.
- If the Tender is submitted by a firm in partnership, it shall be signed by a partner holding the power of Attorney for the firm. A certified copy of the Partnership deed and power of attorney shall accompany the Tender; alternatively, it shall be signed by all the partners.
- If the Tender is submitted by a limited company or a limited corporation, it shall be signed by a duly authorized person holding the power of attorney for the firm. A certified copy of the power of attorney shall accompany the Tender.
- Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Tender.

D. SUBMISSION OF TENDERS

15. SEALING AND MARKING OF TENDERS

The tenderer shall submit the Tender electronically before the submission date and time published.

16. DEADLINE FOR SUBMISSION OF THE TENDERS

16.1 Tenders must be submitted online through Karnataka Public Procurement Portal to the Employer on or before the date as specified in the Karnataka Public Procurement Portal and the submission of tender is the responsibility of the tenderer.

16.2 The Employer may extend the deadline for submission of tenders by issuing an amendment, if necessary, in the opinion of Employer, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline will then be subject to the new deadline.

17. LATE TENDERS

17.1 In online e-procurement system, the tenderer shall not be able to submit the Tender after the Tender submission time and date as the icon for the task in the Karnataka Public Procurement Portal will not be available. Any Tender received by the Employer after the deadline prescribed in Clause 16 will be rejected.

- 17.2 It shall be the responsibility of the tenderers to ensure that their tender is submitted in the Karnataka public procurement portal within the last date and time specified for the receipt of the tenders.
18. **MODIFICATION AND WITHDRAWAL OF TENDERS**
- 18.1 Tenderer may modify and correct or upload any relevant document in the portal till tender submission date and time, as published in the Karnataka Public Procurement Portal.
- 18.2 No Tender may be modified after the deadline for submission of Tenders.
- 18.3 Withdrawal or modification of a Tender between the deadline for submission of Tenders and the expiration of the original period of Tender validity specified in Clause 12.1 above or as extended pursuant to Clause 12.2 may result in the forfeiture of the earnest money deposit pursuant to Clause 13.
- 18.4 **DELETED**
- E. **TENDER OPENING AND EVALUATION**
19. **OPENING OF TECHNICAL BID OF ALL TENDERS AND EVALUATION TO DETERMINE QUALIFIED TENDERERS:**
- 19.1 The Employer will open the Technical Bid of all the Tenders received (except those received late or withdrawn), including modifications for Technical Bid made pursuant to Clause 18, in the presence of the tenderers or their representatives who choose to attend as per Karnataka Public Procurement Portal on the date and the place specified in Clause 16. In the event of the specified date of Tender opening being declared a holiday for the Employer, the Tenders will be opened at the appointed time and location on the next working day.
- 19.2 **DELETED**
- 19.3 The name of the tenderer, the presence or absence of earnest money deposit (amount, format and validity), the submission of qualification information and such other information as the Employer may consider appropriate will be announced by the Employer at the opening.
- 19.4 The Employer will prepare minutes of the Tender opening, including the information disclosed to those present in accordance with Sub-Clause 19.3.
- 19.5 **DELETED.**
- 19.6 The Employer will evaluate and determine whether each tender (a) meets the eligibility criteria defined in ITT Clause 2 is accompanied by the required earnest money deposit as per stipulations in ITT Clause 13 and meets the minimum qualification criteria stipulated in ITT Clause 3. The Employer will draw out a list of qualified tenderers after deliberations by a committee constituted for this purpose.
20. **OPENING OF FINANCIAL BID OF QUALIFIED TENDERERS AND EVALUATION:**
- 20.1 The Employer will inform all the Qualified tenderers the time, date and venue fixed for the opening of the Financial Bid containing the priced Tenders published in Karnataka Public Procurement Portal. The Employer will open the Financial Bid of qualified tenderers at the appointed time and date in the presence of the tenderers or their representatives who choose to attend. In the event of the specified date of financial Tender opening being declared a holiday for the Employer, the Second Cover (Financial Bid) will be opened at the appointed time and location on the next working day.
- 20.2 **DELETED.**
- 20.3 The names of tenderers, the Tender prices, the total amount of each Tender, any discounts/rebate, Tender modifications and withdrawals, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. No Tender shall be rejected at Tender opening.
- 20.4 The Employer will prepare minutes of the Financial Bid Tender opening, including the information disclosed to those present in accordance with Sub-Clause 20.3.
21. **PROCESS TO BE CONFIDENTIAL.**
- 21.1 Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to tenderers or any other persons not officially concerned with such process until the award to the successful tenderer has been announced. Any effort by a

tenderer to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

22. CLARIFICATION OF TENDERS.

- 22.1** To assist in the examination, evaluation, and comparison of Tenders, the Employer may, at his discretion, ask any tenderer for clarification of his Tender, including breakdowns of percentage quoted. The request for clarification and the response shall be in writing through email, but no change in the price or substance of the Tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Tenders in accordance with Clause 24.
- 22.2** No tenderer shall contact the Employer on any matter relating to its Tender from the time of the Tender opening to the time the contract is awarded.

If they have any query /clarification related to e-Procurement on the Karnataka Public Procurement Portal, contact e-Procurement Help desk from 10:30 AM to 5:00 PM on any working day. Ph. No.: +91-8046010000 or support@eprochelpdesk.com Karnataka Public Procurement Portal through query option on or before specified time.

- 22.3** Any effort by the tenderer to influence the Employer in the Employer's Tender evaluation, Tender comparison or contract award decisions may result in the rejection of the tenderers' tender.

23. EXAMINATION OF TENDERS AND DETERMINATION OF RESPONSIVENESS

- 23.1** Prior to the detailed evaluation of Tenders, the Employer will determine whether each tender; (a) has been properly signed; and (b) is substantially responsive to the requirements of the Tender documents.
- 23.2** A Substantially Responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tender documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the tender documents, the Employer's rights or the Tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other tenderers presenting Substantially Responsive Tenders.
- 23.3** If a tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

24. CORRECTION OF ERRORS

- 24.1** Tenders determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- a) where there is a discrepancy between the amount in figures and in words, the lower of the two will govern.
- 24.2** The amount stated in the Tender will be adjusted by the Employer in accordance with the above procedure for the correction of errors and shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount the Tender will be rejected, and the earnest money deposit may be forfeited in accordance with Sub-Clause 13.6 (b).

25. EVALUATION AND COMPARISON OF TENDERS

- 25.1** The Employer will evaluate and compare only the Tenders determined to be substantially responsive in accordance with Clause 23.
- 25.2** In evaluating the Tenders, the Employer will determine for each Tender the evaluated Tender Price by adjusting the Tender Price as follows:
- (a) Making any correction for errors pursuant to Clause 24; and
- (b) Deleted.
- 25.3** The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Tender documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Tender evaluation.

- 25.4 The estimated effect of the price adjustment conditions under Clause 40 of the Conditions of Contract, during the implementation of the Contract, will not be taken into account in tender Evaluation.
- 25.5 If the tender of the successful tenderer is seriously unbalanced in relation to the Employer's estimate of the cost of the work to be performed under the contract, the Employer may require the tenderer to produce detailed price analyses for any or all items of Priced Schedule, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 29 be increased at the expense of the successful tenderer to a level sufficient to protect the Employer against financial loss in the event of default of the successful tenderer under the contract.

F. AWARD OF CONTRACT

26. AWARD CRITERIA

- 26.1 Subject to Clause 27, the Employer will award the Contract to the tenderer whose Tender has been determined to be substantially responsive to the Tender documents and who has offered the lowest evaluated Tender percentage, provided that such tenderer has been determined to be (a) eligible in accordance with the provisions of Clause 2 and qualified in accordance with the provisions of Clause 3.

27. EMPLOYER'S RIGHT TO ACCEPT ANY TENDER AND TO REJECT ANY OR ALL TENDERS

- 27.1 Notwithstanding Clause 26, the Employer reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for the Employer's action.

28. NOTIFICATION OF AWARD AND SIGNING OF AGREEMENT

- 28.1 The tenderer whose Tender has been accepted will be notified of the award by the Employer prior to expiration of the Tender validity period by email. This letter (hereinafter and in the *Conditions of Contract* called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").
- 28.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of Performance Security in accordance with the provisions of Clause 29. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.
- 28.3 The Agreement will incorporate all agreements between the Employer and the successful tenderer. It will be kept ready for signature of the successful tenderer in the office of Employer within 20 days following the notification of award along with the Letter of Acceptance. Within 10 days of receipt, the successful tenderer will sign the Agreement and deliver it to the Employer.
- 28.4 Upon the furnishing by the successful tenderer of the Performance Security, the Employer will promptly notify the other tenderers that their Tenders have been unsuccessful.

29. PERFORMANCE SECURITY

- 29.1 Within 21 days of receipt of the Letter of Acceptance, the successful tenderer shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent to **3% of the Contract price plus additional security for unbalanced tenders** in accordance with Clause 25.6 of ITT and Clause 43 of the Conditions of Contract.
- Banker's /E-Bank Guarantee/Demand draft/Pay Order/ BG in favour of K-RIDE, Bangalore or
 - A bank guarantee in the form given in Section 10.
- 29.2 If the Performance Security deposit is provided by the successful tenderer in the form of Bank Guarantee, it shall be issued either by a Nationalized / Scheduled Bank of India.
- 29.3 DELETED

- 29.4** Failure of the successful tenderer to comply with the requirements of sub-clause 29.1 and clause 29 of additional ITT shall constitute sufficient grounds for cancellation of the tender award and forfeiture of the Earnest Money Deposit.
- 30. ADVANCE PAYMENT AND SECURITY:**
- 30.1** The Employer will provide an advance payment on the contract price as stipulated in the condition of contract subject to the maximum as stated in the contract data.
- 31. CORRUPT OR FRAUDULENT PRACTICES**
- 31.1** "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of the public official in the procurement process or in contract execution;
- "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Procurement Entity, and includes collusive practice among the tenderers either prior to or after tender submission, designed to establish tender prices at artificial non-competitive levels and to deprive the Procurement Entity of the benefits of free and open competition;". The debarment action shall be taken as per KTPP Act.
- 31.2** K-RIDE requires that the tenderers/Suppliers/Contractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, K-RIDE:
- will reject a proposal for award if it determines that the tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
 - will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a K-RIDE contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a K-RIDE contract.
- 32. PURCHASE PREFERENCE TO MAKE IN INDIA:**
- The provisions of revised 'Public Procurement (Preference to Make in India) Order 2019' issued by Department of Industrial Policy and Promotion under Ministry of Commerce and Industry vide letter no. K-14011/09/2014/MRTS-Coord dated 28.11.2019 or as per latest guideline/ amendment, shall be applicable to the tendering process and award of the contract shall be done accordingly. A certificate in regard to Minimum Local Content duly Certified by a Practicing Cost Accountant or a Practicing Chartered Accountant is necessarily to be enclosed with the bid documents.
 - BIDDER FROM A COUNTRY WHICH SHARES A LAND BORDER WITH INDIA in connection with the Para Govt. of India, vide its OM dated 23/07/2020 has inserted Rule 144(xi) to General Financial rules 2017 or as per latest guideline/ amendment according there is mandatory for bidder from a country which shares a land border with India, to have been registered with the Registration Committee, in the manner as stated therein, that shall be followed by such bidder
- 33. APPEAL:** The tenderer shall submit online appeal within 30 days period from the date of receipt of order to the Employer through the Karnataka Public Procurement Portal. The Employer may after giving opportunity to the parties pass such order as it deems fit and such order shall be final.

34. ADDITIONAL INSTRUCTIONS TO TENDERERS (THIS SHOULD BE READ IN CONTINUATION OF ITT)

ITT Clause Ref.	Description
2.3	<p>The following paras are added: DELETED</p> <p>Wherever the word JV is mentioned-Deleted.</p> <p>A tenderer may be a natural person, private entity, government-owned entity, or any combination of them with format intent to enter into an agreement or under an existing agreement in the form of a Joint venture. The tenderer must ensure the following</p> <p>(a) In case of Single Entity:</p> <p>(i) Submit Power of Attorney authorizing the signatory of the Tender to commit the tenderer.</p> <p>(b) In case of Joint Venture: - Deleted.</p> <p>(c) Only firms that are registered or incorporated in India are eligible to compete. Any tenderer from a country which shares a land with India will be eligible to tender in this tender only if the tenderer is registered with the Competent Authority.</p> <p>(d) "Tenderer from a country which shares a land border with India" for the purpose of this Order means: -</p> <ol style="list-style-type: none"> 1. An entity incorporated, established, or registered in such a country; or 2. A subsidiary of an entity incorporated, established, or registered in such a country; or 3. An entity substantially controlled through entities incorporated, established, or registered in such a country; or 4. An entity whose beneficial owner is situated in such a country; or 5. An Indian (or other) agent of such an entity; or 6. A natural person who is a citizen of such a country; or, 7. Deleted <p>(e) The beneficial owner for the purpose of above clause will be as under:</p> <p>(i) In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.</p> <p>Explanation-</p> <p>a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five percent of share or capital or profits of the company;</p> <p>b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue their shareholding or management rights or shareholders agreements or voting agreements;</p> <p>(ii) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;</p> <p>(iii) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profit of such association or body of individuals;</p>

ITT Clause Ref.	Description
	<p>(iv) Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;</p> <p>(v) In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.</p>
2.4	<p>The tenderer shall submit a Certificate stating that they have read the above clause using the appropriate Performa given in Section 3 - Form 3C1 & 3C2.</p> <p>Tenderers having a conflict of interest will be disqualified. The conflict of interest is detailed below.</p> <p>A tenderer or any of its constituents shall not have conflict of interest. All tenderers found to have a conflict of interest shall be disqualified. A tenderer may be considered to be in a conflict of interest with one or more parties in this Tendering process, if, including but not limited to:</p> <ul style="list-style-type: none"> (a) they have controlling shareholders in common; or (b) they receive or have received any direct or indirect subsidy from any of them; or (c) they have the same legal representative for purposes of this Tender; or (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Tender of another tenderer, or (e) any firm, either individually submits more than one offer irrespective of whether the firm is quoting against this Tender. (f) a tenderer who is Sub-contractor to another tenderer will be treated as having conflict of interest. However, this does not limit the inclusion of the same sub-contractor in more than one Tender. (g) a tenderer participated as a consultant in the preparation of the design or specifications of the contract that is the subject of the Tender; or <p>A tenderer was affiliated for any period(s) during last two years before the date of issue of Invitation for Tenders with a firm or entity that has been hired (or is proposed to be hired) by the Employer as Engineer for the contract.</p>
2.5	<p>The tenderer will be disqualified if,</p> <ul style="list-style-type: none"> (a) The tenderer or any of its constituents has been blacklisted/ banned from business dealings with all Government Departments by the Government of Karnataka or by Ministry of Railways or by K-RIDE at any time till finalization of Tenders, except in cases where such blacklisting/ banning has been withdrawn by Competent Authority or has ceased or expired on the deadline for submission of the Tenders, for which satisfactory evidence is to be produced. (b) Any previous contract of the tenderer or any of its constituents had been fully terminated or part terminated for its failure as a JV partner with forfeiture of its full Performance Security, by Rail Infrastructure Development Company (Karnataka) Ltd.(K-RIDE) at any time starting from 3 years before the deadline for submission of Tenders and up to one day before the date of opening of price Tenders; <p>Provided, however, there is no stay order or declaration by any Court against such termination of the contract by Rail Infrastructure Development Company (Karnataka) Ltd. or such termination of the contract has not been revoked by Rail Infrastructure Development Company (Karnataka) Ltd or competent authority of K-RIDE has not passed an order of non-applicability of disqualification of the tenderer or any of its constituents despite such termination.</p>

ITT Clause Ref.	Description
	<p>(c) The tenderer or any of its constituents has been imposed delay damages of 5% or more of contract value by K-RIDE due to delay in the implementation of any previous contract within the period of last 2 years before the deadline for submission of Tenders (Period of 2 years shall be reckoned from the date on which the total accrued amount of Delay Damages has reached 5% or more of the contract price) or such accrued delay damages has not been fully recovered before the deadline for submission of Tenders on account of contractor's request for deferring recovery to maintain cash flow and K-RIDE has acceded to the same in the interest of the project or the work under the previous contract in question has not been completed before the deadline for submission of Tenders, unless imposition of such delay damages has been set aside by the Competent Authority.</p> <p>(d) The tenderer or any of its constituents:</p> <ul style="list-style-type: none"> (i) has suffered bankruptcy/insolvency or (ii) has any ongoing case of insolvency before the NCLT/ any applicable Court where Interim Resolution Professional (IRP) has been appointed or is at any later stage of the insolvency process, as on the deadline of submission of Tenders or thereafter till finalization of Tenders. <p>(e) The tenderer is found ineligible by the Employer, in accordance with ITT-3.</p> <p>(f) The tenderer or its constituent(s) has been declared by K-RIDE to be a poor performer and the period of poor performance is still in force on the deadline for submission of Tenders.</p> <p style="text-align: center;">OR</p> <p>The tenderer or its constituent(s) has been declared by K-RIDE to be a poor performer at any time after the deadline for submission of Tenders and upto one day before the date of opening of price Tenders.</p> <p>(g) The tenderer or any of its constituents has changed its name or created a new business entity as covered by the definition of "Allied Firm" under Para 1102 (iii) of Chapter XI of Vigilance Manual of Indian Railways (available on website of Indian Railways), consequent to having been banned from business dealings or suspended from business dealings or having been declared poor performer.</p> <p>The tenderer shall submit an affidavit stating that they are not liable to be disqualified as per this sub clause using the Form PS3 given in Section-3: Qualification and Information/Bidding Forms. Non-submission of an affidavit by the tenderer shall result in summary rejection of his Tender.</p> <p>Tenderers shall immediately inform the Employer in case they cease to fulfil eligibility in terms of ITT clause 2 above. In case the tenderer fails to inform the Employer or submits a false affidavit, his Tender shall be summarily rejected and Tender security shall be forfeited. The tenderer shall also be liable for Banning of Business dealings for a period up to five years.</p>
2.6	PARTNERS IN CASE OF JV - DELETED
3.3(a)	<p>The following Para is added:</p> <p>Materials, Equipment and Services</p> <p>Deleted</p>
7.3	<p>The following Para is added:</p> <p>The Employer is not responsible for the completeness of the Bidding Document and their Addenda, if they were not obtained directly from the source stated by the Employer in the Invitation for Bids.</p> <p>The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all the information or documentation required by the Bidding Document may result in the rejection of the bid.</p>

ITT Clause Ref.	Description
8.1.1	<p>Additional Para</p> <p>The Employer shall endeavour to respond to the questions raised or clarifications sought by the Bidders. However, the Employer reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring the Employer to respond to any question or to provide any clarification.</p> <p>The Employer may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by the Employer shall be deemed to be a part of the Bidding Documents. Verbal clarifications and information given by the Employer, or its employees or representatives shall not in any way or manner be binding on the Employer.</p>
8.3	<p>The following Para is added:</p> <p>The Pre-Bid meeting may also be attended through video conferencing (VC). Those tenderers who wish to join the meeting through Video Conferencing shall send a request email on the email id (i.e., gmpurchase@kride.in) till 2 working days before the scheduled date of pre-bid meeting up to 15:00 hours IST. A link for Video Conferencing will be sent by K-RIDE to such tenderers only. Any request for VC received after the given date and time for sending the link for VC will not be entertained.</p> <p>Please note that the request received from the tenderers (With details of the Company, its address, and the name and designation of the person attending the VC) will only be entertained. They should also mention the email id through which VC is desired to be joined. K-RIDE may allow a maximum of two email ids for one company to participate in the VC. Only one person will be allowed through one Email ID. The tenderers can join the VC through the link provided to them on Email ID.</p> <p>During the pre-bid meeting, the prospective tenderers may clarify/explain their queries submitted by them earlier (before the time limit as mentioned in Section 1). The clarifications/answers may not be given in the pre-bid meeting itself. The responses of K-RIDE will be intimated to the tenderers (who sought the clarification) in due course, depending upon the merits of the query. K-RIDE reserves the right not to respond to any question/query or to provide any clarification, in its sole discretion, without assigning any reason thereof.</p>
10.0	<p>Document comprising Technical and Financial Bid:</p> <p>The following Para to be read as:</p> <p>The Bidders shall submit the Technical BID & Financial Bid online through e-procurement portal (https://www.kppp.karnataka.gov.in). Only comprising of the following documents along with supporting documents as appropriate.</p>
10.3	<p>The following Para is added:</p> <p>Documents Comprising the Tender</p> <ol style="list-style-type: none"> The Tender shall comprise of Tender Security/Tender Security Declaration, Technical Tender and Price Tender. The tenderer shall submit the Tender through Karnataka Public Procurement Portal. On the stipulated date of opening of Tenders, initially, only the Technical Tenders are opened through Karnataka Public Procurement Portal. The Technical Tenders shall be evaluated by the Employer in accordance with the stipulated Qualification and Evaluation criteria. No amendments or changes to the tenders would be permitted after the opening of the tenders. Tenderers who are qualified in the technical evaluation their price Tender shall be opened at a date and time advised by the Employer (K-RIDE) through e-tendering portal. The Price Tenders are evaluated and the Contract is awarded to the tenderer whose Tender has been determined to be the lowest evaluated substantially responsive Tender. <p>The Technical Tender shall contain the following:</p>

ITT Clause Ref.	Description
	<ul style="list-style-type: none"> i. All the Forms of Section-3: Qualification Information/Bidding Forms including letter of technical Bid (LTB) shall be scanned and uploaded. ii. The tenderer shall furnish a commitment in Letter of Technical Bid (LTB) for deployment of equipment and personnel as stipulated in Section 8A: Employers Work's Requirement. iii. Deleted. iv. The tenderer shall furnish a commitment in Letter of Technical Bid (LTB) for adhering to mobilisation and construction schedule as stipulated in Section 8A: Employers Work's Requirement or Work order issued. v. The tenderer should note that non-submission of the Letter of Technical Bid (LTB) by the tenderer will result in summary rejection of his/her Tender. vi. The tenderer shall submit the Approach and Methodology for performing the assignment by using appropriate Performa given in Section 3: Qualification Information/Bidding Forms. vii. Scanned copy of Tender Security/Tender Security Declaration form (Section 3), in accordance with ITT Clause 13; viii. Scanned copy of written confirmation authorizing the signatory of the Tender to commit the tenderer, any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialled by the person signing the Tender. ix. Scanned copy of documentary evidence with establishing the Tenderer's qualifications to perform the contract; to establish its qualifications to perform the Contract in accordance with Section 2: ITT the tenderer shall submit as part of its technical Tender the information requested in the corresponding information sheets included in Section 3: Qualification Information/Bidding Forms. x. Domestic tenderers, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility. xi. Scanned copy of Approach and Methodology - Performa given in Section-3: Qualification Information/Bidding Forms. <p>The Price Tender shall contain the following:</p> <ul style="list-style-type: none"> i. Scanned copy of Letter of Price Bid. ii. All documents mentioned in Section-3 shall be scanned and submitted. iii. Filled/completed schedules as required including Price Schedule in accordance with ITT Clauses should be submitted through Karnataka Public Procurement Portal only; iv. The tenderer shall submit through Karnataka Public Procurement Portal, separate Technical Proposal and Price Proposal, using the appropriate Submission Sheets furnished in Section-3: Qualification Information/Bidding Forms. These Forms must be completed without any alterations to their format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested. v. The tenderer shall submit, as part of the Price Tender, the Schedules, including the Price Schedule through Karnataka Public Procurement Portal only.
11.5	<p>Tender Prices and Discounts</p> <p>The following Para to be read as:</p> <ul style="list-style-type: none"> i. The prices quoted by the tenderer in the Letter of Price Bid (LPB) and in the price schedule shall conform to the requirements specified below.

ITT Clause Ref.	Description
	<p>ii. In the Price Schedule, the percentage against the schedule is to be quoted. From this, price of such schedules has been worked out and indicated in the summary sheet in the Price Schedule. The tenderer shall quote percentage in figures and words as per format for such schedule in the summary sheets. (No rate and amount shall be quoted in technical bid.)</p> <p>iii. Deleted</p> <p>iv. The percentage to be quoted in the letter of Price Schedule in accordance with ITT, shall be the total price of the Tender.</p> <p>v. Deleted</p> <p>vi. Unless otherwise provided in the ITT and the Contract, the percentage quoted by the tenderer are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the indices and weightage for the price adjustment formulae shall be as specified in the Tables of Adjustment Data included in Contract Data.</p> <p>vii. All duties, taxes, royalties, cess and other levies payable by the Contractor under the Contract excluding GST, or for any other cause (including standard specifications), as of the date shall be included in the percentage of Price Schedule and the total Tender Price submitted by the tenderer.</p> <p>viii. GST shall be paid by the tenderer as applicable in accordance with the prevailing rules of Government of India.</p> <p>ix. tenderers should note that during the progress of the works, the foreign currency requirements of the outstanding balance of the Contract Price may be adjusted by agreement between the Employer and the Contractor in order to reflect any changes in foreign currency requirements for the Contract, in accordance with Sub-Clause 14/ITT (Currencies of Bid and Payment) of the Conditions of Contract. Any such adjustment shall be affected by comparing the percentages quoted in the Tender with the amounts already used in the Works and the Contractor's future needs for imported items.</p> <p>x. Tenderer should note that non-submission of the Letter of Price Bid (LPB) by the tenderer shall result in summary rejection of his Tender.</p> <p>xi. Online alternative price tender corresponding to the alternative Technical Tender, If permissible, in accordance with ITT Clause 14;</p>
13.7	<p>The following Para is added:</p> <p>In this tender, a tender security/ EMD of ₹ 15,00,000/- (Rupees Fifteen Lakhs only) shall have to be paid.</p> <p>In this tender, the tender security/ EMD shall be paid as per the column 2 of Table 1 of Section 1 of the contract through e-payment in the e-procurement portal using any of the following five options only:</p> <p>Online Mode payment</p> <ol style="list-style-type: none"> 1. Credit Card. 2. Debit Card. 3. Net Banking 4. National Electronic Fund Transfer (NEFT)/RTGS/e-Transfer. Offline Mode Payment 5. Over the Counter (OTC) – DD/ Banker's cheque/ Unconditional Bank Guarantee / Pay Order. <p>Out of this Rs 15,00,000/- (Rupees Fifteen Lakhs only), Rs 1,50,000/- (Rupees One Lakhs Seventy Thousand only) shall have to be paid through 'Online Modes'.</p>

ITT Clause Ref.	Description
	<p>The balance amount of ₹13,50,000/- (Rupees Fifteen Lakhs and Thirty thousand only) shall be paid through 'Offline Modes'.</p> <p>The Technical bids along with the Earnest Money Deposit (EMD) i.e., ₹13,50,000/- shall be furnished in the form of Bank Guarantee (BG) of any Nationalized Bank/Scheduled Bank (as per RBI guidelines) payable in favour of "Rail Infrastructure Development Company (Karnataka) Ltd" payable at Bengaluru or Electronic Bank Guarantee (e-BG) as per GOK order No CEG-13011-20-2022 dated 23.01.2025.</p> <p>The EMD shall have to be valid for 45 days beyond the validity of the tender. The scanned copy of the BG should be uploaded to the tender in the e-procurement platform. The Original Bank Guarantee shall compulsorily be produced & submitted for verification after the bid submission closing time but before the opening of the technical bid date and time as specified in e-portal to General Manager Procurement & contracts in K-RIDE office. In case bidder has not opted the option of e-BG, the bidder shall note that the Original Bank Guarantee submitted through post/in person, if it does not reach before the opening of the technical bid date and time as specified in e-portal to the GM Procurement in K-RIDE office, the bid will not be considered for technical evaluation. The bids of the contractors who have failed to produce and submit the original bank guarantee of earnest money deposit of tender before the opening of the technical bid date and time as specified in e-portal to the concerned GM, the bids will not be opened. Even if they are opened by default/manual/electronic error, the bids will not be considered for technical evaluation and the bids will be rejected. In case of non-reconciliation of tender earnest money deposit receipt of payment in Government of Karnataka central pooling account held at the ICICI Bank, the bid gets rejected</p> <p>Bank Guarantee Format</p> <p>(a) An unconditional bank guarantees using the Form given in Section 10: Contract Forms. The bank guarantee shall be from a bank having minimum net worth of over INR 500 million from the specified banks as under:</p> <ul style="list-style-type: none"> (i) a Scheduled Bank in India, or (ii) a Foreign Bank having their operations in India, or (iii) a Foreign Bank which do not have operations in India is required to provide a counter-guarantee by State Bank of India, <p>(b) The Scheduled Bank issuing the Bank Guarantee must be on "Structure Financial Messaging System (SFMS)" platform. A separate advice of the BG shall be invariable be sent by the issuing bank to the Employer's Bank through SFMS and only after this the BG shall become operative and acceptable to the Employer.</p> <p>Further, the Tender Security in Original form along with a copy of "MT760COV (in case of Bank Guarantee message) / MT767COV (in case of Bank Guarantee amendment message) Report" sent by the BG issuing Bank Sealed in an envelope shall be submitted, as stated in ITT 15.</p> <p>The Issuing Bank shall send the SFMS to:</p> <p>Beneficiary: Rail Infrastructure Development Company (Karnataka) Limited (K-RIDE)</p> <p>Bank Name: Canara Bank</p> <p>Branch: Prime Corporate Branch</p> <p>Account No. 0430201012110</p> <p>IFSC Code: CNRB0002636</p> <p>The Tender security shall be valid up to 45 days beyond tender validity, or up to the date mentioned in the letter of request for extension, if any under ITT 12.</p> <p>In case the tenderer has opted for Tender security in the form of an unconditional Bank Guarantee, the tenderer should upload the scanned copy of Bank Guarantee with the Tender. Non submission of</p>

ITT Clause Ref.	Description
	<p>scanned copy of Bank Guarantee with the tender on e-tendering portal and non-submission of original Bank Guarantee within the specified period shall lead to summary rejection of tender. The details of the BG, physically submitted should match with the details available in the uploaded scanned copy and the data entered during Tender submission time, failing which the Tender will be rejected.</p> <p>a. Unless otherwise specified in the BDF, any Tender not accompanied by an enforceable and compliant Tender security as required in accordance with ITT, will be summarily rejected by the Employer as non-responsive.</p> <p>b. The Tender security of the Tenderer who have been determined to be unqualified for opening of their financial bid shall be returned within 03 working days after the opening of financial bid. The security amount (EMD) of unsuccessful Tenderers who have been determined to be unsuccessful in financial tender there Tender Security shall be returned within 07 working days from the date of receipt of Performance Guarantee from the successful bidder of this tender.</p> <p>c. DELETED.</p> <p>d. The Tender security may be forfeited:</p> <p>i) If a tenderer withdraws its Tender during the period of Tender validity specified by the tenderer on the Letter of Tenders, except as provided in ITT Clause 12 or</p> <p>ii) if a tenderer misrepresents or omits the facts in order to influence the procurement process;</p> <p>iii) if the successful tenderer fails to:</p> <p>sign the Contract in accordance with ITT Clause 28;</p> <p>furnish a performance security in accordance with ITT 29;</p> <p>accept the correction of its Tender Price pursuant to ITT 24; or</p> <p>furnish a domestic preference security if so required</p> <p>iv) if the undertaking of the affidavit submitted by the tenderer or its constituents in pursuance to ITT clause 2 or any of the declarations of Letter of Technical Tender or Letter of Price Tender submitted by the tenderer has been found to be false at any stage during the process of Tender evaluation.</p> <p>e. Deleted.</p>
14	<p>The following Para is added:</p> <p>The Tender, as well as all correspondence and documents relating to the Tender exchanged by the tenderer and the Employer, shall be written in English. Supporting documents and printed literature that are part of the Tender may be in another language provided they are accompanied by an accurate translation of the relevant passages in English in which case, for purposes of interpretation of the Tender, such translation shall govern.</p>
15	<p>Sealing and Marking of Tenders</p> <p>The following Para to be read as:</p> <p>The tenderer shall submit the technical Tender, Price Tender and the Tender Security/Tender Security Declaration through Karnataka Public Procurement Portal i.e., https://www.kppp.karnataka.gov.in. The original of the Technical Proposal, which will contain all Forms of Section 3 except Price Schedule of Section 9 and all other relevant data specified in the Tender document.</p> <p>The Price Bid shall be submitted through Karnataka Public Procurement Portal only. This "PRICE BID" will contain only Price Schedule and all other relevant data specified in this Tender document. All forms should be typed on the Tenderer's' letter head as per the exact format of the Forms.</p> <p>The above forms should be scanned and submitted through Karnataka Public Procurement Portal.</p>

ITT Clause Ref.	Description
	<p>No details about price proposal shall be disclosed directly or indirectly in the technical proposal failing which the Tender shall be rejected. Only Electronic Tender submission and opening procedure are permitted.</p> <p>Bidder has to submit following documents in original as submitted in e-portal after 24 Hours from the submission of bid and before scheduled date and time of opening of technical bid.</p> <ul style="list-style-type: none"> a) Letter of Bid b) EMD as per clause 13.7 of ITT. c) Power of Attorney
19.7	<p>The following Para is added:</p> <p>Tender Opening</p> <ul style="list-style-type: none"> i. The Employer shall conduct the opening of Technical Tender through Karnataka Public Procurement Portal i.e., https://www.kppp.karnataka.gov.in on the date and at the time mentioned. ii. At the end of the evaluation of the Technical Tenders, the Employer will intimate the tenderers who have submitted substantially responsive technical proposals and who have been determined as being qualified for award to attend the opening of the price Proposals. The date and time, of the opening of Price Tenders will be advised through email. The tenderers shall be given reasonable notice for the opening of Price Tenders. iii. The Employer will notify tenderers in writing who have been rejected on the grounds of being substantially non-responsive to the requirements of the Tendering Document and who have been determined as being not qualified as a result of evaluation of technical proposal and their Price Tender shall not be opened. The Tender Security of the tenderers shall be returned after due process. iv. The Employer shall conduct the opening of Price Tenders through Karnataka Public Procurement Portal i.e., https://www.kppp.karnataka.gov.in of all tenderers who have submitted substantially responsive Technical Tenders and who have been determined qualified as a result of technical evaluation.
23.4	<p>The following Para is added:</p> <p>Deviations, Reservations, and Omissions</p> <p>During the evaluation of Tenders, the following definitions apply:</p> <ul style="list-style-type: none"> (a) "Deviation" is a departure from the requirements specified in the Tendering Document; (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Tendering Document; and (c) "Omission" is the failure to submit part or all of the information or documentation required in the Tendering Document.

ITT Clause Ref.	Description
24.3	<p>The following Para is added:</p> <p>Nonconformities, Errors, and Omissions</p> <ol style="list-style-type: none"> i. Provided that a Tender is substantially responsive, the Employer may waive any non-conformity in the Tender that do not constitute a material deviation, reservation or omission. ii. Provided that a Tender is substantially responsive, the Employer may request the tenderer to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Tender related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Tender. Failure of the tenderer to comply with the request may result in the rejection of its Tender.
24.4	<p>The following Para is added:</p> <p>Correction of Arithmetical Errors and Omissions in Tender and Evaluation of Tender Price</p> <ol style="list-style-type: none"> 1. Provided that the Tender is substantially responsive, the Employer shall correct arithmetical errors and omissions in the Tender and then arrive at the Evaluated Tender Price on the following basis: <ol style="list-style-type: none"> (a) Deleted. (b) If the percentage quoted both in words and in figures and there is a discrepancy, then the lower of the two shall prevail and shall be considered for evaluation of the price of the schedule. (c) If the percentage quoted either in words or in figures only, then the same shall be considered for evaluation of the price of the schedule. (d) If no percentage has been indicated for the schedule in words, as well as in figures, irrespective of the fact whether the tenderer has written or not written, in such cases, the percentage of the schedule shall be considered as zero and shall be calculated accordingly. (e) Deleted. (f) Deleted. 2. If the tenderer has submitted the lowest evaluated Tender does not accept the correction of errors and omissions as per above provisions, its Tender shall be disqualified, and its Tender security shall be forfeited or its Tender-Securing Declaration executed.
25.6	<p>The following Para is added:</p> <p>Conversion to Single Currency</p> <p>For evaluation and comparison purposes the currencies of the Tender shall be converted into Indian Rupees</p> <p>An Abnormally Low Tender is one in which the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the tenderer to perform the contract at the offered price. The Employer may in such cases seek written clarifications from the tenderer, including detailed price analysis of its Tender price in relation to scope, schedule, allocation of risks and responsibilities, and any other requirements of the Tender document. If, after evaluating the price analyses, the Employer determines that the tenderer has substantially failed to demonstrate its capability to deliver the contract at the offered price, the Employer may reject the Tender/proposal.</p> <p>Additional Performance Security in case of abnormally low Tenders will have to be submitted.</p> <p>If the bid, which results in the lowest Evaluated Bid Price is substantially on lower side and/or seriously unbalanced in the opinion of the Employer as per criteria defined below, the Employer may require the bidder to submit additional performance security as under: -</p>

ITT Clause Ref.	Description
	Deleted.
26.2	<p>The following Para is added:</p> <p>Award Criteria</p> <ol style="list-style-type: none"> The Employer will award the contract to the tenderer, whose tender is substantially responsive to the Tendering Document, provided further that the tenderer is determined to be qualified to perform the contract satisfactorily and whose offer has been determined to be the lowest evaluated subject to ITT below. In case of more than one Tenders are evaluated to be lowest, the contract will be awarded to the tenderer with higher average annual construction turnover (calculated as total certified payments received for contracts in progress or completed) in equivalent INR within the last two financial years. The Employer has the right to review at any time prior to award of contract that the qualification criteria as specified in Section-3: Qualification Information and Bidding Forms are still being met by the tenderer whose offer has been determined to be the lowest evaluated Tender. A Tender shall be rejected if the qualification criteria as specified in Section-3: Qualification Information and Bidding Forms are no longer met by the tenderer whose offer has been determined to be the lowest evaluated Tender. In this event the Employer shall proceed to the next lowest evaluated Tender to make a similar reassessment of that Tenderer's capabilities to perform satisfactorily.
29.5	<p>The following Para is added:</p> <p>Performance Security</p> <p>The successful tenderers shall have to submit a Performance Guarantee (PG) Within Twenty-One (21) days from the date of issue of Letter of Acceptance (LOA). If the contractor fails to submit the requisite PG within 21 days from the date of issue of LOA, the contract is liable to be terminated. In case contract is terminated, K-RIDE will be entitled to forfeit the Tender security and other dues payable against to the contract. In case the tenderer has not submitted by security on the strength of their registration as a start-up recognized by the Department of Industrial Policy and Promotion (DIPP) under Ministry of Commerce and Industry, DIPP shall be informed to this effect. The failed contractor shall be debarred from participating in re-tender for that work.</p> <p>Failure of the successful tenderer to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender security or execution of the Tender-Securing Declaration.</p> <p>The above provision shall also not apply to the furnishing of a Domestic Preference Security, if so required.</p>
New Clause-1	<p>LITIGATION HISTORY: (Please see Annexure Tendering Forms)</p> <p>The tenderer/tenderers should provide accurate information on any litigation or arbitration resulting from contracts completed or under its execution over the five years as on date of submission of this tender.</p> <p>If the litigation started by the tenderer without recourse to measures of Dispute Resolution and Arbitration as provided in the Contract or the litigation in respect of challenge of award of Arbitration by the tenderer, will be treated as Litigation case indulged by the tenderer for this Para of Litigation History. Any history of awards against the tenderer or any partner of a joint venture or failure to provide accurate information then the acceptance/ rejection is at sole discretion of the Employer. Bidders having litigation with KRIDE are not eligible to participate in this tender.</p> <p>Note: The tenderers including each of the partners of a Joint Venture should provide information on any history of litigation or Arbitration resulting from contracts executed in the 5 years as on date of submission of this tender. A separate sheet should be used for each partner of a Joint Venture</p>

ITT Clause Ref.	Description
New Clause-2	Jurisdiction of Courts The Tendering process shall be governed by and construed in accordance with the laws of India and the Courts as indicated in Tender Data Sheet shall have exclusive jurisdiction over all the disputes/issues arising under, pursuant to and/ or in connection with the Tendering process. The Jurisdiction of Courts is Bengaluru, Karnataka
New Clause-3	Stamp duties and charges: The contractor has to bear the stamp duties and charges for agreements/registration as per Karnataka stamp Act.

SECTION-3

QUALIFICATION INFORMATION & BIDDING FORMS

INDEX**SECTION-3: QUALIFICATION INFORMATION & BIDDING FORMS**

This Section contains the forms which are to be completed by the Bidder and to be submitted as part of this Bid.

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K-RIDE

A) QUALIFICATION INFORMATION/BIDDING FORMS**1. QUALIFICATION INFORMATION**

The information to be filled in by the Tenderer hereunder will be used for purposes of computing Tender capacity as provided for in Clause 2 of the Instructions to Tenderers. This information will not be incorporated in the Contract.

1.1. Constitution or legal status of Tenderer

Place of Registration: _____ [Attach copy]

Principal place of business: _____ [Attach Copy]

Total value of construction works executed and payments received in the following five Financial Years **(Rs. In Crores)** (attach certificate from Statutory Auditors)

2019-2020: _____

2020-2021: _____

2021-2022: _____

2022-2023: _____

2023-2024: _____

1.2. Work performed as Contractor (in the same name) on works of similar nature over during the five financial years specified in 1.2 above. (Refer Para 3.2 b (I) and 3.2 b (II) of section: 2 ITT).

Refer Para 3.2 b (I) of section: 2 ITT).

Project Name	Name of Employer	Description of Work	Contract Number	Value of Contract ₹. Cr.	Date of Issue of Work Order	Specified Period of Completion	Actual Date of Completion	If Partner in a JV, Specify Participation in Total Contract Amount	Remarks Explaining Reasons for Delay in Completion of Work
1	2	3	4	5	6	7	8	9	10

Refer Para 3.2 b (II) of section: 2 ITT).

Project Name	Name of Employer	Description of Work	Contract Number	Value of Contract ₹. Cr.	Date of Issue of Work Order	Specified Period of Completion	Actual Date of Completion	If Partner in a JV, Specify Participation in Total Contract Amount	Remarks Explaining Reasons for Delay in Completion of Work
1	2	3	4	5	6	7	8	9	10

Notes:

- (1) If the qualifying work of similar nature is done by a joint venture/, then Value shall be considered as per percentage participation by the member(s) in that joint venture/.

- 1.3 Value of similar nature of work completed shall be updated to 2024-25 price level as per table given below.

Financial year	2019-20	2020-21	2021-22	2022-23	2023-24
Indian Currency					
Foreign Currency					

For completed works, the value of work done shall be updated to FY 2024-25 price level assuming 10% inflation for Indian rupees every year or part thereof up to the month previous to the Bid submission month. Credentials if submitted in foreign currency shall be converted into Indian currency i.e., Indian Rupee as under: Bids will be compared in Indian Rupees only. The exchange rate of foreign currency shall be applicable 28 days before the tender submission date. For conversion of foreign currency to Indian Rupee exchange rates published by Financial Benchmarks Private limited (www.fbil.org.in) 28 days before the date of bid submission will be considered. In case, the particular day happens to be a holiday, the exchange rate published on the next working day will be considered. In case of works in foreign currency, the effect of inflation is considered as included, as the exchange rate prevailing 28 days before tender submission is being considered for conversion to Indian Rupees.

The bidder shall attach a copy of the Certificate(s) issued by the employer in support of the information being furnished in the above form, failing which the claim of the bidder shall be liable to be rejected (in case of experience as a sub-contractor, the employer shall be the owner of the Project who has engaged the main Contractor).

(SEAL AND SIGNATURE OF THE BIDDER)

- 1.4 Quantities of work executed as contractor (in the same name) during the five financial years as mentioned below.

Year	Name of Work	Name of Employer	Quantity of work performed (As mentioned in Qualification of the Tenderer Clause 3.2)				Remarks (Indicate contract Reference Contract no., Award Date, Completion Date, Role in Contract, Total Contract Amount, JV Participation Proportion)
			Shifting /diversion/laying of all type of BWSSB sewer & water lines any One year (Any continuous 12 months) within last five financial years	Deleted	Deleted	Deleted	
2019-20							
2020-21							
2021-22							
2022-23							
2023-24							

Note:

- Copy of Certificate(s) issued by the employer in support of the information being furnished above, shall be attached with each respective form, as per detailed requirements indicated in clause 3.2 (c) and of Section 2 failing which the claim of the bidder shall be liable to be rejected (in case of experience as a sub-contractor, the employer shall be the owner of the Project who has engaged the main Contractor).

(SEAL AND SIGNATURE OF THE BIDDER)

- 1.5 Information on works for which Tenders have been submitted and works which are yet to be completed as on the date of this Tender.

(A) Existing commitments and on-going works:

Description of Work	Place & State	Contract No. & Date	Name and Address of Employer	Value of Contract (₹. in Crores)	Stipulated Period of Completion	Value of Works Remaining to be Completed (₹. In Crores) (Attach Certificate from Engineer in charge)	Anticipated Date of Completion
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

(B) Works for which Tenders already submitted:

Description of Work	Place & State	Name and Address of Employer	Estimated Value of Works (₹. In Crores)	Stipulated Period of Completion	Date when Decision is Expected	Remarks if Any
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- 1.6 The items of equipment are considered essential for successfully carrying out the works. The Tenderer should furnish all the information listed below. (The item of the equipment required nos. and capacity should match with those specified in ITT clause 3.3(a) I

Item of Equipment	Requirement			Owned and Available no's/Age/Capacity/Condition	Remarks (The details of hired/leased Equipment Details to be Indicated)
	Nos.	Capacity	Owned		

Undertaking

I/We do hereby confirm that above mentioned plant and equipment shall be deployed for the work on own/hired/lease basis in accordance with the clause 3.3 (a) of ITT section-2.

- 1.7 Reports on the financial standing of the tenderer, such as profit and loss statements and auditor's reports for the five years;
- 1.8 Qualification and experience of the key technical and management personnel in permanent employment with the tenderer and those that are proposed to be deployed on this contract, if awarded.
- 1.9 Name, address, and telephone, telex, and fax numbers of the Tenderers' bankers who may provide references if contacted by the Employer.
- 1.10 Evidence of access to financial resources to meet the qualification requirement specified in ITT Clause 3.3 (b): Cash in hand, Letter of Credit etc. List them and attach certificate from the Banker in the suggested format given in Section 3, Form No.CL3 & CL4.
- 1.11 Proposals for subcontracting components of works amounting to more than 20% of the contract price.

Item of Work	Value of Sub-Contract	Identified Sub-Contractor (Name and Address)	Experience of Similar Works (Attach Certificates from the Respective Employers)	Remarks (Undertaking from Specialist Subcontractors to be Provided as per Form CL-2)

1.12 Information on litigations in which the Tenderer is involved:

Litigation History

(This has reference to Eligibility cum Qualification Criteria document.)

Name of Tenderer or member of Joint Venture: -

Sl. No.	Name of the Employer/ Client	Name of the Work	No. of Cases in the Work	Cause of Litigation/ Arbitration/ Details of Disputes	Year	Litigation/ Arbitration Initiated by	Award in Favor of Tenderer/ Client	Disputed Amount	Remarks Showing Present Status

Note: Tenderers including each of the partners of a Joint Venture should provide information on any history of litigation or Arbitration resulting from contracts executed in the 05 years and ending last day of the month previous to the month of bid submission. A separate sheet should be used for each partner of a Joint Venture.

1.13 The proposed methodology and program of construction, backed with equipment planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones.

APPROACH & METHODOLOGY PROPOSED FOR PERFORMING THE ASSIGNMENT

Name of Project: “_____”

The approach and methodology will be detailed precisely under the following topics:

1. Understanding of the assignment
 2. Work Breakdown structure/ Work plan.
 3. Composition of the Team
 4. Organizational set up/ Construction methodology for execution of the work as outline in Section 8A
 5. Documentation and procedures to be prepared, adopted and furnished to K-RIDE (Rail Infrastructure Company (Karnataka) Limited.)
 6. Reporting Procedure
 7. Sourcing of Material
- Note:
- i. The approach and methodology shall be precise and relevant to the assignment. Bar charts shall be included.

B) ADDITIONAL QUALIFICATION INFORMATION / BIDDING FORMS

Form: PS1

LETTER OF TECHNICAL BID

Date _____

Invitation for Bid No.: _____

To, _____

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Tenderer (ITT).
- (b) We offer to execute the Works in conformity with the Bidding Documents.
- (c) Our bid shall be valid for a period of 180 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (d) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents.
- (e) If our bid is accepted, we commit to deploy key equipment and key personnel consistent with the requirements stipulated in Section 8A: Works Requirements.
- (f) If our bid is accepted, we commit to submit work method statements for all major activities and get these approved from the engineer prior to commencing work on such activities. We also understand that the work shall be executed as per the approved method statements and KEY DATES without any deviations and delay in completion.
- (g) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITT clause 2.4.
- (h) We declare that we are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITT clause 2.2, other than alternative offers submitted in accordance with ITT clause 14.
- (i) We declare that we are not liable to be disqualified in Accordance with ITT clause 2.5, and we are enclosing the affidavit for the same as per the Performa given in the bid document.
- (j) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (k) We have not made any deviations from the requirement of the bidding document and we have also not made any tampering or changes in the bidding documents on which the bid is being submitted and if any tampering or changes are detected at any stage, we understand the bid will invite summary rejection and invocation of bid security declaration, the contract will be liable to be terminated along with forfeiture of performance security, even if LOA has been issued.
- (l) We understand that we will be considered for participating for which we have submitted the bid security (ies) declaration form and we will be considered for award, subject to fulfilling the eligibility criteria as given in bidding document.
- (m) If our bid is accepted, we opt to take payment into the bank account, nominated by us.
- (n) We declare that the submission of this bid confirms that no agent, middleman, or any intermediary has been, or will be engaged to provide any services or any other item of work related to the award and performance of this contract. We further confirm and declare that no agency commission or any payment which may be construed as an agency commission has been, or will be, paid and that the bid price does not include any such amount. We acknowledge the right of the Employer, if he finds to the contrary, to declare our bid to be noncompliant and if the contract has been awarded to declare the contract null and void.
- (o) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
- (p) A Power of Attorney to sign and submit this letter is attached.
- (q) Having inspected the site, examined the complete bid document including Employer's requirements, Conditions of Contract, Special Conditions of Contract, Particular Conditions of Contract, Technical Specifications, Safety, Health & Environment (SHE) Manual, Eligibility Cum Qualification Criteria, Instructions

- to Bidder and Addenda/Corrigendum etc., thereto (if any) for above mentioned work and prepared the bid entirely in accordance with all the requirements of the bid document and agree entirely with them.
- (r) We here by confirm that we have visited the sites of work and have become conversant with the local conditions of working.
 - (s) For the purpose of your evaluation, study, review and decision-making we are ready to let you inspect our business premises / site, etc.
 - (t) We authorize K-RIDE or any of their authorized representative to approach, enquire, verify and check the matter furnished in our submission with the concerned client / owner of the Project / Contract and the concerned Banker of reference provided by us.
 - (u) We undertake to hold in confidence all documents and information whether Technical or Commercial supplied to us at any time by or on behalf of K-RIDE in connection with this bid and without your written authority or as otherwise required by law not to publish or otherwise disclose the same.
 - (v) If our bid is accepted, we agree to establish our project office in Bengaluru
 - (w) We have submitted the Statement of Integrity, Eligibility, Social, and Environmental Responsibility signed and abides by the same.
 - (x) We understand that this Bid shall be governed by and construed in all respects according to the laws for the time being force in India and that the courts at Bengaluru will have exclusive jurisdiction in the matter.
 - (y) We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".
- We hereby confirm that this Tender complies with the Tender validity and Earnest money deposit required by the Tender documents.
- (z) We confirm and declare that by virtue of our signature below, to the best of knowledge and belief that the information provided by us as required in this Bid Document, all supporting and explanatory information is truthful and exact.

Name _____

_____ In the capacity of _____

Signed _____

Duly authorized to sign the Bid for and on behalf of _____

Date: _____

(SEAL AND SIGNATURE OF THE BIDDER)

Form: PS 2

LETTER OF PRICE BID

(To be separately given for on the Letter head of the Firm)

(Centre of E-governance has disabled submission of documents pertaining to financial proposal in e-portal. Bidders are requested to enter the Financial Proposal in the respective cell provided in the e-portal. This format of Financial Proposal is only for reference).

Date _____

Invitation for Bid No _____

To, _____

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Clause no. 9, Section 2 Instructions to Bidders (ITB).
- (b) We offer to execute the Work in conformity with the Bidding Documents.
- (c) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (d) The total price of our Bid is indicated in the price schedule in e-procurement portal.
- (e) We have not made any deviations from the requirement of the bidding document and we have also not made any tampering or changes in the bidding documents on which the bid is being submitted and if any tampering or changes are detected at any stage, we understand the bid will invite summary rejection and forfeiture of bid security/the contract will be liable to be terminated along with forfeiture of performance security, even if LOA has been issued.
- (f) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Name: _____

In the capacity of: _____

Signed: _____

Duly authorized to sign the Bid for and on behalf of _____

Date: _____

Seal: _____

Form: PS 3

FORMAT FOR AFFIDAVIT TO BE SUBMITTED BY BIDDER ALONGWITH THE BID

(To be separately given for each package)

(To be executed in presence of Public Notary on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper has to be in the name of the bidder) **

I _____ (Name and designation) ** _____ appointed as the attorney/authorized signatory of the bidder (including its constituents), M/s. _____ (hereinafter called the bidder) for the purpose of the Bid for the work of _____ as per the bid No. _____ of K-RIDE, do hereby solemnly affirm and state on behalf of the bidder including its constituents as under:

- *1. That the bidder or any of its constituents has not been Blacklisted/ banned for business dealings for all Government Departments or by Ministry of Railways or by K-RIDE at any time and/or no such blacklisting is in force as on the deadline for submission of bids.
- *2. That none of the previous contracts of the bidder or any of its constituents had been terminated / rescinded for Contractor's failure or part terminated for its failure as a JV partner with forfeiture of its full Performance Security, by Rail Infrastructure Development Company (Karnataka) Ltd. during the period of last 3 years before the deadline for submission of bids.
(Add Proviso of Clause 2, (ITT) suitably, if any Contract was so terminated).
- *3. The bidder or any of its constituents has not been imposed liquidated damages of 5% or more of contract value by any Government Department or by Ministry of Railways or by K-RIDE due to delay in the implementation of any previous contract (either in the capacity of a single entity or as constituent of any other JV) within the period of last 2 years before the deadline for submission of bid [2 years shall be reckoned from the date on which imposed L.D. has exceeded 5% of the contract price] and there are no such accrued delay damages which has not been fully recovered before the deadline for submission of bids on account of contractor's request for deferring recovery to maintain cash flow and K-RIDE has acceded to the same in the interest of the project and the work under the previous contract in question has been completed before the deadline for submission of bid, unless imposition of such delay damages has been set aside by the Competent Authority.
4. That the Bidder or any of its constituents is neither Bankrupt/Insolvent nor is in the process of winding-up nor is such a case pending before any Court on the deadline of submission of the bid.
- *5. That the name of the Bidder or any of its constituents is not on the list of "Poor Performer" of any Government Department or by Ministry of Railways or by K-RIDE as on the deadline for submission of bid.
6. We declare that the bidder or any of its constituents have not either changed their name or created a new business entity. Consequent to having been banned business dealings for specified period which is not over or suspended business dealings or having been declared as poor performer.
7. We declare and certify that balance sheets for five financial years including that for the latest concluded financial year are being submitted.

OR

We declare and certify that balance sheet for the latest concluded financial year has not been finalized till date and that is why we are furnishing financial data for five financial years ignoring the latest concluded financial year.

(# - Delete whichever is not applicable) **.

8. We declare and certify that we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
9. We declare that the information and documents submitted along with the bid by us are correct and we are fully responsible for the correctness of the information and documents, submitted by us.
10. We understand that in case we cease to fulfil the requirements of qualifying and eligibility criteria at any time after opening of bids and till finalization of bids, it will be our bounden duty to inform the Employer of our IBN changed status immediately and in case of our failure to do so, our bid shall be rejected and bid security declaration form shall be forfeited. In case such failure comes to the notice of Employer at any time after award of the contract, it will lead to termination of the contract and forfeiture of Bid or Performance Security. We shall also be liable for Banning of Business dealings up to a period of five years.
11. We understand that if the contents of the affidavit are found to be false at any stage during bid evaluation, it will lead to rejection of our bid and forfeiture of the bid security. Further, we [insert name of the bidder]

- ** _____ and all our constituents understand that we shall be liable for banning of business dealings up to a period of five years.
12. We declare and certify that we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
 13. We also understand that our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon us.
 14. We declare that the information and the document submitted along with the tender by us are correct and we are fully responsible for the correctness of the information and documents, submitted by us.
 15. We undersigned that if the certificate regarding Eligibility Criteria submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender EMD besides banning of business for five years in K-RIDE. Further, we (Insert name of the Tenderer) ** _____ and all our constituents understand that our offer shall be summarily rejected.
 16. We also understand that if the certificate submitted by us are found to be false/forged or incorrect at any time after the award of contract, it will lead to termination of the contract, along with forfeiture of EMD/SD and performance guarantee besides any other action provided in the contract including banning of business for five years in K-RIDE.

(SEAL AND SIGNATURE OF THE BIDDER)

Verification:

We above named tenderer do hereby solemnly affirm and verify that the contents of our above affidavit are true and correct. Nothing has been concealed and no part of it is false.

(SEAL AND SIGNATURE OF THE BIDDER)

*Modify the contents wherever necessary, in terms of sub-clause 2 ITT.

** The contents in Italics are only for guidance purpose and details as appropriate, are to be filled in suitably by Bidder.

Attestation before Magistrate/Public Notary

Form – BDF/1

FORMAT OF BID SECURITY (BANK GUARANTEE)

WHEREAS _____ having its registered office at _____ (hereinafter called the Bidder) has submitted his bid dated for the work "_____." (hereinafter called "the Works") KNOW ALL PEOPLE by these presents that we, _____ having its registered office at _____ (hereinafter called the Bank) are bound unto the Managing Director, Rail Infrastructure Development Company Karnataka Ltd (K-RIDE), Bengaluru (hereinafter called "the Employer") in the sum of ₹. _____ (Rupees _____) for which payment well and truly to be made to the said Employer the Bank binds itself, his successors and assigns by these presents; SEALED with the Common Seal of the said Bank this day _____

THE CONDITIONS OF THIS OBLIGATION ARE:

- (1) If after Bid opening the Bidder withdraws his Bid during the period of Bids validity specified in the Form of Bid.
OR
- (2) If the Bidder having been notified of the acceptance of his Bid by the Employer during the period of Bid Validity.
 - a. Fails or refuses to execute the form of Agreement in accordance with the instructions to Bidders, if required; or
 - b. Fails or refuse to furnish the Performance Security, in accordance with the instruction to Bidders; or
 - c. Does not accept the correction of the Bid Price pursuant to clause 24.

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the conditions of one or both of the two conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date 225 days after the deadline for submission of bids as such deadline is stated in the instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date

DATE _____
 SIGNATURE OF THE BANK _____
 WITNESS _____
 SEAL _____

Form: JV/1

(NOT APPLICABLE)

Form: JV/2

(NOT APPLICABLE)

Form: JV/3

(NOT APPLICABLE)

Form: JV/4

(NOT APPLICABLE)

KRIDE

BIDDERS QUALIFICATION

To establish its Qualifications to perform the contract in accordance with Section 2 (Qualification Information) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

To establish its qualifications to perform the contract in accordance with Section 2 (Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's Legal Name	
Bidder's Country of Constitution	
Bidder's Year of Constitution	
Bidder's Legal Address in Country of Constitution	
Bidder's Authorized Representative (Name, Address, Telephone Numbers, Fax Numbers, e-mail Address)	
Bidder's Bank Details: (a) Name of the Bank and branch: (b) Account Number: (c) IFSC code: (d) Bank's Contact Number and Fax Number: (e) PAN: GST Registration No:	

The bidder shall attach copies of the following original documents with the form:

1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITT clause 2.
2. Authorization to represent the firm or JV named in above, in accordance with ITT clause 14.
3. In case of JV , JV agreement, in accordance with ITT clause 2.

(SEAL AND SIGNATURE OF THE BIDDER)

FORM ELI - 2: JV INFORMATION SHEET

DELETED

K-RIDE

FORM FIN-1: FINANCIAL SITUATION

(Each Bidder or each member of a JV must fill in this form separately)

NAME OF BIDDER/JV PARTNER

Sl. No.	Description	Financial Data for 5 Financial Years [Indian National Rupees]				
		Year 1:	Year 2:	Year 3:	Year 4:	Year 5:
1	Total Assets					
2	Current Assets					
3	Total Liabilities					
4	Current Liabilities					
5	Net Worth [= 1 – 3]					
6	Working Capital [= 2 - 4]					
7	Profit Before Tax (PBT)					

1. The bidder shall attach copies of the following original documents with the form
Copies of the audited balance sheets, including all related notes, and income statements for the five years, as indicated above, complying with the following conditions.
 - i. All such documents reflect the financial situation of the Bidder or partner to a JV , and not sister or parent companies.
 - ii. Historic financial statements must be audited by a certified accountant.
 - iii. Historic financial statements must be complete, including all notes to the financial statements.
 - iv. Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).
2. Contents of this form should be certified by a Statutory Auditor
 - i. In the event that the audited accounts for the latest concluded Financial Year are not available, the Bidder shall furnish information pertaining to the five financial years after ignoring the latest concluded financial year. In case, the bidder submits audited financial information for the last six or more years, only the figures for the five years (from FY 2019-20 to FY 2023-24) shall be considered for evaluation.
 - ii. Financial data for last five financial years has to be submitted by the bidder along with audited balance sheets. The financial information of the Bidder must be certified either by the Independent Financial Auditor (statutory Auditor) of the company appointed under the companies' Act.
 - iii. In case any discrepancy in data is found between the balance sheet and the financial information submitted, the data as available in the balance sheet will be considered.
 - iv. In case the audited balance sheet of the year 2023-24 is not made available by the Bidder, he has to submit an affidavit certifying that 'The Balance Sheet has actually not been audited so far'. In such a case the financial data of '4' audited financial years (i.e. 2019-20, 2020-21, 2021-22, 2021-22) will be taken into consideration for evaluation. If audited balance sheet of any year other than the year 2023-24 is not submitted, then the bid will be considered as non-responsive.
 - v. In case the company's financial year is from Jan 19 to Dec 19, then it will be considered under financial year 2019 – 20. Similar procedure will be applicable for other financial years also.

(SEAL AND SIGNATURE OF THE BIDDER)

Certified that all figures and facts submitted in this form have been furnished after full consideration of all observations/notes in Auditor's reports.

(Signature of Statutory Auditor)

Name of Statutory Auditor: _____

Registration No: _____

(Seal)

FORM FIN-2: ANNUAL CONSTRUCTION TURNOVER FOR THE 5 FINANCIAL YEARS.**NAME OF BIDDER:**

Sl. No.	Year	Annual Turnover	Multiplying Factor	Updated Annual Turnover
		INR	INR	INR
1	2019-2020			
2	2020-2021			
3	2021-2022			
4	2022-2023			
5	2023-2024			

Annual Turnover Data for the 5 Financial Years. (Construction Only)

Year	Amount Currency	Exchange Rate	Indian National Rupees Equivalent
Average Annual Construction Turnover for 5 Financial Years.			

1. The information supplied shall be substantiated by data in the audited balance sheets and profit and loss accounts for the relevant years and submitted as attachments to form Fin-1 in respect of the bidder or all partners constituting the bidder.
2. Contents of this form should be certified by a Statutory Auditor.
3. In the event that the audited accounts for the latest Financial Year are not available, the Bidder shall furnish information pertaining to last three financial years after ignoring the latest financial year. In case the bidder submits audited financial information for the last four or more years, only the figures for the latest three years shall be considered for evaluation.

(SEAL AND SIGNATURE OF THE BIDDER)

FORM FIN-3: CURRENT CONTRACT COMMITMENTS / WORKS IN PROGRESS

Bidders and each partner to a JV should provide information on their current commitments on all contract that have been awarded, or which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Contract Commitments

Sl. No.	Description of Work	Contract No. & Date	Name & address of Employer, Tel./Fax/ Email	Value of Contract in INR	Stipulated Period of Completion	Value of Balance Work	Anticipated Date of Completion
1	2	3	4	5	6	7	8
1							
2							
3							
4							
5							
Total							

For calculation of 'Updated contract value' in column 5 above, assume inflation as per multiplying Factors given in FIN-2.

1. Bidder should provide information on their current commitments on all contracts that have been awarded or for which a letter of intent or acceptance has been received or for contracts approaching completion but for which a completion certificate is yet to be issued.
2. The exchange rate of foreign currency shall be applicable 28 days before the tender submission date. For conversion of foreign currency to Indian Rupee exchange rates published by Financial Benchmarks Private limited (www.fbil.org.in) 28 days before the date of bid submittal will be considered. In case the particular day happens to be a holiday the exchange rate published on the next working day will be considered. In case of works in foreign currency the effect of inflation is considered as included, as the exchange rate prevailing 28 days before tender submission is being considered for conversion to Indian Rupees,

Note: Enclose Certificate(s) from Engineer(s) In charge (not below the rank of Executive Engineer) for Value of outstanding work. In case it is not feasible to furnish certificate from all the units the bidder should record the following certificate on Fin 3:

"Certified that current commitments on all the contracts that have been awarded or for which a letter of intent or acceptance has been received or for the works in progress or the works approaching completion, value of outstanding work has been indicated in the above table correctly. It is further certified that if later on the employer discovers that information provided in the table is incorrect then the employer will treat our bid invalid and it will be liable for rejection"

(SEAL AND SIGNATURE OF THE BIDDER)

FORM NO. 1

DELETED

K-RIDE

FORM NO. 2

**CHECKLIST FOR CLAUSES PERTAINING TO SUMMARY
REJECTION OF BID**

We, the undersigned, declare that we have read and understood the content of ITT clauses section: 2 mentioned below. We also understand that our bid shall be summarily rejected in case we fail to comply the requirements of under mentioned clauses:

ITT Clause No. Section 2	Reason for Summary Rejection	Form No.
2.5	Non-submission of Affidavit	Form PS-3
11.5 & 22	Non-submission of immediate information to the Employer in case Bidder ceases to fulfill eligibility in terms of ITT.	-
ITT	Letter of Technical Bid	Form PS-1
11.5	Quoting more than one Lump sum Amount for any Schedule	Price schedule- Section:9
11.5	Non-Submission of the Letter of Price Bid (LPB)	(Form:PS-2)
13	Bid not Accompanied with bid Security	(BDF/1)
14	Bid not Accompanied with Power of Attorney / General Power of Attorney to Sign on Behalf of the Bidders	NA

(SEAL AND SIGNATURE OF THE BIDDER)

Form: 3 - C 1

FORMAT FOR CERTIFICATE TO BE SUBMITTED BY BIDDER ALONGWITH THE BID
(On the letter head of the Firm)

We/I, _____, having registered office at _____ do hereby certify that "I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. (Where applicable, evidence of valid registration by the competent Authority shall be attached.)"

Dated this _____ day of _____, 2024

For: _____

Authorized Signatory Signature: _____

Full Name: _____

Place: _____

(SEAL AND SIGNATURE OF THE BIDDER)

FORM: 3 - C 2

**FORMAT FOR CERTIFICATE TO BE SUBMITTED BY
BIDDER ALONGWITH THE BID FOR SUB CONTRACTING**
(On the letter head of the Firm)

We/I, _____, having registered office at _____ do hereby certify that "I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the competent Authority and will not sub-contractor any work to a contractor from such countries unless such contractor is registered with the competent Authority. I hereby certify that his bidder fulfils all requirements in this regard and is eligible to be considered. (Where applicable, evidence of valid registration the Competent Authority shall be attached.)"

Dated this _____ day of _____, 2024

For- _____

Authorized Signatory Signature _____

Full Name: _____

Place: _____

(SEAL AND SIGNATURE OF THE BIDDER)

FORM 4

DELETED

K-RIDE

FORM 5**KEY PERSONNEL FOR THE WORK**

MINIMUM QUALIFICATION AND EXPERIENCE REQUIRED FOR KEY PERSONNEL TO BE DEPLOYED FOR THE WORK.

The Tenderer must demonstrate that it will have a suitably qualified Project Manager and suitably qualified (and in adequate numbers) Key Personnel and Non-Key Personnel, as described in the table below.

The Tenderer shall provide details of the Project Manager and Key Personnel and Non-Key Personnel that the Tenderer considers appropriate to perform the Contract, together with their academic qualifications and work experience.

Sl. No.	Key Personnel	Qualifications & Total Experience	Particular Experience (Minimum requirement)	Minimum Number of Personnel Required	Name of the key Personnel Proposed	Qualification	Total Number of Years of Experience	Number of Years in Similar Works Experience
1	Project Manager	Bachelor's Degree / Diploma in Civil Engineering	Minimum 10 years total experience or Equivalent in Similar Nature of works	1				
2	Site Engineer	Bachelor's Degree / Diploma in Civil Engineering	Minimum 5 year with Bachelor degree and 7 years with Diploma with similar nature of work.	2				

Note:

- Further details to be updated as per clause 3.3 (c) of section 2 ITT.

(Signature)

(Name of Signatory)

(Capacity of Signatory)

Seal.....

FORM 6

FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED KEY PROFESSIONAL STAFF

Proposed Position:

Name of Firm:

Name of Staff:

Profession:

Date of Birth:

Years with Firm/Entity: Nationality:

Membership in Professional Societies:

Detailed Tasks Assigned:

Key Qualifications:

[Give an outline of staff member's experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations]

Education:

[Summarize college/university and other specialized education of staff member and degrees obtained.]

Employment Record:

[Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, titles of positions held, and locations of assignments. Also give types of activities performed and client references, where appropriate.]

Period	Name of Employing Organization	Name of the Project	Title / Position	Activity performed	Location of the Assignment

Languages:

[For each language, indicate proficiency: excellent, good, fair, or poor; in speaking, reading, and writing]

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

Date:

[Signature of staff member and authorized representative of the Firm] Day/Month/Year

Full name of Staff Member: _____

Full name of the Authorized Representative: _____

FORM 7

**POWER OF ATTORNEY (POA) FOR SUBMITTING BID
(FOR SINGLE ENTITY/SOLE BIDDER ONLY)**

Know all men by these presents, we _____. (name and address of the registered office) do hereby constitute, appoint and authorize Mr./Ms. _____ (name and residential address) who is presently employed with us and holding the position of _____ as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for the Project, including signing and submission of all documents and providing information/responses to K-RIDE, representing us in all matters before K-RIDE, and generally dealing with K-RIDE in all matters in connection with our Bid for the Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall always be deemed to have been done by us.

(Name, Title and address) of the Person issuing the POA.

Notes:

- (i) The bidder should submit the notarized Power of Attorney.
- (ii) The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
- (iii) The bidder should submit following additional document in support of the POA as case-to-case basis:
 - a) Proprietorship Affidavit in case of Proprietary bidder.
 - b) Partnership deed in case of partnership bidder.
 - c) Board Resolution in case of a Public/Private limited company.
 - d) Memorandum & Article of Association in case of a Public/Private limited company.
 - e) Board Resolution in case of a Limited Liability Partnership.

FORM CL-2**UNDERTAKING FROM NOMINATED / IDENTIFIED SUB-CONTRACTOR**
(REFER CLAUSE OF EQC)

(On the Letterhead of Nominated/Identified Sub-Contractor)

I/We, _____ (Legal Name of Nominated/Identified Subcontractor)
hereby confirm that we are associating with _____ (Legal name of the bidder) for the work of
_____ (Name of work as stated in Invitation for Bids {IFB}), for the key activity
stated in clause 3.2 (c)/(d) of ITT (if applicable).

I/We hereby undertake that in case M/s _____ (Legal name of the bidder) are awarded
the work of _____ (Name of work as stated in Invitation for Bids {IFB}), the key activity
stated in clause 3.2 (c) / (d) of ITT shall be undertaken by us as per bid conditions (if applicable).

STAMP & SIGNATURE OF AUTHORISED

SIGNATORY
OF NOMINATED/IDENTIFIED SUB CONTRACTORSTAMP & SIGNATURE OF AUTHORISED
SIGNATORY OF BIDDER

AVAILABILITY OF FINANCIAL RESOURCES
(SECTION-2, ITT CLAUSE 3.3 (B))

Bidders must demonstrate sufficient financial resources, comprising of Working Capital supplemented by credit line statements or overdraft facilities to meet the Bidder's financial requirements for

- a) its current contract commitments, and
- b) the subject contract.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture

Partner's name:

Joint Venture Partner: _____

Financial Resources		
No.	Source of financing	Amount (equivalent)
1	Working Capital	
2	Credit Line	
Total Available Financial Resources		

To be considered, Credit Line must be substantiated by a letter from the bank issuing the line of credit, specific for the subject contract, as prescribed. Any letter or document not complying with this requirement shall not be considered as supplementary financial resources.

Note:

In case the financial statement data is other than Indian Rupees, the equivalent Indian Rupees with the exchange rates as defined in the Section-2, ITT.

FORM CL-4

EVIDENCE OF AVAILABILITY OF CREDIT LINE FINANCIAL RESOURCES
(SECTION-2 ITT, CLAUSE: 3(B))

[Each Bidder must fill out this form to demonstrate financial resources comprising credit line statements or overdraft facilities.]

Project Name: _____

Bidding Package Name and Identification Number: _____ (to be filled in as indicated in ITT 1) _____

BANK CERTIFICATE

This is to certify that M/s _____ is a reputed company with a good financial standing.

If the contract for the work, namely _____ is awarded to the above firm, we shall be able to provide overdraft / credit facilities to the extent of ` _____ to meet their working capital requirements for executing the above contract.

__Sd.____

Name of Bank: _____

Senior Bank Manager _____

Address of the Bank _____

[In case of Joint Venture, change the text as follows:]

This is to certify that M/s _____, who has formed a Joint Venture with M/s _____ and M/s _____ for participating in this bid, is a reputed company with a good financial standing.

If the contract for the work, namely _____ is awarded to the above joint venture, we shall be able to provide overdraft / credit facilities to the extent of ₹. _____ to M/s _____ to meet their working capital requirements for executing the above contract.

FORM EXP-1

WORK EXPERIENCE CERTIFICATE
TO WHOM SO EVER IT MAY CONCERN

(Issued for the purpose of Quoting in K-RIDE tenders)

M/s/Sri _____ (Name and address of the contractor) is a working contractor of this unit and was awarded the following work. The relevant details of the work are as under:

Sl. No	Description	Details
1	Name of work	
2	Acceptance Letter No and Date	
3	Agreement Number, Date and Name of the Agency	
4	Agreement Value in Rupees (in words and figures)	
5	Due Date of Completion	
6	Actual Date of Completion of Work	
7	Value of Final Bill if Passed (in words)	
8	Work Completed but Final Measurements Not Recorded. a) Amount Paid so far as in CC bill No.	
9	Work Completed. Final Measurements Recorded with Negative Variation a) Amount so far Paid as in CC bill No.	
10	Work Completed. If Final Measurements Recorded with Positive Variation which is not Sanctioned yet. Original Agreement Value of Last Sanctioned Agreement Value whichever is Lower.	
11	Scope of work (Broad category of Works i.e., the Name of the Work in the Agreement on which Work is	
12	Details of Values of Major Components/ Works Executed in the Completed Work.	

Note:

The Certificate to satisfy similar work should be signed by an officer not lower than JAG officer in Railways and Executive Engineer rank or equivalent grade in other department of Govt. of India/State Government/PSUs of Government of India / State Undertaking and Competent Authority of Public Listed Company.

Signature: _____
 Name of Officer: _____
 Designation: _____
 Address: _____
 Office Seal: _____
 Phone/FAX No.: _____
 Date: _____

SECTION-4

**FORM OF TENDER,
LETTER OF ACCEPTANCE,
AND AGREEMENT FORM ETC.**

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FORM OF TENDER (DELETED)

Please refer Form PS-1 of Section 3: Qualification Information & Bidding Forms.

FORM-1

LETTER OF ACCEPTANCE(On the Letter head of the Employer)

[Date]_____

To: _____[name and address of the Contractor]

Dear Sirs,

This is to notify you that your Bid dated _____ for the execution of _____ for the Accepted Contract Amount of Rupees _____ [amount in words and figures], as corrected and modified in accordance with the Instructions to Tenderers is hereby accepted by the Competent Authority of K RIDE.

You are hereby requested to furnish Performance Security plus additional security for unbalanced tenders in accordance with of Clause 25.6 of ITT, in the form detailed in Clause 29.1 of ITT and clause 4.2 of the general conditions of contract for an amount of ₹. _____ within 21 days of the receipt of this letter of acceptance, valid up to 30 days from the date of expiry of Defects Liability Period i.e., up to _____ and sign the contract.

You are hereby instructed to proceed with the execution of the said works in accordance with the contract documents from date of issuance of this letter.

Yours faithfully,

Authorized Signature

Name and Title of Signatory

Name of Agency.

DELETED

FORM-3**AGREEMENT FORM**

This agreement is made on the _____ day of _____, 20____, between _____
 _____ (Name and Address of Employer)
 (herein after called "the Employer") of the one part and _____ [name
 and address of contractor] (herein after called "the Contractor") of the other part.

Whereas the Employer is desirous that the Contractor execute "-----" Advertised vide
 _____ dated _____ (herein after called "The Works") and the Employer has
 accepted the Tender by the Contractor for the execution and completion of such Works and the remedying of
 any defects therein at a contract price of
 Rupees _____

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement,

The documents forming the Contract shall be interpreted in the following order of priority:

- i. This Contract Agreement and the Appendices hereto.
- ii. Letter of Acceptance
- iii. Letter of Bid and the Price Schedule submitted by the Contractor.
- iv. Addendums, Corrigendum and Pre-bid clarifications to the Tender
- v. Special provisions (if any)
- vi. Particular Conditions of Contract (PCC)
- vii. General Conditions of Contract (GCC) / Conditions of Contract (CC)
- viii. Employers Requirements including scope of works, the Schedules.
- ix. Technical specification, Safety, Health & Environment Manual
- x. Design and Drawings
- xi. Any other documents pertaining to tender, issued by the Employer
- xii. Contractor's Technical Proposal
- xiii. Any other documents pertaining to tender, submitted by the contractor

If an ambiguity or discrepancy is found in the documents, the Engineer will bring the same to the notice of the Employer and the Employer will issue necessary clarification or instruction, as per the need.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____
 was hereunto affixed in the presence of:
 Signed, Sealed and Delivered by the said _____

in the presence of:

Binding Signature of Employer _____

Binding Signature of Contractor _____

SECTION - 5

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K-RIDE

General Conditions (GC)

RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED (K-RIDE)

K-RIDE

General Conditions

1. General Provisions

- 1.1 Definitions** In the Conditions of Contract ("these Conditions"), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.
- 1.1.1 The Contract**
- 1.1.1.1 **"Contract"** means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.
 - 1.1.1.2 **"Contract Agreement"** means the contract agreement referred to in Sub-Clause 1.6 [Contract Agreement].
 - 1.1.1.3 **"Letter of Acceptance"** means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression "Letter of Acceptance" means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.
 - 1.1.1.4 **"Letter of Tender"** means the document entitled letter of tender or letter of bid, which was completed by the Contractor and includes the signed offer to the Employer for the Works.
 - 1.1.1.5 **"Specification"** means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.
 - 1.1.1.6 **"Drawings"** means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.
 - 1.1.1.7 **"Schedules"** means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.
 - 1.1.1.8 **"Tender"** means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.
 - 1.1.1.9 **"Bill of Quantities", "Daywork Schedule" and "Schedule of Payment Currencies"** mean the documents so named (if any) which are comprised in the Schedules.
 - 1.1.1.10 **"Contract Data"** means the pages completed by the Employer entitled contract data which constitute Part A of the Particular Conditions.
- 1.1.2 Parties and Persons**
- 1.1.2.1 **"Party"** means the Employer or the Contractor, as the context requires.
 - 1.1.2.2 **"Employer"** means the person named as employer in the Contract Data and the legal successors in title to this person.
 - 1.1.2.3 **"Contractor"** means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).
 - 1.1.2.4 **"Engineer"** means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer].
 - 1.1.2.5 **"Contractor's Representative"** means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor's Representative], who acts on behalf of the Contractor.
 - 1.1.2.6 **"Employer's Personnel"** means the Engineer, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer] and all other staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the Employer or the Engineer, as Employer's Personnel.
 - 1.1.2.7 **"Contractor's Personnel"** means the Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

Section - V

	1.1.2.8	" Subcontractor " means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.
	1.1.2.9	" DB " means the person or three persons appointed under Sub-Clause 20.2 [Appointment of the Dispute Board] or Sub-Clause 20.3 [Failure to Agree on the Composition of the Dispute Board]
	1.1.2.10	Deleted
	1.1.2.11	" Bank " means the financing institution (if any) named in the Contract Data.
	1.1.2.12	" Borrower " means the person (if any) named as the borrower in the Contract Data.
1.1.3	Dates, Tests, Periods and Completion	1.1.3.1 " Base Date " means the date 28 days prior to the latest date for submission of the Tender.
		1.1.3.2 " Commencement Date " means the date notified under Sub-Clause 8.1 [Commencement of Works].
		1.1.3.3 " Time for Completion " means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Contract Data (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.
		1.1.3.4 " Tests on Completion " means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.
		1.1.3.5 " Taking-Over Certificate " means a certificate issued under Clause 10 [Employer's Taking Over].
		1.1.3.6 " Tests after Completion " means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Employer.
		1.1.3.7 " Defects Notification Period " means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over 365 days except if otherwise stated in the Contract Data (with any extension under Sub-Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [Taking Over of the Works and Sections].
		1.1.3.8 " Performance Certificate " means the certificate issued under Sub-Clause 11.9 [Performance Certificate].
		1.1.3.9 " Day " means a calendar day and "year" means 365 days.
1.1.4	Money and Payments	1.1.4.1 " Accepted Contract Amount " means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.
		1.1.4.2 " Contract Price " means the price defined in Sub-Clause 14.1 [The Contract Price] and includes adjustments in accordance with the Contract.
		1.1.4.3 " Cost " means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.
		1.1.4.4 " Final Payment Certificate " means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].
		1.1.4.5 " Final Statement " means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].
		1.1.4.6 " Foreign Currency " means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.
		1.1.4.7 " Interim Payment Certificate " means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.
		1.1.4.8 " Local Currency " means the currency of the Country.
		1.1.4.9 " Payment Certificate " means a payment certificate issued under Clause 14 [Contract Price and Payment].
		1.1.4.10 " Provisional Sum " means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

	1.1.4.11	"Retention Money" means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].
	1.1.4.12	"Statement" means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.
1.1.5 Works and Goods	1.1.5.1	"Contractor's Equipment" means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Employer's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.
	1.1.5.2	"Goods" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.
	1.1.5.3	"Materials" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.
	1.1.5.4	"Permanent Works" means the permanent works to be executed by the Contractor under the Contract.
	1.1.5.5	"Plant" means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.
	1.1.5.6	"Section" means a part of the Works specified in the Contract Data as a Section (if any).
	1.1.5.7	"Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.
	1.1.5.8	"Works" mean the Permanent Works and the Temporary Works, or either of them as appropriate.
1.1.6 Other Definitions	1.1.6.1	"Contractor's Documents" means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.
	1.1.6.2	"Country" means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.
	1.1.6.3	"Employer's Equipment" means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Employer.
	1.1.6.4	"Force Majeure" is defined in Clause 19 [Force Majeure].
	1.1.6.5	"Laws" means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.
	1.1.6.6	"Performance Security" means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].
	1.1.6.7	"Site" means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.
	1.1.6.8	"Unforeseeable" means not reasonably foreseeable by an experienced contractor by the Base Date.
	1.1.6.9	"Variation" means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].
	1.1.6.10	"Notice of Dissatisfaction" means the notice given by either Party to the other under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] indicating its dissatisfaction and intention to commence arbitration.
1.2 Interpretation	In the Contract, except where the context requires otherwise:	
	(a)	Words indicating one gender include all genders;
	(b)	Words indicating the singular also include the plural and words indicating the plural also include the singular;
	(c)	Provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;
	(d)	"Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and

- (e) The word "tender" is synonymous with "bid" and "tenderer" with "Bidder" and the words "tender documents" with "bidding documents".
The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.
In these Conditions, provisions including the expression "Cost plus profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Contract Data.
Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:
- 1.3 Communications**
- (a) In writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Contract Data; and
- (b) Delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract Data. However:
- (i) If the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
- (ii) If the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.
- Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.
- 1.4 Law and Language**
- The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.
The ruling language of the Contract shall be that stated in the Contract Data.
The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.
- 1.5 Priority of Documents**
- The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:
- (a) The Contract Agreement (if any);
- (b) The Letter of Acceptance;
- (c) The Letter of Tender;
- (d) The Particular Conditions – Part A;
- (e) The Particular Conditions – Part B;
- (f) These General Conditions;
- (g) The Specifications;
- (h) The Drawings; and
- (i) The Schedules and any other documents forming part of the Contract.
- If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.
- 1.6 Contract Agreement**
- The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.
- 1.7 Assignment**
- Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:
- (a) May assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and
- (b) May, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.
- 1.8 Care and Supply of Documents**
- The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

- Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents. The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.
- If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.
- 1.9 Delayed Drawings or Instructions**
- The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.
- If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
 - Payment of any such Cost plus profit, which shall be included in the Contract Price.
- After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.
- 1.10 Employer's Use of Contractor's Documents**
- As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.
- The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:
- Apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works;
 - Entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works; and
 - In the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.
- The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.
- 1.11 Contractor's Use of Employer's Documents**
- As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Employer's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.
- 1.12 Confidential Details**
- The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.
- Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the

- Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.
- 1.13 Compliance with Laws** The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:
- (a) The Employer shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and
 - (b) The Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.
- 1.14 Joint and Several Liability** If the Contractor constitutes (under applicable Laws) a joint venture grouping of two or more persons:
- (a) These persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;
 - (b) These persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and
 - (c) The Contractor shall not alter its composition or legal status without the prior consent of the Employer.
- 1.15 Inspections and Audit by the Bank** The Contractor shall permit the Bank and/or persons appointed by the Bank to inspect the Site and/or the Contractor's accounts and records relating to the performance of the Contract and to have such accounts and records audited by auditors appointed by the Bank if required by the Bank.
- 2. The Employer**
- 2.1 Right of Access to the Site** The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.
- If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].
- If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
 - (b) Payment of any such Cost plus profit, which shall be included in the Contract Price.
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.
- 2.2 Permits, Licenses or Approvals** The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:
- (a) Copies of the Laws of the Country which are relevant to the Contract but are not readily available, and
 - (b) Any permits, licenses or approvals required by the Laws of the Country:
 - (i) Which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws];
 - (ii) For the delivery of Goods, including clearance through customs, and
 - (iii) For the export of Contractor's Equipment when it is removed from the Site.

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| 2.3 | Employer's Personnel | <p>The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:</p> <ul style="list-style-type: none"> (a) Co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation]; and (b) Take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment]. |
| 2.4 | Employer's Financial Arrangements | <p>The Employer shall submit, before the Commencement Date and thereafter within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment]. Before the Employer makes any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.</p> <p>In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in his notice of the extent to which such funds will be available.</p> |
| 2.5 | Employer's Claims | <p>If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Employer's Equipment and Free-Issue Materials], or for other services requested by the Contractor.</p> <p>The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.</p> <p>The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].</p> <p>This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.</p> |
| 3. The Engineer | | |
| 3.1 | Engineer's Duties and Authority | <p>The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.</p> <p>The Engineer shall have no authority to amend the Contract.</p> <p>The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Engineer.</p> <p>However, whenever the Engineer exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval.</p> <p>Except as otherwise stated in these Conditions:</p> <ul style="list-style-type: none"> (a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer; |

- (b) The Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;
- (c) Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
- (d) Any act by the Engineer in response to a Contractor's request except as otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.

The following provisions shall apply:

The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions:

- (a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost;
 - (b) Sub-Clause 13.1: instructing a Variation, except;
 - (i) In an emergency situation as determined by the Engineer, or
 - (ii) If such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data;
 - (c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 or 13.2;
 - (d) Sub-Clause 13.4: Specifying the amount payable in each of the applicable currencies
- Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

3.2 Delegation by the Engineer

The Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

- (a) Any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the work, Plant or Materials;
- (b) If the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

3.3 Instructions of the Engineer

The Engineer may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer or a delegated assistant:

- (a) Gives an oral instruction;

- (b) Receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction; and
- (c) Does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation;
- then the confirmation shall constitute the written instruction of the Engineer or delegated assistant (as the case may be).
- 3.4 Replacement of the Engineer** If the Employer intends to replace the Engineer, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer. If the Contractor considers the intended replacement Engineer to be unsuitable, he has the right to raise objection against him by notice to the Employer, with supporting particulars, and the Employer shall give full and fair consideration to this objection.
- 3.5 Determinations** Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.
- The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars, within 28 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].
- 4. The Contractor**
- 4.1 Contractor's General Obligations** The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.
- The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.
- All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank.
- The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.
- The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer..
- If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:
- (a) The Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
- (b) These Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs;
- (c) The Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and
- (d) Prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

- 4.2 Performance Security**
- The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the Contract Data and denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.
- The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance, and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor, and shall be in the form annexed to the Particular Conditions, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.
- The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.
- The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.
- The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.
- The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.
- Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in cost and/or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.
- 4.3 Contractor's Representative**
- The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.
- Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.
- The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.
- The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer's prior consent, and the Engineer shall be notified accordingly.
- The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].
- The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.
- The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.
- 4.4 Subcontractors**
- The Contractor shall not subcontract the whole of the Works.
- The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Particular Conditions:
- (a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;

- (b) The prior consent of the Engineer shall be obtained to other proposed Subcontractors;
- (c) The Contractor shall give the Engineer not less than 28 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
- (d) Each subcontract shall include provisions which would entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Employer].
- The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.
- Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors.
- 4.5 Assignment of Benefit of Subcontract** If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Employer, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Employer for the work carried out by the Subcontractor after the assignment takes effect.
- 4.6 Co-operation** The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:
- (a) The Employer's Personnel;
- (b) Any other contractors employed by the Employer; and
- (c) The personnel of any legally constituted public authorities;
- who may be employed in the execution on or near the Site of any work not included in the Contract.
- Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.
- If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Engineer in the time and manner stated in the Specification.
- 4.7 Setting Out** The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.
- The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.
- If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
- (b) Payment of any such Cost-plus profit, which shall be included in the Contract Price.
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.
- 4.8 Safety Procedures** The Contractor shall:
- (a) Comply with all applicable safety regulations;
- (b) Take care for the safety of all persons entitled to be on the Site;
- (c) Use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons;
- (d) Provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer's Taking Over]; and

- (e) Provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.
- 4.9 Quality Assurance** The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system. Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself. Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.
- 4.10 Site Data** The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data. To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):
- (a) The form and nature of the Site, including sub-surface conditions;
 - (b) The hydrological and climatic conditions;
 - (c) The extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects;
 - (d) The Laws, procedures and labour practices of the Country; and
 - (e) The Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.
- 4.11 Sufficiency of the Accepted Contract Amount** The Contractor shall be deemed to:
- (a) Have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount; and
 - (b) Have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].
- Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.
- 4.12 Unforeseeable Physical Conditions** In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions. If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable. This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply. If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:
- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
 - (b) Payment of any such Cost, which shall be included in the Contract Price.
- Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or

- determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.
- However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.
- The Engineer shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such evidence.
- 4.13 Rights of Way and Facilities** Unless otherwise specified in the Contract the Employer shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.
- 4.14 Avoidance of Interference** The Contractor shall not interfere unnecessarily or improperly with:
- (a) The convenience of the public; or
 - (b) The access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.
- The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.
- 4.15 Access Route** The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.
- Except as otherwise stated in these Conditions:
- (a) The Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
 - (b) The Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
 - (c) The Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route;
 - (d) The Employer does not guarantee the suitability or availability of particular access routes; and
 - (e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.
- 4.16 Transport of Goods** Unless otherwise stated in the Particular Conditions:
- (a) The Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
 - (b) The Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
 - (c) The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.
- 4.17 Contractor's Equipment** The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

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| 4.18 Protection of the Environment | <p>The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.</p> <p>The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.</p> |
| 4.19 Electricity, Water and Gas | <p>The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.</p> <p>The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.</p> <p>The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.</p> |
| 4.20 Employer's Equipment and Free-Issue Materials | <p>The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:</p> <ul style="list-style-type: none"> (a) The Employer shall be responsible for the Employer's Equipment; except that (b) The Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it. <p>The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.</p> <p>The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Employer shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.</p> <p>After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.</p> |
| 4.21 Progress Reports | <p>Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.</p> <p>Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.</p> <p>Each report shall include:</p> <ul style="list-style-type: none"> (a) Charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]); (b) Photographs showing the status of manufacture and of progress on the Site; (c) For the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of: <ul style="list-style-type: none"> (i) Commencement of manufacture; (ii) Contractor's inspections; (iii) Tests; and (iv) Shipment and arrival at the Site; (d) The details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment]; |

- (e) Copies of quality assurance documents, test results and certificates of Materials;
- (f) List of notices given under Sub-Clause 2.5 [Employer's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims];
- (g) Safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- (h) Comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.
- 4.22 Security of the Site** Unless otherwise stated in the Particular Conditions:
- (a) The Contractor shall be responsible for keeping unauthorised persons off the Site, and
- (b) Authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer, as authorised personnel of the Employer's other contractors on the Site.
- 4.23 Contractor's Operations on Site** The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.
- During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.
- Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.
- 4.24 Fossils** All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings. The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
- (b) Payment of any such Cost, which shall be included in the Contract Price.
- After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 5. Nominated Subcontractors**
- 5.1 Definition of "nominated Subcontractor"** In the Contract, "nominated Subcontractor" means a Subcontractor:
- (a) Who is stated in the Contract as being a nominated Subcontractor; or
- (b) Whom the Engineer, under Clause 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].
- 5.2 Objection to Nomination** The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees in writing to indemnify the Contractor against and from the consequences of the matter:
- (a) There are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
- (b) The nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or

- (c) The nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
- (i) Undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;
 - (ii) Indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities; and
 - (iii) Be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].
- 5.3 Payments to nominated Subcontractors** The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].
- 5.4 Evidence of Payments** Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:
- (a) Submits this reasonable evidence to the Engineer, or
 - (b)
 - (i) Satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts; and
 - (ii) Submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,
- then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.
- 6. Staff and Labour**
- 6.1 Engagement of Staff and Labour** Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing.
- The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the Country.
- 6.2 Rates of Wages and Conditions of Labour** The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor. The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of the Country for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.
- 6.3 Persons in the Service of Employer** The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.
- 6.4 Labour Laws** The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.
- The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.
- 6.5 Working Hours** No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:

- (a) Otherwise stated in the Contract;
- (b) The Engineer gives consent; or
- (c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.
- 6.6 Facilities for Staff and Labour**
- Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.
- The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.
- 6.7 Health and Safety**
- The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.
- The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.
- The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.
- HIV-AIDS Prevention. The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.
- The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labour (including all the Contractor's employees, all Subcontractors and any other Contractor's or Employer's personnel employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behaviour with respect to, of Sexually Transmitted Diseases (STD) - or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular; (ii) provide male or female condoms for all Site staff and labour as appropriate; and (iii) provide for STI and HIV/AIDS screening, diagnosis, counselling and referral to a dedicated national STI and HIV/AIDS programme, (unless otherwise agreed) of all Site staff and labour.
- The Contractor shall include in the programme to be submitted for the execution of the Works under Sub-Clause 8.3 an alleviation programme for Site staff and labour and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation programme shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification. For each component, the programme shall detail the resources to be provided or utilised and any related sub-contracting proposed. The programme shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this programme shall not exceed the Provisional Sum dedicated for this purpose.

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| 6.8 Contractor's Superintendence | Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.
Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works. |
| 6.9 Contractor's Personnel | The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:
(a) Persists in any misconduct or lack of care;
(b) Carries out duties incompetently or negligently;
(c) Fails to conform with any provisions of the Contract; or
(d) Persists in any conduct which is prejudicial to safety, health, or the protection of the environment.
If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person. |
| 6.10 Records of Contractor's Personnel and Equipment | The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works. |
| 6.11 Disorderly Conduct | The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site. |
| 6.12 Foreign Personnel | The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national or government permission required for bringing in the Contractor's personnel.
The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial. |
| 6.13 Supply of Foodstuffs | The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract. |
| 6.14 Supply of Water | The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel. |
| 6.15 Measures against Insect and Pest Nuisance | The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide. |
| 6.16 Alcoholic Liquor or Drugs | The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel. |
| 6.17 Arms and Ammunition | The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so. |
| 6.18 Festivals and Religious Customs | The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs. |

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| 6.19 | Funeral Arrangements | The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works. |
| 6.20 | Prohibition of Forced or Compulsory Labour | The Contractor shall not employ forced labour, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements. |
| 6.21 | Prohibition of Harmful Child Labour | The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work. |
| 6.22 | Employment Records of Workers | The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment]. |
| 6.23 | Workers' Organisations | In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce |
| 6.24 | Non-Discrimination and Equal Opportunity | The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where the relevant labour laws provide for non-discrimination in employment, the Contractor shall comply with such laws. When the relevant labour laws are silent on non-discrimination in employment, the Contractor shall meet this Sub-Clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination. |

7. Plant, Materials and Workmanship

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| 7.1 | Manner of Execution | <p>The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:</p> <ul style="list-style-type: none"> (a) In the manner (if any) specified in the Contract; (b) In a proper workmanlike and careful manner, in accordance with recognised good practice; and (c) With properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract. |
| 7.2 | Samples | <p>The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:</p> <ul style="list-style-type: none"> (a) Manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost; and (b) Additional samples instructed by the Engineer as a Variation. <p>Each sample shall be labelled as to origin and intended use in the Works.</p> |
| 7.3 | Inspection | The Employer's Personnel shall at all reasonable times: |

- (a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained; and
- (b) During production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.

7.4 Testing

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Engineer may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Engineer shall give the Contractor not less than 24 hours' notice of the Engineer's intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Engineer's presence.

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
- (b) Payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

7.5 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

If the Engineer requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer.

7.6 Remedial Work

Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:

- (a) Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract;
- (b) Remove and re-execute any other work which is not in accordance with the Contract; and
- (c) Execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

- The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).
- If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.
- 7.7 Ownership of Plant and Materials** Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:
- When it is incorporated in the Works;
 - When the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].
- 7.8 Royalties** Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:
- Natural Materials obtained from outside the Site, and
 - The disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.
- 8. Commencement, Delays and Suspension**
- 8.1 Commencement of Works** Except as otherwise specified in the Particular Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:
- Signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;
 - Delivery to the Contractor of reasonable evidence of the Employer's financial arrangements (under Sub-Clause 2.4 [Employer's Financial Arrangements]);
 - Except if otherwise specified in the Contract Data, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works,
 - Receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor.
- If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].
- The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.
- 8.2 Time for Completion** The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:
- Achieving the passing of the Tests on Completion; and
 - Completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].
- 8.3 Programme** The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:
- The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing;
 - Each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]);
 - The sequence and timing of inspections and tests specified in the Contract; and
 - A supporting report which includes:

- (i) A general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works; and
- (ii) Details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

8.4 Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:

- (a) A Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract;
- (b) A cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions;
- (c) Exceptionally adverse climatic conditions;
- (d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions; or
- (e) Any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

8.5 Delays Caused by Authorities

If the following conditions apply, namely:

- (a) The Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country;
 - (b) These authorities delay or disrupt the Contractor's work; and
 - (c) The delay or disruption was Unforeseeable,
- then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

8.6 Rate of Progress

If, at any time:

- (a) Actual progress is too slow to complete within the Time for Completion; and/or
- (b) Progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme];

other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods

		<p>cause the Employer to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 below.</p> <p>Additional costs of revised methods including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be paid by the Employer, without generating, however, any other additional payment benefit to the Contractor.</p>
8.7	Delay Damages	<p>If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Employer's Claims] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Contract Data.</p> <p>These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Employer] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.</p>
8.8	Suspension of Work	<p>The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.</p> <p>The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.</p>
8.9	Consequences of Suspension	<p>If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <ul style="list-style-type: none"> (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and (b) Payment of any such Cost, which shall be included in the Contract Price. <p>After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p> <p>The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].</p>
8.10	Payment for Plant and Materials in Event of Suspension	<p>The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:</p> <ul style="list-style-type: none"> (a) The work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days; and (b) The Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.
8.11	Prolonged Suspension	<p>If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].</p>
8.12	Resumption of Work	<p>After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer an instruction to this effect under Clause 13 [Variations and Adjustments].</p>
		9. Tests on Completion
9.1	Contractor's Obligations	<p>The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].</p>

- The Contractor shall give to the Engineer not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.
- In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.
- 9.2 Delayed Tests** If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.
- If the Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.
- If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.
- 9.3 Retesting** If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.
- 9.4 Failure to Pass Tests on Completion** If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Engineer shall be entitled to:
- Order further repetition of Tests on Completion under Sub-Clause 9.3 [Retesting];
 - If the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or
 - Issue a Taking-Over Certificate, if the Employer so requests.
- In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations].
- 10. Employer's Taking Over**
- 10.1 Taking Over of the Works and Sections** Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.
- The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.
- The Engineer shall, within 28 days after receiving the Contractor's application:
- Issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
 - Reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

10.2 Taking Over of Parts of the Works

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

- (a) The part which is used shall be deemed to have been taken over as from the date on which it is used;
- (b) The Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and
- (c) If requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages] and shall not affect the maximum amount of these damages.

10.3 Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract. If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
 - (b) Payment of any such Cost plus profit, which shall be included in the Contract Price.
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

10.4 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

11. Defects Liability

11.1 Completion of Outstanding

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the

	Work and Remedying Defects	<p>relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:</p> <ul style="list-style-type: none"> (a) Complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer; and (b) Execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be). <p>If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.</p>
11.2	Cost of Remedying Defects	<p>All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:</p> <ul style="list-style-type: none"> (a) Any design for which the Contractor is responsible; (b) Plant, Materials or workmanship not being in accordance with the Contract; or (c) Failure by the Contractor to comply with any other obligation. <p>If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer, and Sub-Clause 13.3 [Variation Procedure] shall apply.</p>
11.3	Extension of Defects Notification Period	<p>The Employer shall be entitled subject to Sub-Clause 2.5 [Employer's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.</p> <p>If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.</p>
11.4	Failure to Remedy Defects	<p>If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.</p> <p>If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Employer may (at his option):</p> <ul style="list-style-type: none"> (a) Carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer the costs reasonably incurred by the Employer in remedying the defect or damage; (b) Require the Engineer to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or (c) If the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.
11.5	Removal of Defective Work	<p>If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.</p>
11.6	Further Tests	<p>If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 28 days after the defect or damage is remedied. These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.</p>

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11.7	Right of Access	Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.
11.8	Contractor to Search	The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.
11.9	Performance Certificate	Performance of the Contractor's obligations shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract. The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.
11.10	Unfulfilled Obligations	Only the Performance Certificate shall be deemed to constitute acceptance of the Works. After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.
11.11	Clearance of Site	Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site. If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site. Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.
12. Measurement and Evaluation		
12.1	Works to be Measured	The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract. Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall: (a) Promptly either attend or send another qualified representative to assist the Engineer in making the measurement; and (b) Supply any particulars requested by the Engineer. If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate. Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate. If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall give notice to the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.
12.2	Method of Measurement	Except as otherwise stated in the Contract and notwithstanding local practice: (a) Measurement shall be made of the net actual quantity of each item of the Permanent Works; and (b) The method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

12.3 Evaluation

Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contract or, if there is no such item, specified for similar work. Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

However, a new rate or price shall be appropriate for an item of work if:

(a)

- (i) The measured quantity of the item is changed by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule;
- (ii) This change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount;
- (iii) This change in quantity directly changes the Cost per unit quantity of this item by more than 1%; and
- (iv) This item is not specified in the Contract as a "fixed rate item";

or

(b)

- (i) The work is instructed under Clause 13 [Variations and Adjustments];
- (ii) No rate or price is specified in the Contract for this item; and
- (iii) No specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as applicable. If no rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.

Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

12.4 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

- (a) The Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- (b) The omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- (c) This cost is not deemed to be included in the evaluation of any substituted work; then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13. Variations and Adjustments**13.1 Right to Vary**

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

Each Variation may include:

- (a) Changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation);
- (b) Changes to the quality and other characteristics of any item of work;
- (c) Changes to the levels, positions and/or dimensions of any part of the Works;
- (d) Omission of any work unless it is to be carried out by others;

- (e) Any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work; or
- (f) Changes to the sequence or timing of the execution of the Works.
- The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.
- 13.2 Value Engineering**
- The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.
- The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].
- If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:
- (a) The Contractor shall design this part;
- (b) Sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor's General Obligations] shall apply; and
- (c) If this change results in a reduction in the contract value of this part, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:
- (i) Such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost]; and
- (ii) The reduction (if any) in the value to the Employer of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.
- However, if amount (i) is less than amount (ii), there shall not be a fee.
- 13.3 Variation Procedure**
- If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:
- (a) A description of the proposed work to be performed and a programme for its execution;
- (b) The Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion; and
- (c) The Contractor's proposal for evaluation of the Variation.
- The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.
- Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.
- Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Engineer instructs or approves otherwise in accordance with this Clause.
- 13.4 Payment in Applicable Currencies**
- If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.
- 13.5 Provisional Sums**
- Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:
- (a) Work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
- (b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:
- (i) The actual amounts paid (or due to be paid) by the Contractor; and

- (ii) A sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in the Contract Data shall be applied.

13.6 Day-work

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:

- (a) The names, occupations and time of Contractor's Personnel;
- (b) The identification, type and time of Contractor's Equipment and Temporary Works; and
- (c) The quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.7 Adjustments for Changes in Legislation

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
- (b) Payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.8 Adjustments for Changes in Cost

In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$P_n = a + b \frac{L_n}{L_o} + c \frac{E_n}{E_o} + d \frac{M_n}{M_o} + \dots$ where:

"P_n" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated in the Contract Data;

"a" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

"b", "c", "d", ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

"L_n", "E_n", "M_n", ... are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"L₀", "E₀", "M₀", ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the "currency of index" is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

14. Contract Price and Payment

14.1 The Contract Price

Unless otherwise stated in the Particular Conditions:

- (a) The Contract Price shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;
- (b) The Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];
- (c) Any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
 - (i) Of the Works which the Contractor is required to execute, or
 - (ii) For the purposes of Clause 12 [Measurement and Evaluation]; and
- (d) The Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.

Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

14.2 Advance Payment

The Employer shall make an advance payment, as an interest-free loan for mobilisation and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.

The Engineer shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Employer receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

Unless stated otherwise in the Contract Data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:

- (a) Deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and
- (b) Deductions shall be made at the amortisation rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Employer], except for Sub-Clause 15.5 [Employer's Entitlement to Termination for Convenience], payable by the Contractor to the Employer.

14.3 Application for Interim Payment Certificates

The Contractor shall submit a Statement in six copies to the Engineer after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

- (a) The estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);
- (b) Any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
- (c) Any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract Data to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Contract Data;
- (d) Any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];
- (e) Any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];
- (f) Any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
- (g) The deduction of amounts certified in all previous Payment Certificates.

- 14.4 Schedule of Payments**
- If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:
- (a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];
 - (b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
 - (c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.
- If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.
- 14.5 Plant and Materials intended for the Works**
- If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].
- If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules, this Sub-Clause shall not apply.
- The Engineer shall determine and certify each addition if the following conditions are satisfied:
- (a) The Contractor has:
 - (i) Kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection; and
 - (ii) Submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;
 and either:
 - (b) The relevant Plant and Materials:
 - (i) Are those listed in the Schedules for payment when shipped;
 - (ii) Have been shipped to the Country, en route to the Site, in accordance with the Contract; and
 - (iii) Are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;
 - or
 - (c) The relevant Plant and Materials:
 - (i) Are those listed in the Schedules for payment when delivered to the Site; and
 - (ii) Have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.
- The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.
- The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.
- 14.6 Issue of Interim**
- No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a

Payment Certificates	<p>Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Engineer on the Statement if any.</p> <p>However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Contract Data. In this event, the Engineer shall give notice to the Contractor accordingly.</p> <p>An Interim Payment Certificate shall not be withheld for any other reason, although:</p> <ol style="list-style-type: none"> If any thing supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or If the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed. <p>The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.</p>
14.7 Payment	<p>The Employer shall pay to the Contractor:</p> <ol style="list-style-type: none"> The first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub-Clause 14.2 [Advance Payment], whichever is later; The amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and The amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate; or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 [Termination by Contractor].
14.8 Delayed Payment	<p>Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.</p> <p>If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its subparagraph (b)) of the date on which any Interim Payment Certificate is issued.</p> <p>Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency.</p> <p>The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.</p>
14.9 Payment of Retention Money	<p>When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.</p> <p>Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the</p>

proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.

However, if any work remains to be executed under Clause 11 [Defects Liability], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].

Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2. On receipt by the Employer of the required guarantee, the Engineer shall certify and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security.

14.10 Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:

- (a) The value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works;
- (b) Any further sums which the Contractor considers to be due; and
- (c) An estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

- (a) The value of all work done in accordance with the Contract; and
- (b) Any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However if, following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to

- the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.
- 14.13 Issue of Final Payment Certificate** Within 28 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall deliver, to the Employer and to the Contractor, the Final Payment Certificate which shall state:
- (a) The amount which he fairly determines is finally due; and
 - (b) After giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.
- If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.
- 14.14 Cessation of Employer's Liability** The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:
- (a) In the Final Statement; and also
 - (b) (Except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].
- However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.
- 14.15 Currencies of Payment** The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:
- (a) If the Accepted Contract Amount was expressed in Local Currency only:
 - (i) The proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
 - (ii) Payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
 - (iii) Other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above;
 - (b) Payment of the damages specified in the Contract Data, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies;
 - (c) Other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties;
 - (d) If any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
 - (e) If no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the central bank of the Country.
- 15. Termination by Employer**
- 15.1 Notice to Correct** If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.
- 15.2 Termination by Employer** The Employer shall be entitled to terminate the Contract if the Contractor:
- (a) Fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct];

- (b) Abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract;
- (c) Without reasonable excuse fails:
 - (i) To proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension]; or
 - (ii) To comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 28 days after receiving it;
- (d) Subcontracts the whole of the Works or assigns the Contract without the required agreement;
- (e) Becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events; or
- (f) Gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:
 - (i) For doing or forbearing to do any action in relation to the Contract; or
 - (ii) For showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

In any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3 Valuation at Date of Termination As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

15.4 Payment after Termination After a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Employer may:

- (a) Proceed in accordance with Sub-Clause 2.5 [Employer's Claims];
- (b) Withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established; and/or
- (c) Recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.

15.5 Employer's Entitlement to The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall

Termination for Convenience	<p>take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor].</p> <p>After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].</p>
15.6 Corrupt or Fraudulent Practices	<p>If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days' notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [Termination by Employer].</p> <p>Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [Contractor's Personnel].</p> <p>For the purposes of this Sub-Clause:</p> <ul style="list-style-type: none"> (i) "Corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party; (ii) "Fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; (iii) "Collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; (iv) "Coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party; (v) "Obstructive practice" is <ul style="list-style-type: none"> (i) Deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or (ii) Acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under Sub-Clause 1.15 [Inspections and Audits by the Bank].
16.1 Contractor's Entitlement to Suspend Work	<p>16. Suspension and Termination by Contractor</p> <p>If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer's Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.</p> <p>Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [Employer's Financial Arrangements], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.</p> <p>The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].</p> <p>If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.</p>

- If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
 - Payment of any such Cost plus profit, which shall be included in the Contract Price.
- After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 16.2 Termination by Contractor**
- The Contractor shall be entitled to terminate the Contract if:
- The Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Employer's Financial Arrangements];
 - The Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate;
 - The Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Employer's Claims]);
 - The Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract;
 - The Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment];
 - A prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension]; or
 - The Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events;
 - The Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].
- In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.
- In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice.
- The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.
- 16.3 Cessation of Work and Removal of Contractor's Equipment**
- After a notice of termination under Sub-Clause 15.5 [Employer's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:
- Cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works;
 - Hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment; and
 - Remove all other Goods from the Site, except as necessary for safety, and leave the Site.
- 16.4 Payment on Termination**
- After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:
- Return the Performance Security to the Contractor;
 - Pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release]; and

- (c) Pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17. Risk and Responsibility

17.1 Indemnities

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) Bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents; and
- (b) Damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in subparagraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

17.2 Contractor's Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Employer's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform to the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

17.3 Employer's Risks

The risks referred to in Sub-Clause 17.4 [Consequences of Employer's Risks] below, insofar as they directly affect the execution of the Works in the Country, are:

- (a) War, hostilities (whether war be declared or not), invasion, act of foreign enemies;
- (b) Rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country;
- (c) Riot, commotion or disorder within the Country by persons other than the Contractor's Personnel;
- (d) Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity;
- (e) Pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds;
- (f) Use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract;
- (g) Design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible; and

- (h) Any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.
- 17.4 Consequences of Employer's Risks**
- If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.
- If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and
 - (b) Payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [Employer's Risks], Cost plus profit shall be payable.
- After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 17.5 Intellectual and Industrial Property Rights**
- In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.
- Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.
- The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:
- (a) An unavoidable result of the Contractor's compliance with the Contract; or
 - (b) A result of any Works being used by the Employer:
 - (i) For a purpose other than that indicated by, or reasonably to be inferred from, the Contract; or
 - (ii) In conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.
- The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.
- If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.
- 17.6 Limitation of Liability**
- Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4(b) [Consequences of Employer's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].
- The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer's Equipment and Free-Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.
- This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

- 17.7 Use of Employer's Accommodation / Facilities**
- The Contractor shall take full responsibility for the care of the Employer provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).
- If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.
- 18. Insurance**
- 18.1 General Requirements for Insurances**
- In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.
- Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.
- Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.
- If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.
- Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.
- The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:
- (a) Evidence that the insurances described in this Clause have been effected; and
 - (b) Copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].
- When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.
- Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.
- Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.
- If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.
- Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

18.2 Insurance for Works and Contractor's Equipment

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Employer's Claims] or Sub-Clause 20.1 [Contractor's Claims], as applicable.

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

- (a) Shall be effected and maintained by the Contractor as insuring Party;
- (b) Shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,
- (c) Shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Employer's Risks];
- (d) Shall also cover, to the extent specifically required in the bidding documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Employer's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the Contract Data (if an amount is not so stated, this sub-paragraph (d) shall not apply); and
- (e) May however exclude loss of, damage to, and reinstatement of:
 - (i) A part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below);
 - (ii) A part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship;
 - (iii) A part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage; and
 - (iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [Employer's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

18.3 Insurance against Injury to Persons and Damage to Property

The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

		<p>This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data, with no limit on the number of occurrences. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.</p> <p>Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:</p> <ul style="list-style-type: none"> (a) Shall be effected and maintained by the Contractor as insuring Party; (b) Shall be in the joint names of the Parties; (c) Shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract; and (d) May however exclude liability to the extent that it arises from: <ul style="list-style-type: none"> (i) The Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works; (ii) Damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects; and (iii) A cause listed in Sub-Clause 17.3 [Employer's Risks], except to the extent that cover is available at commercially reasonable terms.
18.4	Insurance for Contractor's Personnel	<p>The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.</p> <p>The insurance shall cover the Employer and the Engineer against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel. The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.</p>
19.	Force Majeure	
19.1	Definition of Force Majeure	<p>In this Clause, "Force Majeure" means an exceptional event or circumstance:</p> <ul style="list-style-type: none"> (a) Which is beyond a Party's control; (b) Which such Party could not reasonably have provided against before entering into the Contract (c) Which, having arisen, such Party could not reasonably have avoided or overcome; and (d) Which is not substantially attributable to the other Party. <p>Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:</p> <ul style="list-style-type: none"> (i) War, hostilities (whether war be declared or not), invasion, act of foreign enemies; (ii) Rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war; (iii) Riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel; (iv) Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; and (v) Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.
19.2	Notice of Force Majeure	<p>If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.</p> <p>The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.</p> <p>Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.</p>

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| 19.3 | Duty to Minimise Delay | Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.
A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure. |
| 19.4 | Consequences of Force Majeure | <p>If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:</p> <ul style="list-style-type: none"> (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion]; and (b) If the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]. <p>After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p> |
| 19.5 | Force Majeure Affecting Subcontractor | If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause. |
| 19.6 | Optional Termination, Payment and Release | <p>If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].</p> <p>Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:</p> <ul style="list-style-type: none"> (a) The amounts payable for any work carried out for which a price is stated in the Contract; (b) The Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal; (c) Other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works; (d) The Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and (e) The Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination. |
| 19.7 | Release from Performance | <p>Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:</p> <ul style="list-style-type: none"> (a) The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract; and (b) The sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6. |
| 20. | Claims, Disputes and Arbitration | |
| 20.1 | Contractor's Claims | If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as |

practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

- (a) This fully detailed claim shall be considered as interim;
- (b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
- (c) The Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.

Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

If the Engineer does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer to the Dispute Board in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision]. The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

20.2 Appointment of the Dispute Board

Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision]. The Parties shall appoint a DB by the date stated in the Contract Data.

The DB shall comprise, as stated in the Contract Data, either one or three suitably qualified persons ("the members"), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons. If the Parties have not jointly appointed the DB 21 days before the date stated in the Contract Data and the DB is to comprise three persons, each Party shall nominate one member for

the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members has been agreed by the Parties and is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the General Conditions of Dispute Board Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may jointly refer a matter to the DB for it to give its opinion. Neither Party shall consult the DB on any matter without the agreement of the other Party.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 [Discharge] shall have become effective.

20.3 Failure to Agree on the Composition of the Dispute Board

If any of the following conditions apply, namely:

- (a) The Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of Sub-Clause 20.2 [Appointment of the Dispute Board];
- (b) Either Party fails to nominate a member (for approval by the other Party), or fails to approve a member nominated by the other Party, of a DB of three persons by such date;
- (c) The Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date; or
- (d) The Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment;

then the appointing entity or official named in the Contract Data shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

20.4 Obtaining Dispute Board's Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s). Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DB's decision, then either Party may, within 28 days after receiving the decision, give a Notice of Dissatisfaction to the other Party indicating its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within

- the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give a Notice of Dissatisfaction to the other Party.
- In either event, this Notice of Dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [Failure to Comply with Dispute Board's Decision] and Sub-Clause 20.8 [Expiry of Dispute Board's Appointment], neither Party shall be entitled to commence arbitration of a dispute unless a Notice of Dissatisfaction has been given in accordance with this Sub-Clause.
- If the DB has given its decision as to a matter in dispute to both Parties, and no Notice of Dissatisfaction has been given by either Party within 28 days after it received the DB's decision, then the decision shall become final and binding upon both Parties.
- 20.5 Amicable Settlement** Where a Notice of Dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a Notice of Dissatisfaction in accordance with Sub-Clause 20.4 above should move to commence arbitration after the fifty-sixth day from the day on which a Notice of Dissatisfaction was given, even if no attempt at an amicable settlement has been made.
- 20.6 Arbitration** Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows:
- (a) If the contract is with foreign contractors,
 - International arbitration (1) with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution; or, if so specified in the Contract Data, (2) international arbitration in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or (3) if neither an arbitration institution nor UNCITRAL arbitration rules are specified in the Contract Data, with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules;
 - (b) If the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer's country.
- The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].
- The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.
- Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.
- Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.
- 20.7 Failure to Comply with Dispute Board's Decision** In the event that a Party fails to comply with a final and binding DB decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [Arbitration]. Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.
- 20.8 Expiry of Dispute Board's Appointment** If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DB in place, whether by reason of the expiry of the DB's appointment or otherwise:
- (a) Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply; and
 - (b) The dispute may be referred directly to arbitration under Sub-Clause 20.6 [Arbitration].

APPENDIX**A General Conditions of Dispute Board Agreement****1. Definitions**

Each "Dispute Board Agreement" is a tripartite agreement by and between:

- (a) The "Employer";
- (b) The "Contractor"; and
- (c) The "Member" who is defined in the Dispute Board Agreement as being:
 - (i) The sole member of the "DB" and, where this is the case, all references to the "Other Members" do not apply, or
 - (ii) One of the three persons who are jointly called the "DB" (or "Dispute Board") and, where this is the case, the other two persons are called the "Other Members".

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2. General Provisions

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

- (a) The Commencement Date defined in the Contract;
- (b) When the Employer, the Contractor and the Member have each signed the Dispute Board Agreement; or
- (c) When the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days' notice of resignation to the Employer and to the Contractor, and the Dispute Board Agreement shall terminate upon the expiry of this period.

3. Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence. When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is:

- (a) Experienced in the work which the Contractor is to carry out under the Contract;
- (b) Experienced in the interpretation of contract documentation; and
- (c) Fluent in the language for communications defined in the Contract.

4. General Obligations of the Member

The Member shall:

- (a) Have no interest financial or otherwise in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;
- (b) Not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;
- (c) Have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;
- (d) Not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);
- (e) Comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;
- (f) Not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;
- (g) Not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;
- (h) Ensure his/her availability for all site visits and hearings as are necessary;

5. General Obligations of the Employer and the Contractor

- (i) Become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file;
- (j) Treat the details of the Contract and all the DB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any); and
- (k) Be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DB's activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

- (a) Be appointed as an arbitrator in any arbitration under the Contract;
- (b) Be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
- (c) Be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the DB under Sub-Clause 20.4 of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

- (a) A retainer fee per calendar month, which shall be considered as payment in full for:
 - (i) Being available on 28 days' notice for all site visits and hearings;
 - (ii) Becoming and remaining conversant with all project developments and maintaining relevant files;
 - (iii) All office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and
 - (iv) All services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

- (b) A daily fee which shall be considered as payment in full for:
 - (i) Each day or part of a day up to a maximum of two days' travel time in each direction for the journey between the Member's home and the Site, or another location of a meeting with the Other Members (if any);
 - (ii) Each working day on Site visits, hearings or preparing decisions; and
 - (iii) Each day spent reading submissions in preparation for a hearing;
- (c) All reasonable expenses including necessary travel expenses (air fare in less than first class, hotel and subsistence and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause;

7. Termination

(d) Any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a Site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor. The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7. At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

PROCEDURAL RULES

Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the Site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

The timing of and agenda for each Site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of Site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.

Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be coordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each Site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

(a) Act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case; and

(b) Adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

The Employer and the Contractor empower the DB, among other things, to:

(a) Establish the procedure to be applied in deciding a dispute;

(b) Decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it;

(c) Conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules;

(d) Take the initiative in ascertaining the facts and matters required for a decision;

(e) Make use of its own specialist knowledge, if any;

(f) Decide upon the payment of financing charges in accordance with the Contract;

(g) Decide upon any provisional relief such as interim or conservatory measures; and

(h) Open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

(a) It shall convene in private after a hearing, in order to have discussions and prepare its decision;

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- (b) It shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
- (c) If a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision; unless:
 - (i) Either the Employer or the Contractor does not agree that they do so; or
 - (ii) The absent Member is the chairman and he/she instructs the other Members not to make a decision.

K-RIDE

SECTION-7

PARTICULAR CONDITIONS OF CONTRACT (PCC)

K-RIDE

Particular Conditions of Contract (PCC)

The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.



Part A - Contract Data

Conditions	Sub-Clause	Data
Employer's name and address	1.1.2.2 & 1.3	Rail Infrastructure Development Company (Karnataka) Limited (K-RIDE) Samparka Soudha, 1 st Floor, Dr. Rajkumar Road Opposite Orion Mall, Rajajinagar 1 st Block Bengaluru-560010 Email: gmprocurement@kride.in
Engineer's name and address	1.1.2.4 & 1.3	Project Director, General Consultant (EGIS-AECOM-LBI(WSP) JV), #11/23, Suryadev Building, Rajajinagar, 1 st Block, Bengaluru-560010.
Bank's name	1.1.2.11	Deleted
Borrower's name	1.1.2.12	Deleted
Period of currency	1.1.3.3	12 Months
Defects Notification Period	1.1.3.7	365 days. (12 Months)
Sections	1.1.5.6	Bangalore Sub-urban Rail Project (BSRP) Corridor 2
Electronic transmission systems	1.3	Electronic transmission shall be in the form of scanned copy of original documents, Letters, Mail, Post communicated through authorized E-Mail IDs of Parties.
Contractor's name and address	1.3	<i>Bidder to submit along with the bid</i>
Governing Law	1.4	Acts and laws of India
Ruling language	1.4	English
Language for communications	1.4	English
Time for the Parties entering into a Contract Agreement	1.6	The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives of Letter of Acceptance.
Care and Supply of Documents		Three (3) soft (digital) copy(ies); and
No. of copies of Contractor's Documents	1.8	Three (3) hard (paper) copy(ies)
Time for Access to the Site	2.1	Deleted
Performance Security	4.2	The performance security will be in the form of a Bank guarantee of the amount(s) at 3% (three percent) of the Accepted Contract Price and in the same currency (ies) of the Accepted Contract Price, issued from scheduled commercial bank of Indian or Foreign origin (Except Cooperative Bank) having business office in India.
Sub-contractors	4.4	Deleted
Progress reports	4.21	Monthly.
Normal working hours	6.5	Normal working hours are 00.00 HRS to 24.00 HRS in two Shifts. The Contractor, if required, shall carry out work during night hours or in shifts. The Contractor shall carry out work during Sundays / Holidays., for all site works. The Contractor shall not be entitled to any claim in addition to the Accepted Contract Price on account of night/ shift working.
Effective access to the Site	8.1(c)	Deleted
Delay damages for the Works	8.7 & 14.15 (b)	Deleted
Maximum amount of delay damages	8.7	10% of the Work order amount calculated based timeline specified in work order.
Provisional Sums	13.5 (b) (ii)	Deleted
Adjustments for Changes in Cost	13.8	Please refer relevant provisions in PCC
Contract Price	14.1 (b)	Please refer relevant provisions in PCC
Total advance payment	14.2	Please refer relevant provisions in PCC
Repayment amortization rate of advance payment	14.2(b)	Please refer relevant provisions in PCC
Application for Interim Payment Certificates	14.3	soft (digital) copy(ies) and Three (3) hard (paper) copy(ies)

Conditions	Sub-Clause	Data
Copies of Statement		
Percentage of Retention	14.3(c)	Retention money equal to 10 percent of the amount due to the Contractor in IPC's/ Running bills from time to time will be retained, so as to maintain a reserve in the hands of the Employer equal to 5 percent of the Contract Price. If the Contractor submits the Bank Guarantee of 5% of Contract Price then the Security deposit shall not be deducted and the validity of the BG shall be till Defect liability period.
Limit of Retention Money	14.3(c)	Five percent (5%) of the Accepted Contract Price
Plant and Materials	14.5(b)(i) 14.5(c)(i)	NIL NIL
Minimum Amount of Interim Payment Certificates	14.6	Deleted
Time for Payment of Interim Payment Certificates	14.7	Please refer relevant provisions in PCC.
Contractor's Bank Account	14.7	_____ [insert bank account details at the time of contract signing]
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Not Applicable
Delayed Payment	14.8	No financing charges shall be payable due to delayed payment under Cl. 14.8
Statement at Completion No. of Copies	14.10	soft (digital) copy(ies) and Three (3) hard (paper) copy(ies)
Application for Final Payment Certificate No. of Copies	14.11	soft (digital) copy(ies) and Three (3) hard (paper) copy(ies)
Currency / Currencies of Payment	14.15	INR Only
Maximum total liability of the Contractor to the Employer	17.6	100% of the Contract Price.
a. evidence of insurance		Evidence(s): Within twenty-eight (28) days from the date of receipt of Letter of Acceptance
b. relevant policies		Policy(ies): Within forty-five (45) days from the date of receipt of the Letter of Acceptance If the Contractor is insuring party & fails to submit the policy of insurance within forty five (45) days or submit the policy for lesser period or does not extend adequately, a penalty for such uninsured period as well as delay beyond forty five (45) days, shall be recovered at "per day basis", proportionate to amount of premium payable for the work from any monies due to the Contractor or if the amount is not sufficient the Performance Guarantee shall be retained by Employer till Contractor pays the dues towards renewal of these insurances.
Maximum amount of deductibles for insurance of the Employer's risks	18.2(d)	NIL
Minimum amount of third-party insurance per occurrence	18.3	Up to INR 20 Lakhs per occurrence, with number of occurrences unlimited.
Arbitration institution	20.6(a)	Please refer relevant provisions in PCC.
Arbitration rules	20.6(a)	Please refer relevant provisions in PCC
Place of arbitration	20.6	Bengaluru, India

Part B - Specific Provisions

Conditions	Sub-Clause	Specific Provisions
1.1.1 Contract	1.1.1.1	Add under 1.1.1.1 "Contract" the sentence: "The Contract requires the non-objection by the Bank for becoming eligible for any disbursement under the Bank's loan."
1.1.3.7 Defects Notification Period	1.1.3.7	Add, at the end of the Sub-Clause "or taken over under Sub-Clause 10.2 [Taking Over of Parts of the Works]"
1.1.6.11 Exceptionally Adverse Climatic Conditions	1.1.6.11	Additional Sub-Clause "Exceptionally Adverse Climatic Conditions" means: at the Site which are Unforeseeable having regard to climatic data made available by the Employer under Sub-Clause 4.1 [Site Data] and/or climatic data published in the Country for the geographical location of the Site; [The exceptionally adverse climatic conditions referred to under Sub-Clause 8.4 item c) must be defined for each and every Site. In order to establish whether such climatic conditions occurred, it may be appropriate to compare the adverse climatic conditions with the frequency with which events of similar adversity have previously occurred at or near the Site. An exceptional degree of adversity might, for example, be regarded as one which has a probability of occurrence of four or five times the Time for Completion of the Works (for example, once every eight to ten years for a two-year contract).]
1.3 Communications	1.3	Add the following at the end of item (a), after "Contract Data" and before ";;": "In case of electronic transmission, these communications shall be in the form of an un-editable record attached to an electronic mail, such as a PDF document for instance, and any other communication transmitted in a different manner, such as the email body text, shall not be construed as communication under the Contract".
1.15 Inspections and Audit	1.15	This Sub-Clause is deleted in its entirety and replaced by: "The Contractor shall permit, and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit, Employer and/or persons appointed by the Employer and/or to inspect the Site and all accounts and records relating to the performance of the Contract and the submission of the Bid, and to have such accounts and records audited by auditors appointed by Employer. The Contractor's attention is drawn to Sub-Clause 15.6 [Corrupt or Fraudulent Practices] which provides, inter alia, that acts intended to materially impede the exercise of Employer's inspection and audit rights provided for under Sub-Clause 1.15 constitute a prohibited practice subject to contract termination."
1.5 Priority of Documents	1.5	Replace sub-clause 1.5 with the following: The priority of the documents shall be as follows: (a) the Contract Agreement (On appropriate Stamp Paper). (b) the Letter of Acceptance (LOA) (c) Accepted Financial Bid & Bill of Quantities (d) Corrigendum / Addendum/ Clarifications (e) the Particular Condition of Contract PCC)- Part-A (f) the Particular Condition of Contract PCC)- Part-B (g) the General Conditions (GC) (h) the Work Specification & Employer's Requirement,

Conditions	Sub-Clause	Specific Provisions
		(i) the Drawings, (j) Contractor's Submissions (k) and any other reference documents forming part of the Contract. If an ambiguity or discrepancy is found in the documents, the Employer shall issue any necessary clarification or instruction by approval of Competent Authority.
2.5 The Employer's Claims	2.5	<i>In the first line of the second paragraph delete the words:</i> <i>"28 days" and replace with the words "42 days".</i>
3.4 Replacement of the Engineer	3.4	Not applicable.
4.2 Performa Security	4.2	<i>Delete last sentence of second paragraph and replace by the sentence:</i> "The Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor and requiring the Bank's non-objection and shall be in the form annexed to the Particular Conditions." Deleted
4.4 Subcontractors	4.4	<i>Deleted</i>
4.8 Safety Procedures	4.8	<i>Add the following at the end of the Sub-Clause:</i> f) The Contractor shall ensure compliance with the SHE Manual.
4.13 Rights of Way and Facilities	4.13	<i>Add the following to sub clause 4.13:</i> The Employer reserves the right to make use of these service roads / rights of way for itself or for other contractors working in the area, as and when necessary, without any payment to the Contractor
4.17 Contractor's Equipment	4.17	<i>Add the following to sub clause 4.17:</i> Upon completion of the Works the Contractor shall remove from the Site the entire said Contractor's Equipment, Temporary works and his unused materials within 42 days after the Issuing of taking over certificate, failing which the employer may remove them at contractor's cost
4.18 Protection of the Environment	4.18	<i>Add the following after the last paragraph:</i> "These provisions are complemented by those listed under the SHE Manual which the Contractor must ensure compliance with."
4.19 Electricity, Water and Gas	4.19	<i>Add the following to sub clause 4.19:</i> The Contractor shall be responsible for making his own arrangements at his own cost to obtain supply of water, electricity or gas for the Works. The Employer where feasible may at his discretion assist the Contractor in giving recommendatory letters etc.
4.21 Progress reports	4.21	<i>Add the following new item at the end of the Sub-Clause:</i> i) "Matters requested under the SHE Manual."
4.22 Security of the Site	4.22	Add the following to sub clause 4.22: (c) The Contractor shall ensure proper security of all his assets along with Employer's assets by proper barricading / fencing (wherever required) and by deploying adequate security personnel and Security Equipment at his own cost. (d) The Contractor shall throughout the execution of the Works including the carrying out of any testing, commissioning (including Integrated Testing and Commissioning), or remedying of any defect which includes the following: (i) take full responsibility for the adequacy, stability, safety and security of the Works, Plant, Contractor's Equipment, Temporary Works,

Conditions	Sub-Clause	Specific Provisions
		operations on Site and methods of manufacture, installation, construction and transportation; (ii) provide and maintain all lights, guards, fences and warning signs and watchmen when and where necessary or required by the Engineer or by laws or by any relevant authority for the protection of the Works and for the safety and convenience of the public and all persons on or in the vicinity of the Site; and (iii) The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer and the Employer to carry out surveillance, by installing CCTV Cameras with backup system to verify that the Safety & security Plans are being properly and fully implemented
4.1 New Clause - Assignment of Contractor's and Sub-contractor's Obligations	4.1	DELETED
4.25 New Clause - Temporary Works	4.25	Add a new sub-clause 4.25: All temporary works necessary for the proper execution of the Works shall be provided and maintained by the Contractor at his cost and subject to the consent of the Employer/Engineer shall be removed by Contractor at his own expense when they are no longer required and in such manner as the Employer/Engineer shall direct. In case the Contractor fails to remove the temporary works on completion the Employer/Engineer is authorized to get the same removed and recover the cost thereof from the Contractor.
4.26 New Clause - Access for Engineer (New Clause)	4.26	Add a new sub-clause 4.26: The Contractor shall allow at all times the Employer / Engineer, or any other person authorized by the Employer/Engineer access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured, fabricated and/or assembled for the Works. The Contractor shall ensure that subcontracts if any shall contain provisions entitling the Employer/Engineer or any person authorized by him to have such access.
4.27 New Clause - Contractor to keep Site Clear	4.27	Add a new sub-clause 4.27: On completion of Work the Contractor shall also clear away the labour camps, hutments and other related installations and restore the land to its original condition to the satisfaction of the Employer / Engineer within 45 days of the physical completion of Work. The cost on account of delay in return of land and reinstatement of original condition within the stipulated time as determined by Employer/Engineer will be recovered from the Payments due to the Contractor. No final payment in settlement of the accounts for Works shall be made till, in addition to any other condition necessary for such final payment, site clearance and clearance of labour camps etc. shall have been effected by him.
4.28 New Clause - Publicity	4.28	Add a new sub-clause 4.28: The Contractor shall not publish or otherwise circulate alone or in conjunction with any other person, any articles, photographs or other materials relating to the Contract, the Site, the Works, the Project or any part thereof, nor impart to the press, or any radio or television network any information relating thereto, nor allow any representative of the media access to the Site, Contractor's Works Areas, or off-Site place of

Conditions	Sub-Clause	Specific Provisions
		manufacture, or storage except with the permission, in writing, of the Employer
4.29 New Clause-Disclosure of Relationship	4.29	<p>Add a new sub-clause 4.29:</p> <p>If the Contractor or any partner of the Contractor or Director of the Contractor's company is closely related to any of the Officers of the Employer or the Engineer or alternatively, if any close relative of an officer of the Employer or the Engineer has financial interest / stake in the Contractor's firm, the same shall be disclosed by the Contractor at the time of filing his tender. Any failure to disclose the interest involved, shall entitle the Employer to rescind the Contract, without payment of any compensation to the Contractor. The Contractor shall note that he is prohibited from developing such interest during the Contract period.</p>
4.30 New Clause -Use of Explosives	4.30	<p>Add a new sub-clause 4.30 Use of Explosives:</p> <p>Explosives shall not be used on the Works or on the Site by the Contractor without the consent of the Employer/Engineer and shall be used in the manner and to the extent permitted by the Employer/Engineer.</p> <p>The explosives shall be handled and used under the strict supervision of persons licensed for this purpose under the requisite statutory rules and regulations. When explosives are required for the Works they shall be stored in a special magazine to be provided at the cost of the Contractor in accordance with the requisite statutory rules and regulations. The Contractor shall take all precautions in transporting and using the explosives and avoid damage to nearby structures and utilities All operations, in which or for which the explosives are employed shall be at the sole risk and responsibility of the Contractor and the Contractor shall hold the Employer harmless and shall indemnify the Employer in respect thereof. The Contractor shall follow all extant rules and regulations regarding the procurement, storage, transport etc. of explosives</p>
4.31 New Clause -Work by Persons Other than Contractor	4.31	<p>Add a new sub-clause 4.31:</p> <p>If by reason of any accident or failure or other event occurring to, in, or in connection with the Works any remedial or other work shall, be urgently necessary and the Contractor is unable or unwilling at once to do such remedial or other work, the Employer/Engineer may authorise the carrying out of such remedial or other work by a person other than the Contractor. All expenses properly incurred in carrying out the same shall be recoverable by the Employer from the Contractor. Provided that the Employer/Engineer shall, as soon after the occurrence of any such emergency as may be reasonably practicable, notify the Contractor thereof in writing</p>
4.32 New Clause - Confidentiality of Information	4.32	<p>Add a new sub-clause 4.32:</p> <p>The Contractor shall not use or divulge, except for the purpose of the Contract or with the written permission of the Employer, any information relating to the Works or the Project provided in the Contract or otherwise provided by the Employer, or the Engineer. The Contractor shall ensure that his sub-contractors of any tier shall be bound by a like confidentiality undertaking</p>
6.6 Facilities for Staff and Labour	6.6	<p>The last paragraph is deleted in its entirety and replaced by the following:</p> <p>"The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the Site, except with the prior and express Engineer's consent after consultation with the Employer. The Employer and/or the Engineer may inspect the living quarters from time to time in order to verify their compliance with the Laws and the</p>

Conditions	Sub-Clause	Specific Provisions
		Contract. The Contractor shall accordingly grant the Employer and/or the Engineer full access to the living quarters as and when they require."
6.7 Health and Safety	6.7	Add the following at the end of the Sub-Clause: "These provisions are complemented by those listed under the SHE Manual which the Contractor must ensure compliance with."
8.1 Commencement of Works	8.1	Commencement of work shall be 07 days from the date of issue of LOA / work order
8.3 Programme	8.3	Add sub clause 8.3 with the following: Deleted
8.4 Extension of Time for Completion	8.4	<p>Sub-Clause 8.4 is replaced with the following in its entirety: 8.4.1 The Contractor may apply for an extension of the Time for Completion if the Work is or will be delayed either before or after the Time for Completion by any of the following causes: a. "Force Majeure" referred to in Clause 19 b. The Contractor's work held up for not being given possession of or access to the Site in accordance with the Contract c. Instruction of the Engineer to suspend the Works and the Contractor not being in default as to reasons of suspension. d. Acts or omissions of other Designated Contractors in executing work not forming part of this Contract and on whose performance, the performance of the Contractor necessarily depends. e. Any act of prevention or Breach of Contract by the Employer and not mentioned in this Clause f. Any order of Court restraining the performance of the Contract in full or in any part thereof g. Any other event or occurrence which, according to the Employer is not due to the Contractor's failure or fault, and is beyond his control without Employer being responsible for the same. h. An Employer's Variation</p> <p>However, the Contractor shall not be entitled to any extension of time where the instructions or acts of the Employer or the Engineer are necessitated by or intended to cure any default of or breach of Contract by the Contractor or where any delay is due to</p> <p>a. non-availability, or shortage of Contractor's equipment, labour, utility services, Plant and Materials, b. inclement weather conditions, and c. the Contractor not fulfilling his obligations under Sub-Clause 4.1.</p> <p>If the Contractor considers himself to be entitled to an extension of time for Completion, he shall give notice to the Engineer of such intention as soon as possible and in any event within 28 days of the start of the event giving rise to the delay and full and final supporting details of his application within 21 days of the last day of delay, together with any notice required by the Contract and relevant to such Clause.</p> <p>The Engineer shall proceed or determine either prospectively or retrospectively such extension of the Time for Completion as may be due. The Engineer shall notify the Contractor accordingly. The extension of time including that of key date shall not entitle the contractor to retain the advance which shall be governed by Clause 14.2.</p> <p>8.4.2 Extension of time for completion for other reasons: The Contractor shall not be entitled to an extension of time by reason of any delay to any activity in the carrying out of the Works unless in the opinion of the Engineer</p>

Conditions	Sub-Clause	Specific Provisions
		<p>such delay results in or may be expected to result in a delay to completion of the Works, or achievement of any Stage by the relevant timeline. Whether or not the Contractor fails to achieve any timeline by reason of any delay shall not by itself be material to the Contractor's entitlement to an extension of time.</p> <p>Any extension to a Key Date shall not by itself entitle the Contractor to an extension to any other Key Date.</p> <p>8.4.3 Extension of time for completion for other reason for delay due to Contractor : If the delay in the completion of the whole Works or a portion of the Works, for which an earlier completion period is stipulated, is due to the Contractor's failure or fault, and the Engineer is of the view that the remaining Works or the portions of Works can be completed by the Contractor in a reasonable and acceptable short time, then, the Engineer may allow the Contractor extension or further extension of time at its discretion with or without liquidated damages, for completion, as he may decide.</p>
8.7 Delay Damages	8.7	<p>Add the following to sub clause 8.7:</p> <p>Liquidated damages shall be levied as per the rates given in Contract Key Dates & Completion Date / Annexure-1 of Contract Data, Part-A or as proposed/approved by Engineer/Employer from timeline mentioned in Work order.</p>
8.8 Suspension of Work	8.8	<p>Add the following after the last sentence of the Sub-Clause:</p> <p>"As an example, and without limitation to other possible causes, any suspension of work caused by any failure from the Contractor to comply with the obligations stated:</p> <ul style="list-style-type: none"> (a) Under the SHE Manual (if any) (b) Under Sub-Clause 4.8 as to safety procedures; (c) Under Sub-Clause 4.9 as to the quality assurance; (d) Under Sub-Clause 4.18 as to the protection of the environment; or (e) Under Sub-Clause 6.7 as to health and safety; <p>shall be considered as cause of suspension which is the responsibility of the Contractor".</p>
13.3 Variation Procedure	13.3	DELETED
13.5 Provisional Sums	13.5	DELETED
13.8 Adjustments for changes in cost	13.8	NOT APPLICABLE
14.1 (b) Contract Price	14.1 (b)	<p>Add the following paragraph at the end of the Sub Clause (i) In the event of exemption of custom duties, GST (CGST/IGST/SGST etc.) or any other cess/levy being granted by the Government in respect of the Works, the benefit of the same shall be passed on to the Employer. The Contractor shall therefore maintain meticulous records of all the taxes and duties paid and provide the same as and when required by the Employer. Alternatively, the Employer may direct the Contractor to get the reimbursements based on exemption /concession (as applicable) as per government's order and it shall be obligatory on part of the Contractor to get the reimbursements from the statutory authorities and pass on the benefit to KRIDE.</p> <p>(ii) In case of Contractor's failure in availing the exemptions/ concession as stipulated above, the recovery of equivalent amount will be made from Contractor's dues.</p>
14.2 Advance Payment	14.2	Deleted
14.2 Application for Interim Payment Certificates	14.3	In the 1st sentence of the 1st paragraph, replace "Three copies" by "in the number of copies specified in the Contract Data"

Conditions	Sub-Clause	Specific Provisions
14.6 (c) Issue of Interim Payment Certificates	14.6 (c)	<p>After paragraph (b) add paragraph (c) as follows:</p> <p>In the event of an unresolved non-compliance specified in the SHE Manual, the Engineer shall reduce the value of the Interim Payment Certificates as follows:</p> <ul style="list-style-type: none"> (i) If non-conformity not resolved after the first occurrence: 33.3% for the first Interim Payment Certificate (ii) If non-conformity still not resolved: 66.6% for the second Interim Payment Certificate (iii) If non-conformity still not resolved: 100% for the third Interim Payment Certificate <p>If the non-conformity is still not resolved after the last Interim Payment Certificate in (iii) above, then payments will be suspended indefinitely until such time as the non-conformity has been resolved.</p> <p>Following the resolution of the non-conformity the reduction(s) will be included in the next Interim Payment Certificate for payment. No interest will be paid on any reductions or suspended payment amounts.</p>
14.7 Time for Payment of Interim Payment Certificates	14.7	<p>Add the following to sub clause 14.7:</p> <p>Payment procedure shall be as under:</p> <ul style="list-style-type: none"> i) The Contractor shall submit preferably the monthly bill for payment to the Engineer. ii) Immediately after the submission of bill with all relevant documents / enclosures, 80 % amount of the bill shall be released within 7 working days approximately. iii) The remaining 20% of the bill shall be released after detail scrutiny and subsequent comments / Recommendations by Engineer within 28 days from the date of submission of bill by Contractor. iv) If any adverse comments regarding the workmanship or the quality of the work done in the previous bill is made by the Engineer, then appropriate and suitable amount shall be recovered from successive bills v) Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract vi) The Employer shall pay to the Contractor the amount certified in each Interim Payment Certificate. Each interim payment certificate will have two components <ul style="list-style-type: none"> • Value of the work / goods / services (without taxes / duties levies / cess etc.). • Taxes / duties levies / cess / GST etc.
14.7 Contractor's Bank Account	14.7	<p>In the last sentence after "Contractor" insert: "and as stated in the Contract Data"</p>
14.8 Delayed Payment Interest – local currency	14.8	<p>In the second paragraph after "Conditions," add: "for local currency (INR) payments only"</p>
14.9 Payment of Retention Money	14.9	<p>In the fifth paragraph, delete first sentence and replace by the sentence:</p> <p>"Unless otherwise stated in the Particular Conditions, when the Taking-Over Certificate has been issued for the Works, and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor may substitute a guarantee issued by a reputable bank or financial institution selected by the Contractor and requiring the Bank's non-objection, for the</p>

Conditions	Sub-Clause	Specific Provisions
		second half of the Retention Money. The guarantee for the release of the Retention Money has to be acceptable in form and substance to the Bank."
14.10 Statement at Completion	14.10	<i>In the 1st paragraph, replace "Three copies" by "the number of copies stated in the Contract Data"</i>
14.11 Application for Final Payment Certificate	14.11	<i>In the 1st paragraph, replace "Three copies" by "the number of copies stated in the Contract Data"</i>
14.15 Currencies of Payment	14.15	<i>In the first sentence replace "Schedule of Payment Currencies" by "Summary of Payment Currencies of the Contract"</i>
14.16 New Clause- Production of Vouchers	14.16	<p><u>Add a new sub clause :14.16:</u></p> <p>Production of Vouchers</p> <p>i. The Contractor shall, whenever required by the Engineer produce or cause to be produced for examination by the Engineer any quotation, invoice, cost or other account books, vouchers, receipts, letters, memoranda or any copy of or extract from any such documents and also furnish information and returns, as may be required, relating to the execution of this Contract or relevant for verifying or ascertaining the cost of execution of this Contract or ascertaining the Materials supplied by the Contractor are in accordance with the Specifications laid down in the Contract. The Engineer's decision on the question of relevancy of any documents, information or returns shall be final and binding on the parties.</p> <p>ii. If any part or item of the Work is allowed to be carried out by a Sub-Contractor, assignee or any subsidiary or allied firm, the Engineer shall have power to secure the books of such Sub-Contractor, assignee or any subsidiary or allied firm through the Contractor, and shall have power to examine and inspect the same. The above obligations are without prejudice to the obligations of the Contractor under any statute, rules or orders</p>
14.17 New Clause - Recovery of money due to the Employer	14.17	<p><u>Add a new sub clause :14.17:</u></p> <p>Recovery of money due to the Employer:</p> <p>All damages (including, without limitation, liquidated damages), costs, charges, expenses, debts, or sums for which the Contractor is liable to the Employer under any provision of the Contract may be deducted by the Employer from monies due to the Contractor under the Contract including, without limitation, and the Employer shall have the power to recover any balance not so deducted from monies due to the Contractor under any other contract between the Employer and the Contractor.</p>
15.2 Termination by Employer	15.2	<p>In the first paragraph, the existing sub-paragraph (f) is deleted and the following is added as (f), (g) and (h):</p> <p>"(f) based on reasonable evidence, has engaged in Corrupt or Fraudulent Practices as defined in the Appendix B to these General Conditions, in competing for or in executing the Contract;</p> <p>(g) substantially fails to comply with the SHE Manual;</p> <p>(h) deleted;"</p> <p>Further in the second paragraph, "or (g) or (h)" are added after "or (f)".</p> <p>Add the following Paragraphs to the end of the Sub-clause:</p> <p>"On termination of contract due to Contractor's default the performance security shall be forfeited by encashing the bank guarantee and the balance work shall be got done independently without risk and cost of the failed Contractor. The failed Contractor shall be debarred from participating in the tender for executing the balance work.</p>

Conditions	Sub-Clause	Specific Provisions
		In case the contractor fails to adhere to the agreed programme of work by margin of 10% of the stipulated period or 21 days, whichever is earlier, or fails to complete the Works or parts of the Works within the stipulated or extended period of completion, or is unlikely to complete the whole Work or part thereof within time because of poor record of progress, the Employer at its sole discretion may terminate only part of the contract also by taking out some part of the total scope of work and may complete or arrange for any other entity through the process of open/limited/single tender or by calling quotations, to do so at the risk and cost of the Contractor."
15.2.1 New Sub-Clause - Termination for Contractor's Default	15.2.1	<p>Add the New sub clause 15.2.1:</p> <p>15.2.1 Part-Termination / De-scoping of Work In case the Contractor fails to adhere to the agreed programme of work by margin of 10% of the stipulated period or 21 days, whichever is earlier, or fails to complete the Works or parts of the Works within the stipulated or extended period of completion, or is unlikely to complete the whole Work or part thereof within time because of poor record of progress, the Employer at its sole discretion may terminate only part / limit the scope / de-scope part of the work of the contract also by taking out some part of the total scope of work and may complete or arrange for any other entity through the process of Open/ Limited/ Single Tender/ by calling quotations or any other manner as deemed fit at the risk and cost of the contractor. In such case, the additional financial implications (if any), shall be debited/ recovered from the any monies due to Contractor and/or performance security. The Contractor shall not be entitled for any claim in this regard whatsoever.</p>
15.7 New Clause - Non-exercise of power not to constitute waiver (New Clause)	15.7	<p>Non-exercise of power not to constitute waiver:</p> <p>Provided always that in case any of the powers conferred upon the Employer by Clause 15 (Termination by Employer), shall have become exercisable, and the same may not have been exercised, the non-exercise thereof shall not constitute waiver of any of the conditions thereof</p>
18.5 New Sub-Clause - Liability for breach of professional duty	18.5	Deleted
20.6 Arbitration and Conciliation	20.6	<p>Replace Sub-Clause 20.6, Arbitration with the following:</p> <p>20.6 Arbitration and Conciliation: Disputes shall be settled through two stages:</p> <ol style="list-style-type: none"> 1. Conciliation procedures as established by "The Arbitration and Conciliation Act-1996" (as amended from time to time) and in accordance with this Clause. In the event this procedure fails to resolve the Dispute then; 2. Arbitration procedures undertaken as provided by "Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows: a) if the contract is awarded to a foreign company (not incorporated and registered in India) international arbitration with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of arbitration, by one or more arbitration in accordance with said arbitration rules. The place of arbitration shall be Bengaluru, and the arbitration shall be conducted in English.

Conditions	Sub-Clause	Specific Provisions
		<p>b) if the Contract is awarded to a domestic company (incorporated and registered in India), arbitration with proceedings conducted in accordance with the laws of India including Arbitration and Conciliation Act, 1996 of India. The place of arbitration shall be a neutral location determined in accordance with the applicable rules of arbitration; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language]."</p> <p>3. The arbitration and conciliation shall proceed in accordance with Annexure-IX-B.</p>
20.9 New Sub - Clause - Suspension of Work on Account of Arbitration	20.9	<p>Add New Sub-Clause Suspension of Work on Account of Arbitration</p> <p>The reference to Conciliation / Arbitration shall proceed notwithstanding that the works shall not then be or be alleged to be complete, provided always that the obligations of the Employer, Engineer and the Contractor shall not be altered by reasons of arbitration being conducted during the progress of the Works. Neither party shall be entitled to suspend the work or part of the work to which the dispute relates on account of arbitration and payments to the Contractor shall continue to be made in terms of the Contract.</p>

Annexure – 1 of Part A – Contract Data

CONTRACT KEY DATES & COMPLETION DATE

DELETED

SECTION - 8A

EMPLOYER'S REQUIREMENT

GENERAL INFORMATION

AND

SCOPE OF WORK

PART-1

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SECTION 8A: PART-1**EMPLOYER'S REQUIREMENTS****GENERAL INFORMATION & SCOPE OF WORK****I) NAME OF THE WORK**

"Relocation, shifting, and diversion of BWSSB water and sewer lines at Mohan Kumar Road, Jayaram colony slum, and other locations along corridor-2 (Benniganahalli to Chikkabanavara) of Bengaluru Suburban Railway Project including coordination with utility stakeholders for necessary permissions and approvals".

II) BRIEF SCOPE

The proposed work is along Corridor-2 i.e. Benniganahalli to Chikkabanavara. The work mainly consists relocation, shifting, and diversion of BWSSB water and sewer lines and its miscellaneous works at all required locations along Corridor 2. The scope also includes interfacing and coordination with other contractors at the intersection points and with other agencies, wherever required, for design and construction.

III) BROAD SCOPE OF THE WORK

The broad scope of work includes the Design, Proof Checking of the Designs by a separate approved agency of repute and Construction/provision of the following:

- a. Relocation, Shifting, and Diversion of BWSSB Water and Sewer Lines.
- b. Temporary traffic diversion and its associated works such as Excavation, RCC drain, sign board fixing, barricading etc.
- c. Trial trenching, trench excavation and wherever utility shifting/diversion entrusted.
- d. Excavation of road, footpath, drain and disposal of material in approved location.
- e. Providing Skilled and Unskilled manpower as Traffic Marshal, Security, watchman, look out men, caution watchmen etc.,
- f. Any other works entrusted by the KRIDE to be executed along the Corridor-2 to the satisfaction of the Engineer / Employer.
- g. Work will be allocated to the contractor as and when required at site.

IV) DETAILED SCOPE OF WORK**1.0 OBJECTIVE**

The tendered work is part of the Bengaluru Suburban Rail Project of Corridor 2. It is proposed to execute the work mainly consists relocation, shifting, and diversion of BWSSB water and sewer lines and its miscellaneous works at all required locations along Corridor 2.

The objective of the contract is to execute the works for the smooth execution of Corridor 2 as stipulated in the contract. In full recognition and with full acceptance of the obligations, liabilities and risks which may be involved, the Contractor shall undertake the execution of the Works. The general and specific requirements of the employer are detailed out in this document for understanding of the bidders and for mandatory compliance by the successful bidder/contractor. The Employer's requirements have been divided into different sections / sub-heads for convenience only. They do not restrict any cross-references. The Contractor shall take into account inter-relations between various parts of work. No claim shall be entertained on account of compartmental interpretations

1.1 DETAILED SCOPE OF THE WORK**A. WORK**

- 1) Earth work in filling with contractor's own earth of approved quality in specified layers with loading, unloading, all lead and lifts, rehandling, transportation, spreading in layers, compaction using vibratory compactors of adequate capacity, benching of slopes, sectioning to profile, clearing of debris / garbage / vegetation / shrubs etc., using contractor's vehicles, machinery, labour, consumables etc.

The Scope includes loading, unloading and disposal of surplus excavated material using covered trucks to contractor's dumping yard with all leads and lifts and as directed by the Employer. The contractor shall ensure that during transportation, the carried material does not spill out. The contractor to ensure sprinkling of water over the road regularly to avoid the dust formation

- 2) Earthwork in excavation by mechanical means (Hydraulic excavator) for various structure and as per site requirements. The Scope includes loading, unloading and disposal of surplus excavated material using covered trucks to contractor's dumping yard with all leads and lifts and as directed by the Engineer. The contractor shall ensure that during transportation, the carried material does not spill out. The contractor to ensure sprinkling of water over the road regularly to avoid the dust formation.
- 3) Providing safety barricading with contractor's materials and labour including all leads and lifts complete as directed by Engineer in charge. including foundation work duly ensuring safety of running trains or live traffic on road.
- 4) The drainage arrangement side drains at toe / ground level, drains at berm level, catch water drains / saucer drains are included in the scope of work.
- 5) Construction of side drains, yard drains, catch water drains, etc. to the designed profile.
- 6) Providing & laying Reinforced cement concrete of required grade as per KPWD/IS/MORTH/IR/CPWD specifications in various structures/various grade compacting with a vibratory plate compactor complete as per specifications.

The scope includes loading, unloading and disposal of surplus excavated material using covered trucks to contractor's dumping yard with all leads and lifts and as directed by the Engineer. The contractor shall ensure that during transportation, the carried material does not spill out. The scope includes cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer, curing of concrete.

- 7) Providing TMT-500D / 550D grade steel bar reinforcement (conforming to IS:1786, HYSD Fe 500 / 550 grade) at all heights & depth including straightening bars, cutting, bending, hooking binding with approved quality 18 gauge G.I binding wire, after placing in position tying, lapping and / or welding wherever required and anchoring to the adjoining members wherever necessary as per drawings (Laps, Hooks and Wastages shall not be measured and paid) including cost of all materials, bar bending charges, labour, lead & lifts etc., Complete as per specifications and as directed by Engineer.

As far as possible bars of the maximum length available shall be used. For bars having larger diameter more than 20mm mechanical couplers shall be provided as per Technical Specifications and no lap shall be permitted. Welding in lieu is not permitted unless specified in the drawings or as instructed by the Engineer. Laps joints are permitted in column, raft, and slab.

All works shall be carried out as per approved drawings, relevant codal provisions, technical specifications (corrected up to date) and as directed by the engineer-in-charge

- 8) Levelling Course: Providing & laying plain cement concrete M15 grade using 20mm maximum nominal size aggregates in open foundation, stepped foundation, combined footing, raft foundation, retaining walls, return walls, walls, U / G water tank, culverts, drains, slab on grade, tie beams, basements, levelling course or any other works as directed by the Engineer, etc. rate is inclusive of required dosage of admixture in concrete for obtaining required workability and as per specifications, approved drawings, laid in layers not exceeding 15cms thick layers, as per drawing including cost of all material, form work / shuttering, dewatering during concreting, vibrating, compacting, curing, hire charges of machinery, all lead and lift, loading, unloading, transporting, stacking, finishing the exposed faces etc., complete.
- 9) Demolition and removing of existing structures including foundation in concrete, masonry wall, compound wall, culvert, etc., to entire satisfaction of the Engineer-in charge, with all men, material & equipment
- 10) Preliminary works such as site clearance, barricading, trial trenching etc., wherever required
- 11) Road widening, side drains & other allied works, and construction of service roads at required locations

- 12) All temporary traffic diversion works, which will be required for the smooth flow of running traffic in order to carry out the works without any interruption including all safety precautions, signage, barricading, emergency lighting, traffic marshals, look-out men / watchmen etc.
- 13) Demolition of RCC framed structures, Brick masonry buildings including basement etc. as existing at site without making damage to adjacent structures, utilities and taking away and disposing all the debris and released materials etc.
- 14) Demolition / dismantling of road, footpath, kerb stone, central verge, boundary wall, etc.
- 15) Construction of temporary road as required for diversion / widening to facilitate the movement of traffic, dismantling of any existing roads / footpaths etc., for temporary diversion / widening and construction of temporary footpaths, diversion / widening for traffic diversion and its regular satisfactory maintenance as directed by Employer
- 16) Any other item of work as may be required to be carried out as required by the Employer / Engineer for smooth execution of Corridor 2 shall be completed in all respects in accordance with the provisions of the Contract and to ensure the structural stability and safety during and after construction works to be performed, including all general works preparatory to the construction and works of any kind necessary for the due and satisfactory construction, completion and maintenance of the works according to the intent and meaning of the drawings and technical specifications adopted, to best standards and orders that may be issued by the Employer from time to time, compliance of all Conditions of Contract, supply of all materials, apparatus, plants, equipment, tools, fuel, water, strutting, timbering, transport, offices, stores, workshops, staff, labour and the provision of proper and sufficient protective works, diversion, temporary fencing, lighting and watching required for the safety of the public and protection of works on adjoining land; first -aid equipment, sanitary accommodation for the staff and workmen, effecting and maintenance of all insurances, the payment of all wages, salaries, fees, royalties, duties or the other charges arising out of the execution of works and the regular clearance of rubbish, clearing of garbage / debris / pile heads from the embankment and premises of project/site offices, clearing up and leaving the site perfect and tidy on completion
- 17) Diagonal Cross trenching works for identifying underground Utility to the required length, width and depth, which includes excavation in all types of soil, hard soil, rock, footpath, bitumen road, concrete road, medians etc. cutting of all types road surfaces and backfilling the same with available excavated earth.
- 18) The scope also includes surveying and taking coordinates of the existing Utility and submitting the reports (hard & soft copy) of the same as per the directions of the Employer.
- 19) Trenching for identification of utilities and re-location / diversion of utilities if encountered
- 20) Dismantling of existing structures after ensuring necessary approval from the competent authority of the concerned department. The structures like buildings, retaining walls, Compound walls and other structure comprising of masonry, cement concrete, pre-stressed / reinforced cement concrete, Steel structures, brick / tile work in cement mortar, stone masonry rubble in cement mortar, stone pitching / dry stones spalls, removal of all types of Hume pipes, cement concrete pavements, kerb stones, BS slab / precast slabs of drain / footpath, paver blocks of footpaths, removal of silt or silt mixed with sand, etc. including T&P and scaffolding wherever necessary, including disposal of dismantled material with all lead and lifts including all labour, hire charges all machineries etc., complete by any mechanical means or any other means as direct by Employer. Loading / Unloading G.I. sheets, rails, joists, built up sections, angles, C.I., Ductile pipes, A.C Pipes, or G.I. pipes RCC / PCC beams / slabs and other miscellaneous ironwork or wood work
- 21) The scrap materials will be the property of the contractor except the materials of local authorities (BBMP, BWSSB, BESCOM, BSNL) and IR.
- 22) Supplying and laying interlocking pre-cast CC block pavers of approved design factory manufactured of specified grade cement concrete on foot paths, circulating area, road junctions etc, including setting in position over 25mm thick bedding layer of fine sand, filling the joints with fine sand, levelling including compaction as per IS 15658, minimum of 80mm thick blocks of M35 grade for medium traffic
- 23) Supplying and laying of Hume pipes as directed by Engineer / Employer

- 24) Supplying and fixing precast RCC gratings including cost of all materials, transportation, labour etc. complete (60x40 cm) with all lead and lifts
- 25) Transportation for disposal of tree trunks, branches, roots, complete including loading and unloading as per BBMP / Forest and local authority guidelines
- 26) Providing & fixing hard drawn steel wire fabric reinforcement, straightening, cutting, cleaning, bending, tying, lap / butt welding placing including binding with mild steel annealed binding wire of 18 SWG in all structural concrete at all heights and depths, with all lead and lift. etc. complete as per drawing, specifications and directions of Employer for fencing including vertical posts & RCC foundations.
- 27) Rain water harvesting: Providing and constructing the Rain water harvesting system where ever required including boring / drilling of bore well of 300mm dia for casting / strainer pipes prescribed in the drawing, excavation in all type of soils / rock, constructing BW chamber, foundation, RCC top slab, plastering, CI manhole cover, filling / packing gravels in the chamber and the annular space in the bore, filling granules in the vertical pipe, laying HDPE pipe from piers to chamber, etc., complete as per the approved drawing
- 28) Transportation of all usable materials like B.S slabs / precast RCC slab, cement concrete blocks, interlocking paver blocks, kerb stones, steel items, Telephone Poles. Electric Poles to designated site as directed by Employer by mechanical transportation including all lift, lead, loading, unloading, labour, machinery etc.
- 29) Supplying and filling in foundations / backfilling in marshy / clayey foundation pits with granite / trap broken stones of 300mm and downsize with approved sand including hand packing, ramming, watering, including the Scope of all materials and labour with all lead and lifts etc., complete as directed by Employer.
- 30) Any other item of work as may be required to be carried out for completing the construction of structures as specified in drawings including all necessary interface works with infrastructure contractors, system contractors, etc. in all respects in accordance with the provisions of the Contract and / or to ensure the structural stability and safety during and after construction

B. ROAD WORKS

1. Portable barricades in construction Zone: Installation of steel portable barricade with horizontal rail 300mm wide, 2.5m in length fitted on a 'A' frame made with 45x45x5mm angle iron section, 1.5m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150mm in width at an angle of 45 degree, 'A' frame painted with two coats of yellow paint, complete as per IRC: SP:55-2001 including cost of all materials, labour, loading, lead, lift, transporting etc., complete as per specification
2. Traffic cones: Supplying of red fluorescent with white reflective sleeve traffic cones made of low-density polyethylene (LDPE) material with a square base of 390x390x35mm and a height of 770mm, 4Kg in weight, placed at 1.5m interval all as per BS-873 including cost of all material, labour, loading, unloading, lead, lift, transporting, etc., complete
3. Retro-Reflectorized Road traffic signs: Supplying and fixing of retro-reflectorized cautionary, mandatory and informatory sign as per IRC: 67- 2001 made of high intensity grade micro prismatic HIP type-IV sheeting, including lettering fixed over aluminum sheeting, 2 mm thick firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing
4. Manufacturing of Retro-reflective board - Caution Indicator / Stop indicator / Speed indicator / Whistle Board / any other board with 1.50 mm thick MS plate and MS plate stiffeners on M.S. T angles 75 mm x 75 mm x 6 mm and 4.75 m long approximately as per the specified drawing including cutting, drilling holes in the angles, providing hold fasts, bolts and nuts with washers of required size, bolting, welding
5. Providing supplying and fixing in position, boundary pillars of standard design as per latest IRC with K-RIDE logo on it with reinforced cement concrete of M15 grade
6. Clearing and grubbing of land for roads, including uprooting of vegetation, grass, bushes, shrubs, saplings and trees of girth up to 300 mm
7. Removal of earlier felled tree stumps and disposal of unserviceable materials and stacking of serviceable material (used or auctioned) with all lead and lifts including removal and disposal of top

- organic soil not exceeding 150 mm in thickness including all labour, hire charges of all machineries etc., complete with all lead & lifts by suitable machinery
8. Excavation for roadwork in all types of soil by mechanical means including cutting and loading to tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross section, and transportation with all & lift lead complete as per specifications, including scarifying the existing bituminous
 9. Construction of embankment for road work with approved materials gravel / Moorum with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement complete as per specification, including cost of gravel / moorum, watering charges & compaction by vibratory roller to 95% of modified proctors density. MORTH Specification No.305
 10. Construction of sub grade and earthen shoulder with approved material Gravel / Moorum with all lifts & lead, transporting to site, Spreading, grading to required slope and compacted to meet requirement of table No.300-2 complete as per specification, including cost of earth, watering charges & compaction by vibratory roller to 97% of modified proctors density MORTH Specification No.305 including compaction
 11. Construction of granular sub-base Grading-V as Sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite / trap / basalt material, mixing in a mechanical mix plant at OMC, Carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications. Clause 401 of MORTH V revision
 12. Providing, laying, spreading and compacting crushed stone aggregates of granite / trap / basalt to Wet Mix Macadam specifications including pre mixing the material with water at OMC in mechanical mix plant carriage of mixed materials by tipper to site, laying in uniform layers with paver in sub-base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete as per specifications, MORTH specification No.406
 13. Providing and applying primer coat with S.S bitumen emulsion on prepared surface of granular base such as WMM including cleaning of road surface and spraying primer at the rate of 0.60kg per sqm using mechanical means complete as per specifications. Clause 502 of MORTH V revision
 14. Providing and applying tack Coat using approved bitumen on the bituminous surface at the rate of 0.25Kg per Sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of Road Surface) as per Specifications. Clause 503 of MORTH V revision
 15. Providing and laying dense graded bituminous macadam using crushed aggregates of specified grading, premixed with VG30 grade bituminous binder and transporting the hot mix to work site, laying to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects complete as per specifications. Clause 505 of MORTH V revision. Using 40 / 60 TPH capacity H.M.P with sensor paver Gr-II with 4.5% VG-30 Bitumen
 16. Providing and laying bituminous concrete using crushed aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site, laying with a paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects as per specifications. Clause 507 of MORTH V revision. Using 40 / 60 TPH capacity H.M.P with sensor paver Gr-II with 5.4% VG-30 Bitumen
 17. Filling pot holes and patch repairs with bituminous concrete
 18. Road Marking with Hot Applied Thermoplastic Compound with Reflectorizing Glass Beads on Bituminous Surface / Concrete Surface. Painting lines, dashes, arrows etc., on roads in two coats on new work with ready mixed road marking paint conforming to IS: 164 on bituminous surface
 19. Painting two coats on new concrete surfaces: Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces including cost of all materials, labour, loading, unloading, lead, lift, transporting etc., complete as per specification
 20. Road delineators: Supplying and installation of delineators (Roadway indicators, hazard markers, object markers), 80-100cm high above ground level, painted black and white in 15cm wide strips, fitted with

80x100mm rectangular or 75mm circular reflectorized panels at the top, buried or pressed into the ground and conforming to IRC-79 as per drawings including cost of all materials, labour, loading, unloading, lead, lift, transporting, etc., complete as per specification

21. Supplying and fixing pre cast solid concrete kerb stones made out of M15 / 20 (CC 1:2:4) and finished with CM 1:3 Plastering and finishing, cutting, with all lead and lifts etc., complete of size 450 x 200x 400mm

C. SALIENT FEATURES CONSTRUCTION AND OTHER INSTRUCTIONS

1. The shape and appearance of structures shall be as decided by K-RIDE from aesthetics and economy point of view.
2. All necessary safety precautions shall be taken. The contractor is solely responsible for any untoward incident due to unsafe practices. Suitable capacity cranes of adequate numbers required shall be mobilized. Suitable supporting system and its equipment shall be provided at site as directed by Employer, if required.
3. Before carrying out the work at site, necessary permissions from various local agencies like BWSSB / GAIL / BSNL / BESCOM and Road authorities such as SWR, NHAI, BBMP, PWD, Traffic Police etc., shall be required to be obtained by the contractor. The Employer will assist only by way of issue of necessary support letters.
4. The applicable permits / permissions for felling of tress / translocation shall be arranged by Employer. The tree cutting and disposal shall be arranged by contractor. The applicable permits/ permissions for felling of tress / Translocation shall be arranged by Employer.
5. The contractor shall make the detailed traffic diversion plans in consultation with Bengaluru Traffic Police. The work is to be executed with proper liaison with Bengaluru Traffic Police. Necessary assistance will be given by Employer. The scheme should be such that minimum of two lane of traffic on each direction of
6. The contractor shall provide the Key Personnel as per Appendix-04.
7. Providing concrete for all works deemed to be inclusive of the cost towards design mix production of concrete including machinery transportation of concrete with all leads and lifts, form work, shuttering including staging as required, pouring of concrete by pump/tower crane to all heights /depths, tremie or other approved means, compaction by vibrators, curing by approved means such as water, steam or curing compound and all labour, tools, plants, machinery required for execution of work complete in all respects including de-shuttering after completion of work and rendering & finishing etc.
8. Wherever night working is carried out by contractor, temporary lighting arrangements as per approved layout shall be provided, installed, maintained for the duration of the contract.
9. The contractor shall take suitable and sufficient measures for working at night.
10. The debris, waste materials of the median shall be cleared and disposed properly.
11. Contractor shall get necessary permission / NOC from the IR, Road, Police and other concerned regulatory authorities for blocking services and working in such locations. K-RIDE will Facilitate for getting them permission from concerned regulatory authorities for working in such locations by giving letters.
12. Disposal of surplus materials including excavation spoils etc., to the dumping site approved by the Employer, irrespective of lead and lift (ascent / descents).
13. Any services affected by the works must be temporarily supported by the contractor. The work of temporarily supporting and protecting the public utility, services during execution of the works shall be deemed to be part of the contract.
14. The contractor shall take all precautions for safeguarding the environment during the course of the construction of the works. He shall abide by all laws, bye-laws, rules and regulations in force governing pollution and environmental protection, that are applicable in the area where the works are situated. The contractor must take all necessary steps, specially, to avoid dust nuisance during construction of the works.

15. The contractor shall at all-time carryout the work on either side of road / service road in a manner creating least interference to the flow of traffic. The contractor shall take prior approval of the Employer and traffic police regarding traffic arrangements and diversion of traffic during construction.
16. Works to be performed shall also include all general works, including Road widening and allied works of any kind necessary for the due and satisfactory construction, completion and maintenance of the works to the intent and meaning of the drawings adopted and technical specifications, to best Employing standards and orders that may be issued by the Employer from time to time.
17. Road works and allied works shall be carried out in co-ordination with BBMP as per MoRTH specifications.
18. Sufficient measures to minimize water, air and noise pollution at/ near the area of the work shall be undertaken by the contractor.
19. All aspects of quality assurance, including testing of materials and other components of the work, as specified and as directed by the Employer shall be ensured.
20. Clearing of site and handing over of all the Works, as specified or as directed by Employer shall be ensured.
21. Maintenance of the completed Work during the maintenance period as directed by Employer shall be ensured.
22. All goods and materials to be incorporated in the works shall be new, unused, and of the most recent or current models, and they shall incorporate all recent improvements in design and materials, unless provided for otherwise in the contract.
23. The above list is not exhaustive. Any other minor requirement inadvertently missed out in the above list, shall be complied with. The contractor shall execute the work as per the requirement of BSRP and as per the latest and best practices. In case of any dispute, the decision of K-RIDE is final in this regard and also with regard to whether the requirement is minor or not.

V) GENERAL INFORMATION, INSTRUCTIONS AND MISCELLANOUS ISSUES

1. DELETED

2. Deleted.

3. REFERENCE DOCUMENTS

The following Documents shall be referred in conjunction with each other (not necessarily in the same order) by the contractor for construction work as these are mutually complementary to each other:

- a) Good for Construction Drawings issued by the Employer
- b) Employer's Requirements
- c) Instructions
- d) Technical Specifications and explanatory notes
- e) Contract Conditions
- f) Particular Conditions of Contract
- g) Bill of Quantities
- h) Indian and International Standards referenced in the bid document
- i) The schedules and any other documents forming part of the Contract
- j) Any other related section in the bid document

The contractor shall always promptly seek advice from the Employer in the event of conflicts among above cited documents, before taking any action in respect of any item of work, where such a conflict has a potential to affect any aspect of the work. In case of conflict, the Employer's decision will be final and binding.

4. GENERAL PROJECT INFORMATION

The project site is located in and around Bengaluru City. The tendered work is along Corridor-2 . Begganahalli to Chikkabanavara of BSRP.

5. AVAILABILITY OF LAND

Complete land for the execution of works is available. The contractor shall take additional land on lease / rent basis temporarily for installation of his facilities like batching plant / Casting Yard / Site Work Shops / Project offices / Site offices etc. The tenderers are advised to conduct a detailed study and cater for all such expenditure in the bid.

6. SITE INFORMATION

The project site is located in and around Bengaluru City. Bengaluru is well connected to other parts of the country by Road, Rail and Air. It has an International Airport. The location of the work and the general particulars are shown in the drawings enclosed with the bid documents.

7. GENERAL CLIMATIC CONDITIONS

Bengaluru is located in meridians of 12° N latitude and 77°3' E Longitude, spread over an area of 531 sqm km. located at an altitude of 900m, Bengaluru boasts of delightful weather around the year registering a maximum temperature of around 34° centigrade in summer and a minimum temperature of around 14° centigrade in winter. However, there have been instances of break of these maximum and minimum. Bengaluru receives both the Southwest and Northeast Monsoons, getting an annual average rainfall of 760 mm, generally during the months of May to September / October. Bengaluru falls in Seismic Zone II.

8. OBTAINING CLEARANCES / CERTIFICATES FROM AUTHORITIES

Contractor shall arrange well in advance, stage-wise (if required), submission of all the required documents and drawings for approval of other concerned authorities and arrange for their inspection and obtain approval / completion certificates with respect to the work, as required. All clearances from the Statutory Authorities are the responsibility of the contractor. Contractor shall obtain and deliver to the Employer, on completion of the works, the final Inspection Report and approval from the Authorities.

9. RESTRICTIONS IN WORKING

- i. The various items of construction work shall have to be carried out in/along narrow roads / streets of Bengaluru city besides/across/parallel to the existing IR tracks where there are buildings adjacent to the road / track.
- ii. There are restrictions for movement of trucks and heavy vehicles (ex: trailers) carrying construction materials.
- iii. There are some one-way roads where traffic can't move in both directions.
- iv. The construction of structures shall be planned in such a manner that they do not obstruct or interfere with the existing roads, IR and other Utilities.
- v. Special care shall be taken to restrict the noise pollution further, to the minimum levels. The bidder should take all these facts into account while quoting rates and devise his methodology of working accordingly.
- vi. Where work is required to be carried out at locations adjacent to such Existing, roads, Utilities, structures, monuments, religious structures, etc., suitable safety and protection arrangements shall be ensured. Nothing extra will be payable on these accounts. It shall also be ensured that no damage is caused to any such element and Employer shall be indemnified against such damage at no extra cost.

10. PROVISIONAL ACCEPTANCE

- i. Immediately after completion of works / such part of works, the contractor shall certify and advise the Employer in writing that the works are (i) complete (ii) ready for satisfactory commercial service and (iii) ready to be handed over. He will also place at the disposal of the Employer the required staff for checking it and putting it into operation.

- ii. The test or tests as stipulated in approved Technical Specifications shall be carried out jointly by the Employer and the contractor within a month after the receipt of the contractor's notification as stated in sub-Para above.
- iii. The provisions contained in the relevant CC clause shall be followed for taking over of the installations.

Use of Rejected / Sub Standard Items / Equipment

In the event of such rejection as aforesaid, the Employer shall, without prejudice to his other rights and remedies and in particular without prejudice to his rights under the clause just preceding, be entitled to the use of the rejected / substandard equipment / item for a time reasonably sufficient to enable him to obtain other replacement. During such period, if the rejected / substandard equipment / item is used commercially the contractor shall not be entitled to the payment on energization until such rejected equipment is rectified and / or replaced, but the Employer shall not be entitled to claim any damages arising out of rejected / substandard equipment / item in respect of such period.

11. GUARANTEE

- i. The contractor shall guarantee satisfactory working of the installations erected by him, for a period of 12 (Twelve) months from the date of completion of DLP or from the date of Provisional Acceptance by the Employer whichever is earlier. The guarantee for spares (if any) should be coincident with the guarantee for erected equipment. The provisions contained in the relevant clause shall be followed for rectification of defects.
- ii. During the defect liability period the contractor shall keep available an experienced Engineer and necessary equipment to attend to any defective installations / work resulting from defective erection and / or defects in the equipment supplied by the contractor. The contractor shall bear the cost of all modifications, additions or substitutions that may be considered necessary due to faulty materials, design or workmanship for the satisfactory working of the equipment. The final decision shall rest with the Employer.
- iii. During the defect liability period the contractor shall be liable for the replacement at site of any parts which may be found defective in the equipment whether such equipment be of his own manufacture or those of his sub-contractor whether arising from faulty design, materials, workmanship or negligence in any manner on the part of the contractor provided always that such defective parts as are not repairable at site are promptly returned to the contractor if so required by him at his (Contractor's) own expenses. In case of type defects in Contractor's equipment and components detected during guarantee period, contractor shall replace all such items irrespective of the fact whether all such items have failed or not. The contractor shall bear the cost of repairs carried out on his behalf by the Employer at site. In such a case, the contractor shall be informed about the works proposed to be carried out by the Employer.
- iv. If it becomes necessary for the contractor to replace or renew any defective portion of the equipment under the Para aforesaid then the provision of the said Para shall also apply to the portions of the equipment so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of the above-mentioned period whichever is later. Such extension shall not apply in case of defects of a minor nature, the decision of the Employer or his nominee being final in the matter. If any defect be not remedied within a reasonable time during the aforesaid period, the Employer may proceed to do work at the contractor's risk and expense, but without prejudice to any other rights and remedies which the Employer may have against the contractor in respect of such defects or faults.
- v. The repaired or renewed parts shall be delivered and erected on site free of charge to the satisfaction of Employer.

12. ACCOUNTABILITY AND DISPOSAL OF RELEASED MATERIALS

- i. The contractor shall liaison with the Employer to finalize the procedure for taking over of the whole or part of the section and for disposal of the released materials.

- ii. All released materials shall be handed over to the authorized representative of the Employer at the specified depot/location.
- iii. The material released on account of modifications / alterations shall be accounted by the contractor in the presence of the Employer and the Employer's Representative, except for the material permitted by the Employer to be re-used.
- iv. If any shortfall of released material is noticed at the time of completion of the work, the contractor shall be liable to pay for the shortfall as per the prevailing rates. Else, the same will be recovered from the final bill of the contractor as per the extant policy of K-RIDE.

13. CODES AND SPECIFICATIONS

The works shall be carried out as per Specifications. Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished and work performed or tested the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Employer's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the contractor and submitted to the Employer at least 28 days prior to the date when the contractor desires the Employer's approval. In the event the Employer determines that such proposed deviations do not ensure equal or higher quality, the contractor shall comply with the standards specified in the documents.

- (a) The Standard Specifications of KPWD / IS / IRC and the list of codes and manuals given in the annexure thereof shall be prime governing (KPWD, IS, IRC codal provisions / MORTH / CPWD).
- (b) Where there is conflict between provisions in KPWD & IS specifications, provisions in KPWD specifications shall prevail.
- (c) Where there is no provision of specifications in KPWD, provisions in IS specifications should be adopted. Where there are no provisions in KPWD and IS Specifications, provisions in IRC Specifications should be followed.
- (d) The decision of Employer is final and binding in the interpretation of the clause of the codes of practice and specifications of this tender and no claim whatsoever shall be entertained on this account from the contractor.

14. SURVEY AND FIXING WORKING BENCH MARKS AND ALIGNMENT MARKERS

The work of conducting survey and fixing bench marks and alignment markers before the start of any work on this tender is included in the works covered by the present Tender.

14.1 Bench Marks

1. The contractor shall establish bench marks with reference to the permanent bench marks available with the Survey of India. The details of these bench marks along with their reduced levels shall be marked on the alignment drawings indicating the plan and 'L' section which form a part of the tender. The contractor along with the Employer shall verify the details in the first instance, soon after getting access to the site. If any mistakes are detected in these details of these bench marks, the same shall be indicated to the Employer. The mistakes detected shall be corrected in consultation with the Employer. These corrections should be got approved by the Employer before starting of any other work.
2. The contractor shall then, in presence of the Employer, establish working bench marks at short intervals, adequately connecting them to the reference bench marks set up by the Employer in the Project length. The working bench mark levels should be got approved from the Employer. An up-to-date record of all bench marks including approved corrections, if any, shall be maintained by the contractor and also by the Employer.

3. All levels taken for making out the longitudinal section and cross section should be related only to these working bench marks.

14.2 Alignment

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14.3 Interfacing and Integrations of Works

1. The contractor shall take full responsibility in terms of organizing, managing, coordinating and administrating the interfacing of all components of works including all issues related to and arising out of such tasks. The contractor shall interface with all concerned authorities and other contractors as required to complete the work satisfactorily within the stipulated period.
2. Under consideration and application of the above clause, the contractor shall have the obligation to liaise with the other contractors and Authorities to obtain all necessary technical information, all necessary information concerning organization of works, coordinating the works etc. which are necessary to assess, mitigate, take care of contractual obligations, risks, liabilities and whatsoever arising out of interfacing, Engineering issues, organization of the works etc. The Employer shall not be held liable in any way, throughout the preparation of the offer and / or execution of the works and / or maintenance period and / or defects liability period for any omissions, misunderstanding, negligence etc. arising out of interfacing, coordinating, organizing etc. of the works. The Employer will not entertain any claim arising out of misunderstanding, miscommunication, omission, withholding of necessary / required information or whatsoever between the concerned contractors / Authorities concerning interfacing, organizing etc. of works. In case of any claim arising from any of the contractors, as aforesaid, referring to interfacing and / or interfacing related issues, the Employer will hold the concerned contractors liable for not taking care of their contractual obligation concerning interfacing, organizing, co-ordination etc. of the related works.
3. Needless to say, that commissioning of this project requires close coordination among various agencies executing the works in this section, the Employer, authorities, wherever applicable. The contractor shall therefore plan all his works requiring interfacing with other agencies, meticulously, in consultation and coordination with all concerned parties, in advance, for expeditious execution, without causing any delay either to his works or those of others.
4. If, in the opinion of Employer, any delay in execution of any part of the Project requiring interfacing is attributable to the failures of the contractor to take adequate steps for smooth execution of such works, then the Employer will have the right to take necessary steps to organize and streamline such works, including excluding the requisite portion of work from the scope of the contractor and getting the same executed by other agencies, at the risk and cost of the contractor.

14.4 SURVEY EQUIPMENT

1. The contractor shall provide the survey equipment and other accessories as per the instructions of Employer as and when required. He should also provide all necessary help as required by the Employer for inspecting and checking the works, whenever required.
2. All power requirements for execution of works shall be arranged by the contractor from his own resources. Subject to availability of power, the Employer may recommend to the Authorities for providing power connection. No guarantee whatsoever is given by the Employer in this regard. The contractor shall bear the cost of installation and payment of necessary charges for providing such power connections as per the Terms and Conditions of the Authority. However, in the event of non-availability of Power from authority, the contractor shall make necessary arrangements to tie up with the local Electricity Authorities etc. for supply of Power, till all the works are over.

15. DAMAGE TO PROPERTY

The contractor shall organize all his activities so as not to cause any damage to the property of IR/KRIDE or that of other agencies or any third party. In spite of taking all precautions, in the unfortunate event of any damage to any property, there could be claims by the affected parties. The

contractor shall not only indemnify the Employer against the claims made by the affected parties but also settle the matters with the affected parties as per law. If the nature of damage is one of that affecting the train movements or causing a safety hazard to the public, then the situation will be treated as an emergency and the Employer reserves the right to take all necessary steps as deemed necessary to restore train operations or to remove the hazardous situation or to mitigate the damage, at the risk and cost of the contractor.

16. STRUCTURAL ELEMENTS, SHAPE AND FORM

The bidder shall note different structural elements in shape, form and structural configuration in plain. The structural elements may be skew, tapered, curved etc. The bidder shall include these factors while quoting his rates. All the above shall be covered in the quoted rates and nothing extra shall be payable towards this.

16.1. Stability of the elements

During construction, the stability of each element must be ensured until the connections through which the stability is achieved, are fully operative. This might require temporary supporting, bracing etc. This is contractor's responsibility, and no extra payment will be made.

16.2. Stability of the Structure

The overall stability of the structure must be ensured during each phase of constructions. This might require special provisions. This is also contractor's responsibility and no extra payment will be made.

16.3. Temporary Works

Traffic barricade with reflective tapes and other necessary traffic signages should be provided wherever required so that safety is ensured during day and night continuously. Temporary traffic diversion for smooth flow of traffic during construction including necessary traffic signs, repairs to the diverted route / service lanes, if required, restoration of diverted route to original condition etc. shall be done by contractor at his cost.

Contractor shall also provide any temporary support for the utilities, wherever required, at no extra cost to Employer.

16.4. Design for Temporary Works

The Design should cover all the items pertaining to all temporary works, traffic diversion scheme, form work, casting and stacking yard, staging, launching scheme for girders / beams and / or transportation scheme for various structural elements and materials to be transported to and from site during construction period.

Contractor shall formulate a practical and viable scheme for design / fabrication of shuttering, scaffolding / staging, casting, curing, testing and launching / erection of girders / beams / and all other structures.

17. DRAWINGS

1. The drawings are to be prepared by the contractor and will be approved by Engineer / Employer.
2. Deleted
3. Deleted

17.1. GFC Drawings:

The Design and drawings are the responsibility of contractor. GFC drawing requirement shall be planned by the contractor based on the requirement of the Employer and the GFC drawings shall be submitted accordingly.

Errors, Omissions and Discrepancies in Specifications and Drawings:

- a. It shall be the responsibility of the contractor to promptly bring to the notice of Employer any error, omission fault, defects or discrepancy in the contract documents, specifications and drawings for the work which are discovered while reviewing the contract documents or in the process of execution of the works and obtain his orders thereon.
- b. Only stated dimensions shall be taken and not those obtained from scaling the drawings.
- c. In case of errors, omissions, faults, defects and / or disagreement on the drawings or between the drawings and specifications the following principles shall be followed
 - i. As between the written description or written dimensions on the drawing and the corresponding one in the specifications, the former shall apply.
 - ii. As between the written description of the item in Bill of Quantities and the detailed description in the specification of the same item, the former shall prevail.
 - iii. The drawings on a large scale shall take precedence over those on a smaller scale; and
 - iv. Drawings approved as construction drawings from time to time shall supersede corresponding drawings previously approved.

The decision of K-RIDE will be final on this matter.

17.2. Meaning and intent of specifications and Drawings

If any ambiguity arises as to the meaning and intent of any portion of the specifications and drawing or as to execution or quality of any work or material, or as to the measurement of the works, the decision of the Employer thereon shall be final subject to the appeal (within 7 days of such decision being intimated to the contractor) to Employer, who shall have the power to correct any errors, omissions, or discrepancies in the specifications, drawings, classifications of works or materials and whose decision in the matter in dispute or doubt shall be final and conclusive.

17.3. Responsibility for Specifications, Design and Drawings

Specifications

KPWD / IS / MORTH / CPWD, KPWD specification / other Specifications / Codes viz. IS, KPWD, DSR etc. shall be procured by the contractor from the market. One set of these specifications shall always be kept at contractor's site office for reference.

Standards guaranteeing a level of quality or performance equivalent or superior to those indicated will also be accepted. Reference to trademarks or other specific designations that are necessary to explain the nature of the products required does not necessarily mean that the same specific product / brand has to be used, but it means that any other product of equal or superior quality or performance is also acceptable, subject to prior approval of the Employer to be obtained in writing for adopting the new standards which are not provided in the contract.

17.4. Drawings for Permanent Works

- i. Deleted.
- ii. The Permanent Work shall be carried out in accordance with the "Good for Construction" (GFC) drawings as would be issued to the contractor by the Employer duly signed and stamped. The contractor shall not take cognizance of any drawings, designs, specifications, etc. not bearing Employer's signature and stamp. Similarly, the contractor shall not take cognizance of instructions given by any other Authority except the instructions given by the tender calling authority / competent authority or the nominated official of the Employer / the nominated official of Employer, in writing. Construction drawings shall be supplied progressively by the contractor during execution of work, well in time (giving sufficient margin of time, as decided by the Employer, for their scrutiny and issue), for each activity.
- iii. GFC drawings / Advance copies required for the next one months' work shall ordinarily be submitted by the contractor to Employer for his planning, procuring etc.

- iv. The "Good for Construction" drawings shall be prepared by the contractor after the award of work.
- v. No deviation shall be made from GFC drawings by the contractor.

17.5. Design, Drawings and Specifications for Temporary / Ancillary works.

- i. Contractor's proposal for erection of all Ancillary and Temporary works shall be in conformity with the proposals submitted along with the bid and / or as approved by Employer.
- ii. The contractor would design all the Ancillary and Temporary works including temporary supports, false work, formwork, staging scheme etc. and will submit the same and related working drawings to the Employer for approval, after getting them proof checked by an IIT/IISc Bangalore/NIT or any other approved institution. Bar Cutting and bending schedule for the reinforcement, shop drawings for fabrication work etc. shall also be prepared by the contractor and submitted for Employer's approval.
- iii. Shop drawings
 - (a) All reference points shall be in relation to the levels and locations, given in the Architectural and Services drawings duly cross-checked on site and confirmed. All locations and levels should be indicated with respect to grid and reduced levels with respect to the Bench Mark adopted for the Project and indicated in the drawings issued by the Employer.
 - (b) The contractor shall verify the dimensions of all the necessary structural, architectural, Mechanical, Electrical & Plumbing (MEP) Services and other elements, relevant to the system being done, before proceeding with the preparation of the shop drawings and proceeding with the physical work at site and make suitable adjustments to accommodate within the spaces available.
- iv. Approval of Employer of any such proposal / drawings shall not relieve the contractor of his responsibility of sufficiency of such works.

17.6. Drawing Management

- 1. The contractor shall submit all such drawings for Temporary / Ancillary works and shop drawings to the Employer well in advance before he desires to commence the works and get the same approved from the Employer. These drawings should be submitted only after they have been duly detailed, checked and verified within the contractor's organization ensuring that the details and data shown / furnished on the drawings are correct and that the requirements of other disciplines have been taken care of. The names and complete signatures of the contractor's personnel responsible for the drawings shall be contained on each drawing. Any drawing which does not contain the above names and signatures shall be summarily returned to the contractor and treated as not having been submitted.
- 2. The drawings submitted for approval shall be in any one of the standard sizes - AO, AI, A2, A3 or A4, in accordance with Indian standards and as specified.
- 3. All drawings shall show the following particulars in the lower right-hand corner in addition to the contractor's name.
 - (i) Project Title
 - (ii) Name of the Employer
 - (iii) Name of Consultant
 - (iv) Contract No.
 - (v) Title of Drawing
 - (vi) Scale
 - (vii) Date of Drawing
 - (viii) Contractor's Drawing Number
 - (ix) Space for the Employer's drawing number
 - (x) Name of the Employer
 - (xi) Name of Review Consultant

- (xii) This drawing is based on Drawing No.(s.)
- (xiii) Further detail is given on Drawing No.(s.)

4. Each drawing shall carry a revision number, date of revision and brief details of revisions carried out. Whenever any revision is carried out, the revision number must be updated. The revisions carried out on the drawing shall be clearly marked by clouding and each cloud revision shall be numbered by marking the revision number in triangle.
5. All dimensions on drawings shall be in metric units, unless otherwise specified. However, all levels shall be in metres.
6. A template with the above information shall be got approved from K-RIDE before start of the work.
7. All shop drawings shall be prepared on CAD using AUTO-CAD Version 2010 or higher.

17.7. Shop drawings shall be prepared for the following works:

- i. Reinforcing bar bending schedules
- ii. Working drawings for placing of reinforcement
- iii. All form works, Shuttering and Scaffoldings
- iv. Shop / Fabrication drawings for structural steel for PEB
- v. Metal work (ferrous and non-ferrous) for inserts, structural work in built up sections etc.
- vi. Seismic joints
- vii. Expansion joints
- viii. Construction joints
- ix. Waterproofing

17.8. Drawing Management at Site

- (i) The contractors shall ensure that all drawings (to be laminated at contractors' cost) meant for further fabrication, erection and field work are issued to their personnel in a controlled manner. A proper record shall be maintained to show to whom the drawing is issued and to ensure that the latest revision of the drawing is being followed for further work.
- (ii) All superseded drawings shall be promptly withdrawn from the personnel to whom they are issued and stamped "SUPERSEDED" in RED. The contractor shall maintain a register of drawings, with their revision / issue number, as received from the Employer and a record of their distribution to the designated personnel within their organization. A certificate to that effect along with list of drawings withdrawn during the month shall be incorporated in the monthly progress report.
- (iii) In case of revision of Approved Drawings for Temporary / Ancillary and Shop Drawings, if any, at any time before the completion of the work, the contractor shall make such revisions and proceed in the same manner and observe procedure for obtaining approval of the Employer as for the approval of the original drawings.
- (iv) The contractor shall maintain at Site a set of the drawings issued by the Employer on which changes shall be progressively marked and signed by the Employer so that "As-Built" drawings can be made correctly and expeditiously at the end of the work.

17.9. Documents by Contractor

- i. The contractor shall submit to the Employer, for approval, Quality Assurance plans, design calculations, material specifications for each item and system, samples, as may be called for in the Specifications or as the Employer may reasonably require. Wherever necessary, the contractor shall provide as built dimensions to facilitate proper Good for Construction drawings being prepared for various construction detailing.
- ii. Number of Copies of Drawings for Temporary / Ancillary works / Shop drawings and Documents

- iii. All Shop drawings / drawings for Temporary and Ancillary works, Documents, Schedules etc. and revisions thereof shall be submitted by the contractor to the Employer in 6 copies. Copies required in excess of these shall also be borne by the contractor at his own cost.

17.10. Completion Drawings

On completion of the work in all respects the contractor shall submit the following

- i. Six sets of "As Built Drawings" in the standard sizes of A0, A1 each containing complete set of drawings for every component of work on approved scale indicating the work "As Built". Each set shall also contain technical literature.
- ii. These drawings shall be prepared on CAD using Auto-Cad version (latest, as directed by Employer) and shall be recorded on writable memory devices and one set of these devices shall also be submitted.
- iii. Four sets of catalogues of all manufactured materials with the name and addresses of the manufacturers for all equipment provided by the contractor.
- iv. The contractor shall also submit one set of original "As Built" drawings on polyester film or as directed by the Employer.

The Certificate of Completion of Works as per the provisions in the General Conditions of Contract will not be issued by the Employer in the event of Contractor's failure to furnish aforesaid "As Built" drawings for the entire works.

17.11. Plans and Drawings for Layout of Plant and Equipment

The contractor shall submit the following information, in triplicate, to the Employer, for approval, within the time stipulated against each item given below:

- i. A general layout plan for construction plant and equipment required for execution of work, within thirty days from the date of issue of "Letter of Acceptance".
- ii. Drawings or prints showing the locations of major facilities which he proposes to put up at site, at least fourteen days prior to the commencement of the respective work; and
- iii. Any other details and drawings as required under the contract, within the time as specified in the contract.

Cost of all the above activities shall be deemed to be included in the quoted rates of various items of the Price schedule and nothing extra shall be paid for on this account.

18. TRAFFIC MANAGEMENT

- i. The contractor shall make the detailed traffic diversion plans in consultation with Bengaluru Traffic Police. The work is to be executed with proper liaison with Bengaluru Traffic Police. Necessary assistance in the form of issuing letters to the authorities concerned, will be given by K-RIDE. The scheme should be such that a minimum of two lane of traffic on each direction of the road should be available for the smooth flow of traffic. The contractor should inspect the site and observe the traffic flow and pattern before making the diversion plans.
- ii. The permanent traffic diversions will be carried out in consultation with traffic police. Contractor shall provide traffic diversion proposals, traffic marshals, cones, traffic diversion boards etc., as desired by Traffic Police.
- iii. Traffic barricade shall be with reflective tapes, traffic signages, traffic sign board, signals, road delineator reflective lights, traffic cones etc. Deployment of adequate man power shall be for all 24 hrs in 8hrs shifts. Day and night management of the above including all other necessary provisions, wherever required, shall be taken care of so that safety is ensured during day and night continuously. Temporary traffic diversion for smooth flow of traffic during construction including necessary traffic signs, repairs to the diverted routes / service lanes.
- iv. It includes but not limited to Diversion to other adjoining parallel roads or other suitable roads including strengthening of the same and all provision and maintaining the flow of traffic towards the diverted

route with minimal inconvenience to the flow of affected traffic and close liaison with Traffic Department of Bengaluru.

- v. The contractor shall take necessary and adequate measures to ensure uninterrupted traffic flow within the work area during the currency of the work. It shall be the responsibility of the contractor to provide suitable and acceptable diversions for the passage of the traffic. Contractor shall ensure that at no time, his construction equipment interrupts the movement of the traffic on the road and IR Track.
- vi. The contractor shall prepare a comprehensive Traffic Management Plan. The contractor shall also draw a phased program for traffic arrangements / diversions and get it approved from the Employer / Employer and Traffic Police well in advance with respect to every stage of construction.
- vii. If traffic diversions require construction of temporary roads and / or improvement of the existing roads, the design / drawings for the same including diversion of utilities etc. (if required) shall be prepared by the contractor using the specifications not inferior to that of the existing roads / utilities and get it approved from the Employer / Employer and Traffic Police. Payment for the same shall be made under relevant item of Price Schedule.
- viii. Before taking up the work in a particular stretch, all the traffic diversion plans applicable to that particular area shall be implemented as per the approved plans / drawings and trial runs carried out to the entire satisfaction of Employer / Traffic Police. If, during trial runs, some modifications are suggested, the same shall be also being carried out before start of work.
- ix. The contractor shall take all necessary measures for safety of traffic during construction and provide, erect and maintain such barricades (as approved by Employer) having marking with reflective paint, signs / sign boards, pavement markings, flags, lights, traffic marshals and flagmen as may be required and / or directed by the Employer for guiding, information and protection of the traffic approaching or passing through the stretch. Red lanterns or flashing warning lights of suitable type spaced suitable intervals mounted on barricades along the diversions shall be provided and kept operational and maintained throughout from sunset to sunrise.

19. LIGHTING AND FIRE PREVENTION

- i. Wherever night working is carried out by Contractor, temporary lighting arrangements of required lumen as per approved layout shall be provided, installed, maintained for the duration of the contract and removed after completion of work by and at the expense of the contractor.
- ii. Flashing lights to warn the traffic on roads shall be used at all times on all obstructions.
- iii. Contractor shall provide and maintain adequate firefighting equipment and take adequate fire precautions for the safety of all personnel, plant, and material including temporary and permanent works and shall take action to prevent damage to or destruction by fire of trees, shrubs and grasses.
- iv. No extra payment will be made for the provision of temporary lighting, flashing lights and fire prevention measures and entire cost of all such work shall be deemed to have been included in the Scope of Price schedule.

20. UTILITIES

- i. Necessary permanent diversion of utility services shall be undertaken by contractor. The contractors shall liaise with the Utility Authorities for carrying out the work expeditiously wherever required so that works at particular locations are not delayed. In case they come across any utilities also they shall have to liaise with the agency concerned for the necessary diversion; the cost of diversion shall be paid by Employer under the relevant item of KPWD. Contractor shall provide any temporary support for the utilities if called for, but at no extra cost.
- ii. If any utilities are met, the contractor shall temporarily support or temporarily divert the same at his own cost. In case, this is not possible as decided by Employer, then the same will be permanently diverted by the contractor and the payment will be made under respective item in the relevant payment schedule of Works under KPWD / BWSSB / BESCOM-SR 2023-24.
- iii. For the existing utilities owned by IR, where the shifting thereof can take place only after certain works for its shifting have been completed by the contractor, the concerned contractor shall, undertake and

complete the works required for its shifting first. The concerned contractor in this case may be the contractor executing the present work or another contractor, as directed by the Employer.

- iv. Contractor should make his own survey for identification of underground / above ground utilities;
- v. New utilities: In the event the construction of any work is affected by a new utility, the contractor shall be entitled to a reasonable Time Extension in accordance with the provisions of contract. The decision of Employer is final in this regard.

20.1. Damage to Utilities

The contractor shall be responsible for any theft, damage and / or protection of all the existing utilities within the site of work during currency of the Contract. In case of any theft / damage occurring to these utilities while working or otherwise, the contractor shall immediately inform both the Employer's representative and the utility owning agency and restore the same immediately to the entire satisfaction of the utility owning agency. Any damage due to working / negligence / fault of the contractor (the decision of Employer in this regard shall be final and binding), the same shall be repaired / made good by the contractor at his own cost. Any damage / compensation / penalty etc. if charged by the utility owning agency in this regard shall also be payable by the contractor and no claim in this regard will be entertained by the Employer. Any legal action to be faced in this regard shall also be the responsibility of the contractor. The contractor shall always keep indemnified the Employer against all these issues.

21. RESPONSIBILITIES OF CONTRACTOR

21.1. The contractor shall carry out expeditiously and without delay the following works

- a. Identify and get approved the sources of various major construction materials.
- b. Material testing and mix designs of concrete as contemplated in the specifications.
- c. Setting up of fully fledged site laboratories as per the requirements.
- d. Setting up concrete batching & mixing plant.
- e. Project office for Employer.
- f. Contractor's site office setup.
- g. Any other pre-requisite items required for final execution.
- h. Any other items specified in other sections of contract.

22. ASSOCIATED WORKS DEEMED INCLUDED IN SCOPE OF PERMANENT WORKS

Contractor's Organization and Plant & Equipment

Project Organization Plan

- i) The Contractor's Personnel shall be deployed & maintained in consultation with the Employer and as per the requirements. The Contractor's Superintendence shall be also properly deployed and maintained to carry out the construction activities as described in the relevant General Conditions of Contract (GCC) clause.
- ii) The contractor shall submit an updated Project Organization Plan which includes complete project organization chart during the Construction Phase adding functions and personnel necessary to perform the Works during the Construction Phase in accordance with the conditions of the Contract. This plan shall be updated and resubmitted whenever there are changes to the staff and / or the organizational structure. The plan shall show the management structure and state clearly the duties, responsibilities and authority of key staff member.
- iii) The contractor shall deploy the key personnel of requisite qualification and experiences. In case Employer instructs (in writing) the contractor to remove a person of his work force stating the reasons, the contractor shall ensure that the person leaves the Work Area within seven days and shall have no further connection with the Works in the Contract. The Employer, in case, feels that a person of contractor's work force should leave, the matter shall be brought to the notice of the Employer by the Employer for issuing suitable instructions to the contractor, after the Employer is satisfied.

- iv) During the Construction Phase, the contractor shall maintain the Design Team in his organization independent of the Construction Team to deal with Preliminary design, definitive design and working drawings.
- v) The minimum requirements for man-power are attached as Appendix 4 [Organization charts and key positions] to the Employer's Requirement.

22.1. Plant and Equipment

- a) The minimum Plant and equipment as shall be maintained in consultation with Employer as per the requirements.
- b) The minimum requirements for plant & equipment are attached as Appendix 5 [Plant and Equipment] to the Employer's Requirement.

23. PENALTY FOR NON-COMPLIANCE

Notwithstanding the provisions elsewhere in the bid documents, the contractor shall be penalized as detailed below:

- a) Correction of Defects

If the Employer determines that any item or part of it was constructed with bad workmanship and / or

Sl. No.	Nature of Defects (Indicative only)	Penalty (Rs.)
1.	Not maintaining plumb line, level in concrete works / observing honey combs on the finished surface of concrete	5,000 / - each case
2.	Usage of unapproved / sub-standard materials	15,000 / - each case

using sub-standard construction materials,

The above said penalty is envisaged to act as deterrent against bad workmanship and usage of sub-standard construction materials by the contractor and shall be imposed for every occurrence. These penalties are non-refundable.

APPENDIX-01

1. PROGRAMME REQUIREMENTS

Deleted.

APPENDIX-02

METHOD OF MEASUREMENTS FOR PERMANENT WORKS

1. INTRODUCTION

1.1 The detailed procedure to be followed for the recording of measurements and for the preparation and passing of contractors Bills for permanent works is set out in the following paragraphs.

2. MEASUREMENT OF WORKS

2.1 General

2.1.1 Measurements shall be taken at such intervals as are found necessary or convenient. Generally, one bill will be preferred in a month or as specified in the contract.

- 2.1.2 Entries should be made only in ink, and no entry should be erased or defaced so as to make it illegible. Correction of mistake, if any, shall be made by neatly crossing out the incorrect entry and rewriting and correct words or figures. All such corrections should be initialed by the contractor's Employer as well as by the Employer's Representative at site.
- 2.1.3 Format of Record of Measurements sheets and procedure for issue of these measurement sheets will be as decided by Employer.
- 2.1.4 Before starting the earth work for embankment, cutting, excavations etc., the initial ground levels shall be taken jointly along with Employer.

2.2 Items for which Good-for-Construction GFC Drawing is issued

- 2.2.1 As soon as the Good-For-Construction GFC drawing for a work is issued, the contractor will calculate the details of quantities of various items of PRICE SCHEDULE involved, in a format approved by Employer, and submit the calculations and schedule of quantities to the Employer's Representative and get them approved for the drawing.
- 2.2.2 Once the schedule of quantities is thus approved, the contractor will submit five copies of the approved schedule to Employer's Representative in an approved format.
- 2.2.3 The contractor will submit his payment claims based on the approved schedule of quantities along with certification of actual work done as per specifications, drawings and contract conditions and within the tolerances as specified. Measurement will be entered in Record of Measurement Sheet duly signed jointly on each page by contractor's authorized qualified Engineer and Employer's Representative.
- 2.2.4 Abstract of measurement will be prepared by the contractor in the approved form based upon these measurements.

2.3 Items for which Good-For-Construction GFC Drawing is not issued

- 2.3.1 For all such works, whose measurement cannot be calculated from any Good-For-Construction (GFC) drawing, all measurements will be taken by the contractor's authorized qualified Employer in the presence of the Employer's Representative at site. These measurements will be recorded on approved form of Record Measurement Sheet and signed jointly by contractor and Employer's Representative.
- 2.3.2 Contractor will ensure that a properly qualified Engineer is deputed for taking measurements and also that all the measurements taken are witnessed and signed by the Employer's Representative.
- 2.3.3 All measurements should be recorded at site on the Record of Measurement Sheet in the presence of the Employer's Representative.
- 2.3.4 Each Measurement Sheet should be signed by the contractor's Employer as well as by the witnessing Employer's Representative.
- 2.3.5 Based on the recorded measurement, the contractor shall prepare abstract of quantities in the approved format.

APPENDIX-03

QUALITY ASSURANCE

1. General

The contractor shall implement a Project Quality Management Plan specific to this work must be submitted within one month of award of contract.

APPENDIX-04**ORGANISATION CHART AND KEY POSITIONS**

The contractor shall provide details the following Manpower available with the tenderer:

Sl. No	DESIGNATION	QUALIFICATION	EXPERIENCE LEVEL (FOR SIMILAR WORKS)	MIN. NO. REQUIRED
1	Project Manager	Bachelor's Degree / Diploma in Civil Engineering	Minimum 10 years total experience with similar nature of work.	1
2	Site Engineer	Bachelor's Degree / Diploma in Civil Engineering	Minimum 5 year with Bachelor degree and 7 years with Diploma with similar nature of work.	2

NOTES:

1. The above are the minimum required for successful completion of the work, which shall be deployed as per requirement and as directed by the Employer and the decision of Employer in this regard shall be final and binding.
2. Deleted.
3. Contractor Shall deploy the Project Manager and Site Engineer as per the requirement of work to be completed within the timeline specified in Work order issued from time-to-time basis. The deployment of Key technical personnel will be based on the work front availability. No additional claims will be admissible, whatsoever, for idling of the key personnel
4. Deleted.
5. The performance of project personnel deployed will be evaluated periodically by the Employer during the contract period. In case the performance of any of the project personnel is not satisfactory, the contractor shall replace them with better or equivalent personnel immediately as per the directions of the Employer.
6. Non-deployment of the personnel or absence from duty may lead to imposition of Penalty as decided by the Employer.
7. The proposed personnel shall not be changed till the completion of the work, unless proposed by the Employer. Under emergent circumstances, in case they are required to be changed, the new incumbent should have similar or better experience and qualification than as required above. These changes are permitted only with the approval of the Employer. Change in key personnel for one time without penalty is permitted. However, for subsequent changes there will be Penalty at the discretion of the Employer, unless the change is desired by the Employer.

APPENDIX-05**PLANT AND EQUIPMENT**

1. All the plant and equipment required for execution of the work shall be provided by the contractor. The Contractor shall submit the details of plant & equipment to be deployed within 28 days of issue of LOA/Work order to the Employer for approval.
2. Depending on the requirement to complete the work in the stipulated completion period, the tenderer should deploy additional machinery as circumstances warrant at no extra cost.
3. Plant and equipment to be mobilized for the work shall be in good serviceable condition.
4. The contractor will be penalized as deemed fit by the Employer, in case of any shortage.

APPENDIX-06**OFFICE ACCOMMODATION, EQUIPMENT AND PERSONNEL****1 Accommodation:**

Deleted

2 Equipment for the use of Employer:

Deleted.

3 Documentation

Deleted.

4 Auto CAD Operator:

Deleted.

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K-RIDE

SECTION – 8B
TECHNICAL SPECIFICATIONS

Work shall be carried out as per the Technical Specifications of KPWD SOR 2023-24 or as per details provided in the relevant items, as applicable.

K-RIDE

SECTION - 8C

SAFETY, HEALTH AND ENVIRONMENT (SHE) MANUAL

SAFETY HEALTH & ENVIRONMENT (SHE) MANUAL

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Name of the Project: “RELOCATION, SHIFTING, AND DIVERSION OF BWSSB WATER AND SEWER LINES AT MOHAN KUMAR ROAD, JAYARAM COLONY SLUM, AND OTHER LOCATIONS ALONG CORRIDOR-2 (BENNIGANAHALLI TO CHIKKABANAVARA) OF BENGALURU SUBURBAN RAILWAY PROJECT INCLUDING COORDINATION WITH UTILITY STAKEHOLDERS FOR NECESSARY PERMISSIONS AND APPROVALS”

PART – I - SHE MANAGEMENT

1.0 GENERAL

1.1 SCOPE

- 1.1.1 This document defines the principal requirements of the Employer on Safety, Health and Environment (SHE) associated with the contractor / sub-contractor and any other agency to be practiced at construction worksites at all time

1.2 DEFINITION / LANGUAGES

1.3 DEFINITIONS AND ABBREVIATIONS

- a) Environment- The total surroundings of an organism including water, air and land and other living Creatures.
- b) Environmental Pollutant means any solid, liquid or gaseous substance present in such concentration as may be or tend to be injurious to environment.
- c) Environmental Pollution means the presence in the environment of any environmental pollutant.
- d) Nuisance is an annoyance, which results from any construction activity that affects the material comfort and quality of life of the inhabitants of the area surrounding the construction site.
- e) Monitoring is the use of direct or indirect reading field instrumentation to provide information regarding the levels of pollutants released during construction.
- f) Construction Site is the contract limits for construction. It shall be all the area within the limits of the work as shown on the Plans. Construction site shall also include staging, and debris disposal areas and transportation routes to and from these areas.
- g) Noise is any unwanted sound disturbance of the environment around the area of construction operations.
- h) Decibel is a measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power) with respect to a standardized reference quantity.
- i) A - weighted Noise levels in Decibels (referenced to 20 micro-Pascal) as measured with A-weighting network of standard sound level meter, abbreviated dB (A).
- j) Energy Equivalent Level (Leq) is the level of a steady noise which has the same energy as the fluctuating noise level integrated over the period of measurement. L max is the maximum Noise Level during the period of measurement.
- k) L10 and L90 is the percentile exceeding levels of sound which exceeds 10% and 90% of the time of measurement.
- l) Waste is unwanted surplus substances arising from the application of all construction operations and any substance or article which is required to be disposed.
- m) Suspended Particulate Matter is abbreviated as SPM and measured in $\mu\text{g}/\text{m}^3$.
- n) Environmental Quality Management Manual is abbreviated as EQM.
- o) Air Monitoring and Control Plan is abbreviated as AMCP.
- p) Noise Monitoring and Control Plan is abbreviated as NMCP.
- q) Ministry of Environment and Forests, Government of India is abbreviated as MOEF.

- r) Central Pollution Control Board, New Delhi is abbreviated as CPCB.
- s) Karnataka State Pollution Control Board as KSPCB:

1.3.1 In this document

- i. The use of 'shall' indicates a mandatory requirement.
- ii. The use of 'should' indicates a guideline that is strongly recommended.
- iii. The use of 'may' indicates a guideline that is to be considered.
- iv. 'SHE' means Safety, Health and Environment.
- v. Employer means Karnataka Rail Infrastructure Development Ltd., (K-RIDE).
- vi. Chief Safety Officer means an officer nominated by who is overall responsible for monitoring all SHE functions prescribed in this document.
- vii. BOCWA means Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996
- viii. BOCWR means Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998
- ix. DG means Director General of Ministry of Labour, Govt. of India.
- x. BOCWWCA means Building and Other Construction Workers' Welfare Cess Act, 1996
- xi. BOCWWCR means Building and Other Construction workers welfare Cess rules 1998
- xii. Building and other construction workers' (Regulation of Employment and Condition of service) Karnataka rules, 2006.
- xiii. Notifications (Central and state) - collection of cess. xiv) The Factories Act, 1948.

1.4 APPLICATION OF THIS DOCUMENT

- 1.4.1 This document applies to all aspects of the contractor's scope of work, including all aspects conducted by sub- contractors and all other agencies. There shall be no activity associated to the contract, which is exempted from the purview of this document.

1.5 PURPOSE OF THIS DOCUMENT

- 1.5.1 The objective of these guidelines is to ensure that adequate precautions are taken to avoid accidents, occupational illness and harmful effects on the environment during construction.
- 1.5.2 This document:
 - i) Describes the SHE interfaces between Employer and the Contractor.
 - ii) Details the processes by which the contractor shall manage SHE issues while carrying out the work under the contract.
 - iii) Describes by reference, the practices and procedures as given in the K-RIDE Project Safety, Health & Environment manual for best SHE performance.
- 1.5.3 These requirements shall be read together with K-RIDE Project SHE Manual, OHSAS 18001-1999 Occupational Health and Safety Management System and ISO 14001: 2004 Environmental Management Systems. Definition of key terms used in these requirements related to OHSAS 18001 and ISO 14001 standards are found in K- RIDE's Project SHE Manual.

2.0 'SHE' TARGETS AND GOALS

- 2.1 The SHE targets, goals and aim for the Works are to achieve:
- Zero total recordable injuries.
 - Zero reportable environmental incidents
 - All personnel inducted in accordance with the approved contractor SHE plan
 - Total compliance of conducting inspections and audits as per approved SHE plan
 - 100% incident recording and reporting
 - 100% adherence of usage of appropriate PPEs at work.
 - Executing construction work with least disturbance to the environment, adjoining road users and traffic.

3.0 COMPLIANCE

3.1 MEMORANDUM OF UNDERSTANDING (MOU)

- 3.1.1 A Memorandum of Understanding placed at Appendix No 1 shall be executed after the award of contract before commencement of work by the contractor with regard to various provisions on Safety, Health and Environment to be practiced during the construction work.

3.2 K-RIDE'S SHE POLICY AND MANAGEMENT SYSTEMS

- 3.2.1 The construction works shall be undertaken in accordance with K-RIDE's SHE Policy and Management Systems as amended from time to time provided in Project SHE Manual.

3.3 INDIAN STATUTORY REQUIREMENTS

- 3.3.1 Primary statutory regulations

- 3.3.1.1 Contractor shall develop thorough understanding about Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules 1998, the building & other construction workers welfare cess act 1996 and Building and Other Construction Workers welfare Cess rules 1998, Building and Other Construction Workers [Regulation of Employment & Conditions of Service] (Karnataka) Rules, 2006, Notification [Central & State] - Collection of Cess, not only to satisfy the Inspectors' perspective but the use of legislation as the strong tool for effective SHE management at construction worksites. Contractor is strongly advised to practice the principle of voluntary compliance.

- 3.3.1.2 In order to facilitate the contractor for better understanding on the various provisions of the above Act and Rules, a tabulated information highlighting the Sections/Rules referring to the corresponding registration of contractors, maintenance of registers and records, hours of work and wages, cess & welfare, medical facilities and safety requirements are given in Appendix No. 2. It is an indicative one and not a limiting list.

- 3.3.2 In addition, the construction works shall be undertaken in accordance with all applicable legislation and Indian statutory requirements as amended from time to time listed below but not limiting to:

- Electricity Act 2003 and Rules therein
- National Building Code of India, 2016
- Factories Act, 1948.
- Motor Vehicles Act 1988 and The Central Motor Vehicles Rules, 1989.
- Indian Road Congress Code IRC: SP: 55-2001 'Guidelines on Safety in Road Construction Zones.
- The Petroleum Act, 1934 and Rules therein

- vii. Gas Cylinder Rules, 2016
- viii. Indian Explosives Act. 1884, along with the Explosives Substance Act 1908 and the Explosives Rules 1983.
- ix. The (Indian) Boilers Act, 1923
- x. The Public Liability Insurance Act 1991 and Rules therein
- xi. Minimum Wages Act, 1948 and Rules therein
- xii. Contract Labor Act, 1970 and Rules therein
- xiii. Child and Adolescent Labour (Prohibitions & Regulations) Act, 1986 and Rules therein
- xiv. Environment Protection Act, 1986 and Rules therein
- xv. Environmental Impact Assessment Notification- 2006
- xvi. Notification for use of fly ash, 2017.
- xvii. National Green Tribunal Act, 2010
- xviii. Air (Prevention and control of Pollution) Act, 1981
- xix. Water (Prevention and Control of Pollution) Act, 1974
- xx. The Noise Pollution (Regulation & Control) Rules, 2000
- xxi. Notification on Control of Noise from Diesel Generator (DG) sets, 2002
- xxii. Recycled Plastic Usage Rules, 1998
- xxiii. Notification, Central Ground Water Board, Act January 1997
- xxiv. Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989
- xxv. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 along with the Rules and Regulations therein.
- xxvi. The Hazardous Waste (Management & Handling) Rules, 1989
- xxvii. Karnataka Preservation of Trees Act, 1976 & Rules therein, Batteries (Management and Handling) Rules, 2001
- xxviii. Fly ash utilization notification, Sept 1999 as amended in August 2003
- xxix. Guidelines of Karnataka Urban Arts Commission
- xxx. Mysore Tramway Act.
- xxxi. Workman Compensation Act, 1923 along with allied Rules
- xxxii. Indian Railway Manual of AC Traction Maintenance and Operation
- xxxiii. IRP Way Manual
- xxxiv. Code on Wages 2019, as and when notified by the Government.
- xxxv. Code on Social Security 2020, as and when notified by the Government.
- xxxvi. Industrial Relations Code, 2020, as and when notified by the Government.
- xxxvii. Occupational Health, Safety and Working conditions code, 2020, as and when notified by the Government.
- xxxviii. Government.

3.3.3 Employees Compensation Act, 1923 along with allied Rules

- 3.3.3.1 The Contractor shall ensure that all his Employees / Workmen are covered under 'Employees Compensation Act' and shall pay compensation to his workmen as and when the eventuality for the same arises.
- 3.3.4 Notwithstanding the above Act/Rules, there is nothing in those to exempt the contractor from the purview of any other Act or Rule in Republic of India for the safety of men and materials.
- 3.3.4.1 If the requirements stated in this document are less stringent than or in conflict with the country's applicable legislation, the latter shall apply.

3.4 International Standards, Guidelines & ISO Certifications

3.4.1 The works should be undertaken in accordance with the applicable international guidelines, standards and specifications on SHE and every contract shall aim to achieve ISO certifications listed below during the currency of the contract:

OHSAS 18001-1999: Occupational Health and Safety Management System. ISO 14001-2004: Environmental Management Systems.

3.4.2 The process of certification shall start immediately after the award of the work and complete within reasonable time. Towards this, the contractor shall undertake the required steps including appointment of ISO consultant for obtaining the certification on Occupational Health and Safety Management System and Environment Management System.

3.4.3 In case of failure on the part of the contractor, the Employer at the cost of the contractor shall do the same.

4.0 CONTRACTOR SHE POLICY AND PLAN

4.1 The contractor as per Section 39 of the BOCW Act shall formulate a SHE policy and get it approved by DG respectively and display it at conspicuous places at work sites in Kannada, Hind/ and other languages understood by the majority of construction workers.

4.2 Within 4 weeks of the notification of acceptance of the tender, the Contractor shall submit a detailed and comprehensive Contract specific SHE Plan. The SHE Plan shall include detailed policies, procedures and regulations which, when implemented, will ensure compliance of the contract provisions. The SHE Plan shall include the following but not be restricted to:

- i) A statement of the Contractor's policy, organization and arrangements for SHE
- ii) The name(s) and experience of person(s) within the Contractor's proposed management who shall be responsible for coordinating and monitoring the Contractor's SHE performance;
- iii) The number of SHE staff who shall be employed on the Works, their responsibilities, authority and line of communication with the proposed Contractor's agent;
- iv) A statement of the Contractor's policy and procedures for identifying and estimating hazards, and the measures for addressing the same;
- v) A list of SHE hazards anticipated for this Contract and sufficient information to demonstrate the Contractor's proposals for achieving effective and efficient health and safety procedures;
- vi) A description of the SHE training courses and emergency drills which shall be provided by the Contractor, with an outline of the syllabus to be followed;
- vii) Details of the safety equipment which shall be provided by the Contractor, including personal protective equipment;

- viii) A statement of the Contractor's policy and procedures for ensuring that Contractor's Equipment used on the Project Site are maintained in a safe condition and are operated in a safe manner;
 - ix) A statement of the Contractor's policy and procedures for ensuring that sub-contractors comply with the Contractor's safety plan;
 - x) A statement of the Contractor's disciplinary procedures with respect to SHE related matters, and
 - xi) A statement of the Contractor's procedure for reporting and investigating accidents, dangerous occurrences or occupational illnesses
- 4.3 The Contractor shall, from time to time and as necessary are required by the Employer to produce supplements to the SHE Plan such that it is at all times a detailed, comprehensive and contemporaneous statement by the Contractor of his site safety, industrial health and environment obligations, responsibilities, policies and procedures relating to work on Site. Any and all submissions of supplements to the SHE Plan shall be made to the Employer in accordance with the agreed procedures.
- 4.4 If at any time the SHE plan is, in the Employer's opinion, insufficient or requires revision or modification to ensure the security of the Works and the safety of all workmen upon and visitors to the Site, the Employer may instruct the Contractor to revise the SHE plan and the Contractor shall within 7 days submit the revised plan to the Employer for review.
- 4.5 Any omissions, inconsistencies and errors in the SHE Plan or the Employer's acceptance or rejection of the SHE Plan and/or supplements thereto shall be without prejudice to the Contractor's obligations with respect to site safety, industrial health and environment and shall not excuse any failure by the contractor to adopt proper and recognized safety practices throughout the execution of the Work.
- 4.6 The Contractor shall adhere to the SHE Plan and shall ensure, as far as practically possible, that all sub-contractors of all tiers require that contracting parties each have a copy of the Site SHE Plan and comply with its provisions.
- 4.7 The details of contents to be covered in the site SHE plans are given in Appendix No 3.

5.0 DESIGNER'S ROLE

5.1 DESIGNER'S ROLE IN SAFETY, HEALTH AND ENVIRONMENT

Designer's primary role includes to minimize the risk to health and safety of those who are going to construct, maintain, clean, repair, dismantle or demolish the structures and anyone else like adjoining road users/general public, who might be affected by the work.

5.2 General philosophy

- 5.2.1 When considering health and safety in designer's work, they shall be expected to do what is reasonable at the time the design is prepared. It may be possible for hazards, which cannot be addressed at the feasibility stage to be looked at during detailed design. In deciding what is reasonably practicable, the risk to health and safety produced by a feature of the design has to be weighed against the cost of excluding the feature. The overall design process does not need to be dominated by a concern to avoid all risks during the construction phase and maintenance. However, a judgement has to be made by weighing up one

consideration against another so the cost is counted not just in financial terms, but also those of fitness for purpose, aesthetics, buildability or environmental impact. By applying these principles, it may be possible to make decisions at the design stage, which will avoid or reduce risks during construction work. In many cases, the large number of design considerations will allow a number of equally valid design solutions. What is important is the approach to the solutions of design problems. This should involve a proper exercise of judgement, which takes account of health and safety issues.

5.3 Hierarchy of Risk Control

5.3.1 Designers shall need, so far as reasonably practicable, to avoid or reduce risks by applying a series of steps known as the hierarchy of risk control or principles of prevention and protection. The steps to be adopted shall include the following:

- i) consider if the hazard can be prevented from arising so that the risk can be avoided (e.g., alter the design to avoid the risk);
- ii) if this cannot be achieved, the risk should be combated at source (e.g., ensure the design details of items to be lifted include attachment points for lifting);
- iii) failing this, priority should be given to measures to control the risk that will protect all people;
- iv) only as a last resort should measures to control risk by means of personal protection be assumed (e.g., use of safety harnesses).

5.4 Duty to provide health and safety risks in the drawing itself

5.4.1 In case of situations where the designers have carried out the design work and concluded that there are risks, which are not reasonably practicable to avoid, detailed information shall be given about the health and safety risks, which remain. This information needs to be included with the design to alert others to the risks, which they cannot reasonably be expected to know. This is essential for the parties who have to use the design information.

5.4.2 If the designers' basic design assumptions affect health or safety, or health and safety risks are not obvious from the standard design document, the designer shall provide additional information. The information shall include a broad indication of the assumptions about the precautions for dealing with the risks. The information will need to be conveyed in a clear manner; it shall be included on drawings, in written specifications or outline method statements. The level of detail to be recorded will be determined by the nature of the hazards involved and the associated level of risk.

5.5 Employer's approval

5.5.1 Every structure like scaffold, false work, launching girder, earth retaining structures etc. shall have its design calculations included in the method statements in addition to health and safety risks. Employers' designer or his approved proof check consultants as applicable as per the contract conditions shall approve all these designs.

5.6 Any non-standard structures like trestles made up of re-bars or structures which are very old, corroded, repaired for many times etc. for which no design calculations can be made accurately from any national standards, shall not be allowed to be used at sites even for short duration.

5.7 If any of the above-mentioned clauses are not adhered penalty shall be imposed depending upon the gravity of the unsafe act and or condition

6.0 CONTRACTOR SHE ORGANIZATION

6.1 Education and Experience

6.1.1 The contractor shall appoint the required SHE personnel as prescribed in General Instruction K-RIDE/SHE/CEO/001 (enclosed at the end) based upon the statutory requirement and establish the safety organization based upon the contract value. The minimum educational qualification and the work experience are given in General Instruction K-RIDE/SHE/CEO/002

6.1.2 In order to effectively interact on labour welfare matters with the Employer and the statutory authorities enforcing the labour welfare legislations every contractor shall employ a full time Labour Welfare Officer duly qualified and experienced as per clause 6.1.1.

6.2 Conduct and Competency

6.2.1 The conduct and functioning of the contractor SHE personnel shall be monitored by the Employer. Any default or deficiency shall attract penalty as per details given under penalty clause 56.0 of this document.

6.2.2 The Contractor shall ensure that all personnel are competent to perform the job assigned to them. In the event that the Contractor is unable to demonstrate the competency of any person whose activities can directly impact on the Works' SHE performance, the Employer shall remove that person from the site without any procedural formalities.

6.3 Approval from Employer

6.3.1 The name, address, educational qualification, work experience and health condition of each personnel deployed for SHE jobs shall be submitted to the Employer in the format prescribed for the purpose for comments and approval well before the start of the work. Only on approval by the Employer these personnel are authorized to work. In case any of the SHE personnel leaves the contractor the same shall be intimated to the Employer. The contractor shall recruit new personnel and fill up the vacancy.

6.4 Responsibility of SHE personnel

6.4.1 For all works carried out by the contractor and his sub-contractors, the responsibility of ensuring the required SHE manpower lies with the main contractor only. The minimum required manpower indicated by the Employer includes the sub-contractors' work also. It shall be the responsibility of the main contractor to provide required SHE manpower for all the works executed by all contractors. Necessary conditions shall be included in all sub-contract documents executed by the main contractor.

6.5 Employment status of SHE personnel

6.5.1 No contractor shall engage SHE manpower from any outsourcing agencies in which case the effectiveness would be lost. All SHE manpower shall be on the payroll of the main contractor only and not on the payroll of any subcontractor or outsourcing manpower agencies etc. This condition does not apply to positions like traffic marshals who are engaged almost on a daily requirement basis.

6.6 Reporting of SHE personnel

6.6.1 All SHE personnel are to report to the Chief SHE Manager who shall report directly to the Chief Project Manager. The Employer shall monitor adherence to this procedure at all times. In case of non- adherence penalty shall be levied as indicated in the penalty clause.

6.7 Inadequate SHE personnel

6.7.1 In case if the contractor fails to provide the minimum required manpower as illustrated in General Instruction K-RIDE/SHE/CEO/001 or fail to fill up vacancies created within 14 days, the same shall be provided by the Employer at contractor's cost. Any administrative expenses involved, providing the same like paper advertisement or manpower consultant charges, etc. shall also be at the cost of contractor.

6.8 Prohibition of performance of other duties

6.8.1 As per Schedule VII/ of BOCWR no SHE personnel shall be required or permitted to do any work which is unconnected to, inconsistent with or detrimental to the performance of the SHE duties for respective category mentioned in General Information K-RIDE/SHE/CEO/001.

6.9 Facilities to be provided to SHE personnel

6.9.1 As per schedule VII/ of BOCWR, the contractor shall provide all SHE personnel with such facilities, equipment and information that are necessary to enable him to dispatch his duties effectively

6.9.2 The minimum Employer's requirements of such facilities / equipment's to be provided for SHE personnel are given in the General Instruction K-RIDE/SHE/CEO/003

7.0 CONTRACTOR SHE COMMITTEE

7.1 All employees should be able to participate in the making and monitoring of arrangements for safety, industrial health and environment at their place of work. The establishment of site SHE committees in which employees and Contractor and sub-contractor management are represented can increase the involvement and commitment of employees. The contractor shall ensure the formation and monitor the functioning of contractor SHE committees.

7.2 Terms of Reference

7.2.1 The Terms of Reference for the committee shall be as follows;

- i) To establish company safety policies and practices
- ii) To monitor the adequacy of the contractor's site SHE plan and ensure its implementation
- iii) To review SHE training
- iv) To review the contractor's monthly, SHE report.
- v) To identify probable causes of accident and unsafe practices in building or other construction work and to suggest remedial measures.
- vi) To stimulate interest of Employer and building workers in safety by organizing safety week, safety competition, talks and film-shows on safety, preparing posters or taking similar other measures as and when required or as necessary.

- vii) To go round the construction site with a view to check unsafe practices and detect unsafe conditions and to recommend remedial measures for their rectifications including first-aid medical and welfare facilities.
- viii) Committee team members should perform a site inspection before every committee meeting and to monitor SHE inspection reports.
- ix) To bring to the notice of the Employer the hazards associated with use, handling and maintenance of the equipment used during the course of building and other construction work
- x) To suggest measures for improving welfare amenities in the construction site and other miscellaneous aspect of safety, health and welfare in building or other construction work.
- xi) To look into the health hazards associated with handling different types of explosives, chemicals and other construction materials and to suggest remedial measures including personal protective equipment.
- xii) To review the last safety committee meeting minutes and to take action against persons/sub-contractors for non-compliance if any.

7.3 Within 14 days of award of contract, the SHE committee shall be constituted and notification regarding the same shall be communicated to the members and employees as per the format provided in Form No 5001

7.4 Site SHE Committee meeting shall be conducted at least once in a month with the minimum members listed below:

Chairman	Project Manager
Secretary	SHE Manager (In-charge)
Members	Labour Welfare Officer In charge of plant and machinery In charge of site electrics In charge of stores Senior Managers/ Engineers heading different sub functions Sub - contractor's representative Labour Contractor's representative Workers' representative Co-contractor representative SHE staffs
Employer's Representatives	K-RIDE SHE in charge and other representatives

7.5 Construction SHE Committee meeting shall be conducted at least once in a week with the minimum members listed below:

Chairman	Project Manager
Secretary	SHE Manager (In-charge)
Members	i. Labour Welfare Officer ii. In charge of plant and machinery iii. In-charge of site electricity iv. Senior Managers / Engineers heading different sub functions v. Sub- Contractor's representative vi. Labour contractor's representative vii. Workers' representatives viii. All SHE Staffs

7.6 Co-contractors' participation

7.6.1 In case of depot, station and other contiguous areas where more than one main contractors are working together, the Employer shall instruct the other contractors to join for the monthly SHE committee meeting of the main civil contractor, so as to discuss and decide about the common provision of security, lighting, toilet, drinking water etc. and sharing the maintenance cost of the same etc.

7.6.2 The general principle for sharing the cost shall be either based on the contract value of works executed at the contiguous area or the daily average number of workmen employed by each contractor in the contiguous area.

7.7 Minimum time between two monthly SHE Committee meetings

7.7.1 A minimum period of 21 days shall be maintained between any two SHE monthly committee meetings.

7.8 Agenda

7.8.1 The Secretary shall circulate the agenda of the meeting at least seven working days in advance of the scheduled date of the meeting to all members.

7.8.2 The agenda should broadly cover the following:

- i) Confirmation of minutes
- ii) Chairman's review/overview of site SHE performance / condition
- iii) Previous month SHE statistics
- iv) Incident and Accident Investigation / dangerous occurrence / near miss report
- v) Site SHE inspection
- vi) Sub-contractors' SHE issues
- i) Safety presentation by Members
- ii) Report from Employer
- viii) Matters arising
- ix) Any other business

7.9 Minutes of the meeting

7.9.1 The Minutes of the meeting shall be prepared as per the format provided at Form No SF 002 and sent to all members within 2 working days preferably by mail/fax followed by hardcopy. Safety Committee meeting minutes shall also be displayed in the notice board for wider publicity to all concerned.

7.10 Disciplinary Action

7.10.1 The chairman shall inform the members of any outstanding issues in the meeting and in case of repeated offence/ non-compliance by some members or other co/sub-contractors and propose suitable disciplinary action including provisions of monetary penalty as per the relevant contract clauses, the Employer shall ensure that the same is implemented.

8.0 ID CARD AND FIRST DAY AT WORK, SHE ORIENTATION TRAINING

- 8.1 The Contractor shall ensure that all personnel working at the site receive an induction SHE training explaining the nature of the work, the hazards that may be encountered during the site work and the particular hazards attached to their own function within the operation. The training shall cover the contents as given in the General Instruction K-RIDE/SHE/CEO/004.
- 8.2 All personnel shall be issued a photo identity card of size 85mm x 55mm duly signed by the authorized representative of the contractor before they are engaged for any work as per the format given in the General Instruction K-RIDE/SHE/CEO/005
- 8.3 Contractor shall also issue personnel SHE handbook in a language known to the workers, which provides information on SHE and emergency procedures that all personnel working on contract are required to know and the need to follow. Contractor shall ensure that this is distributed and its content introduced to all personnel working at the site.

9.0 SITE TRAINING

- 9.1 The behavior of people at all levels of the contractor is critical for SHE performance.
- 9.2 The contractor shall organize quality SHE training to engage Managers, supervisors and other personnel in behavioral change and improve safety performance.
- 9.3 The Contractor shall analyze the training requirements for all the employees and initiate a training program to demonstrate that all persons employed, including subcontractors, are suitably qualified, competent and fit. This will include:
- i) Detailed Job descriptions for all personnel, to include their specific SHE responsibilities
 - ii) Specification of qualifications, competency and training requirements for all personnel
 - iii) Assessment and recording of training needs for all personnel, including subcontractors' employees in the workforce, vendor representatives and site visitors
 - iv) A system for assessing new hirers e.g. previous training
 - v) A means of confirming that the system is effective
 - vi) A matrix and schedule of training requirements, covering general, task-specific and SHE- related training, showing the training frequency and interval between refresher courses
 - vii) Timely, competent delivery of training courses
- 9.4 The contractor shall arrange behavioral-based training programs for all the executives to identify recognize and eliminate unsafe act and unsafe conditions.
- 9.5 The minimum Employer's requirement of training needs for various categories of employees are given in general instruction K-RIDE/SHE/CEO/006
- 9.6 The contents of SHE training to Managers/Supervisors as given in general instruction K-RIDE/SHE/CEO/007 shall be conducted.
- 9.7 The refresher-training program to all employees shall be conducted once in six months.

- 9.8 Toolbox talk as given in the Employer's Project SHE manual shall be conducted to all high-risk workmen every day.
- 9.9 On-the spot practical skill development training on height safety including scaffold safety, crane safety, welding safety, electrical safety, traffic safety for marshals shall also be conducted to all foremen/ workmen who were associated to the concerned jobs.
- 9.10 Every employee including workman shall take safety Oath daily without fail.
- 9.11 All vehicle drivers including heavy vehicle operators shall be trained on defensive driving at Central Training Institute KSRTC, Shanthinagar Bangalore, or any other driving institute registered under Motor Vehicles Act.
- 9.12 All the above listed training programs except at clause 9.11 shall be organized by the contractor only after taking approval from the Employer for the training faculty / organization, content and durations.
- 9.13 In case of failure on the part of the contractor to provide all the above-mentioned training programs to all employees in time, the same shall be provided by the Employer through accredited agencies if required by formulating a common scheme to all contractors. Any administrative expenses and training fee towards the same shall be at the cost of the contractor.

10.0 SHE INSPECTION

- 10.1 The contractor shall evolve and administer a system of conducting SHE inspections and other risk management analysis on a periodical basis.
- 10.2 The purpose of SHE inspection is to identify any variation in construction activities and operations, machineries, plant and equipment and processes against the SHE Plan and its supplementary procedures and programs.
- 10.3 Following SHE inspections program shall be adopted.
- Planned General Inspection
 - Routine Inspection
 - Specific Inspection
 - Other Inspection
- 10.3.1 Planned General Inspection
- 10.3.1.1 Planned general inspections are performed at predetermined intervals and it usually involves the representation from both Contractor and the Employer.
- 10.3.1.2 Inspections that will be classified under this inspection program are:
- Monthly contractor and sub-contractors site safety committee Inspection.
 - Weekly safety inspection by construction supervisors (Contractors and Sub-contractors).
 - Daily safety inspection by contractor site SHE team.
- 10.3.2 Routine Inspection

- 10.3.2.1 Routine inspections are often referring to the inspection of work site, equipment and temporary structures performed by site and equipment operators and temporary structure erectors.

Inspections that will be classified under this inspection program are:

- i) Daily Inspection of plant and equipment by operator
- ii) Weekly Inspection of scaffold by scaffolding supervisor
- iii) Monthly Inspection of electrical hand tools by competent electrical supervisor
- iv) Quarterly Inspection of temporary electrical systems by competent electrical supervisor
- v) Half-yearly inspection of lifting machinery, lifting appliances, equipment and gears by Govt. approved competent person.

- 10.3.2.2 The list mentioned above is not exhaustive. Contractor may add additional categories. Contractors' Site SHE Manager will ensure that a system of routine inspections is carried out periodically to all plants, equipment, powered tools and any other temporary structures that will pose a hazard to operators and workmen.

10.3.3 Specific Inspection

- 10.3.3.1 Specific inspections are performed on activities without a predetermined date. Competent supervisors usually perform inspections for ensuring an activity whether it is executed in accordance to a general set of rules; method statement submitted or developed procedures.

The following are examples that will be commonly performed as required on the construction site:

- i) Inspection performed before a heavy lifting operation.
- ii) Inspection performed before and after the entry of person into a confined space.
- ii) Inspection performed before and after a welding and gas cutting operation.
- iii) Inspection of formwork before concreting by formwork erector.

The list mentioned above is not exhaustive. The contractor shall ensure that a competent supervisor inspects all high-risk processes and activities.

10.3.4 Other Inspection

Other inspections include the following:

- i) Mandatory Inspections by Labour Department of Government.
- ii) K-RIDE site SHE management team

- 10.3.5 The contractor shall prepare all required safety inspection checklist for all activity operations and equipment. Checklists will be prepared based on the Indian standards, rules and regulations and Employer's requirements. The formats provided in the Project SHE manual may be referred.

- 10.3.6 All inspection records and reports will be properly kept and filed for audit purpose. Inspection reports of Planned General Inspection and Routine Inspection will be used for discussion during Safety Committee Meetings.

11.0 SHE AUDIT

11.1 General

11.1.1 The purpose and scope of SHE audit is to assess potential risk, liabilities and the degree of compliance of construction Safety, Health and Environmental plan and its supplementary procedures and programs against applicable and current SHE legalization regulations and requirements of the employer.

11.1.2 Project Manager holds the ultimate responsibility in ensuring implementation of SHE audit program during the construction work.

11.2 Monthly Audit Rating Score (M A R S)

11.2.1 Monthly Audit Rating Score (MARS) will be performed once in a month. A team consisting of Project manager and Employer representative based on the pre-designed score-rating format will conduct it. The details of the pre-designed monthly audit score rating formats are given in the Project SHE manual.

11.2.2 This Monthly SHE Audit Rating Score (MARS) report will enable the Employer to evaluate the general compliance by the Contractor with the Conditions of Contract, the Employer's Project SHE Manual and the Contractor's site specific SHE Plan.

11.2.3 Monthly Audits will be conducted in accordance with K-RIDE Guidelines. The Project Manager accompanied by the Employer's representatives shall carry out the Audit. The Contractor's senior manager and SHE in-charge should also be invited to attend.

11.2.4 Timing

The Monthly Audit Rating Score (MARS) should be conducted at least 7 days prior to the scheduled date of Monthly SHE Committee meeting.

11.2.5 Evaluation

11.2.5.1 The numerical scoring has been weighed on a 1-10 scale. The audit team will use their observations noted in evaluating the points to be awarded against each of the elements of the audited section. Wherever some topics and sub-topics are not applicable the score rating need not be given. The overall audit ratings shall be achieved by:

$$\text{Overall Audit rating} = \frac{\text{Actual Score Achieved}}{\text{Maximum Possible Score}} \times 100$$

11.2.5.2 The criticality of the required actions for the respective sections of the Audit will be classified as:

No	Score	Description	Action
1	< 60%	Immediate	Require Contractor to rectify within 24 hours
2	< 75%	Improvement Necessary	Contractor rectification within 7 days and confirmed in writing to Employer
		Improvement	

3	< 90%	Desirable	Contractor rectification within one month and
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11.2.6 Report

A copy of each Audit Report will be sent to Employer and to all subcontractors, with whom it will then be discussed in detail at the Monthly SHE Committee Meeting in order to ensure that any corrective actions are agreed upon.

11.3 Monthly Electrical Safety Audit

11.3.1 A team comprising of contractor's senior SHE (Electrical) engineer and Employer's representative shall conduct monthly electrical safety audit covering the following and submit the report to Employer.

- i) Electrical accidents investigation findings and remedy
- ii) Adequacy of power generation and power requirements
- iii) Power distribution and transmission system in place
- iv) Updated electrical single line diagram showing the current condition of power source and distribution including the IP44 DBs arrangement.
- v) Electrical protection devices - selection, installation and maintenance.
- vi) Earth or ground connection and earth pit maintenance details
- vi) Education and training of electrical personnel undertaken
- vii) Routine electrical inspection details
- ix) Electrical maintenance system and register.
- x) Name plate details of major electrical equipment
- xi) Classified zones in the site, if any.

11.4 External SHE audits

11.4.1 External SHE audits are to be conducted by external agencies that are competent with ISO qualified auditors with the prior approval of the Employer.

11.4.2 Areas of competence of Audit team

11.4.2.1 Practical understanding of BOCW Act and Rules, statutory requirements on health/medical and welfare of workmen, construction hazards and its prevention and control, traffic management, electrical safety, rigging, safety of construction equipment and environment management.

11.4.2.2 Audit shall be conducted as per the guidelines of ISO, ILO, and national standards. Audit report shall also be presented as per the above formats.

11.4.3 External SHE audit shall be conducted on a quarterly basis throughout the currency of the contract.

11.4.4 Targets of SHE Audit:

The contents and coverage of the external audit shall include the following items

11.4.4.1 SHE management

- i) Organization

- ii) Communication and Motivation
- iii) Time office
- iv) Inspection
- v) Emergency preparedness
- vi) Budget allocation
- vii) Education and Training
- viii) Work permit system

11.4.4.2 Technical

- i. Building and Structure
- ii. Construction operational safety
- iii. Material safety
- iv. Hand tools and Power tools
- v. Electrical system
- vi. Safety Appliances
- vii. Fire prevention and control
- viii. Housekeeping
- ix. Maintenance and Machinery safety
- x. First-aid and Medical Facilities
- xi. Welfare measures
- xii. Environmental Management

11.4.5 Audit Documents

11.4.5.1 Contractor shall make the below listed documents available for the review by the Audit team.

- i. SHE policy
- ii. SHE manual
- iii. SHE Rules and Regulation
- iv. SHE organization chart
- v. Annual SHE objectives / programs
- vi. Accident / near miss statistics and analysis
- vii. SHE Training program / records for all personnel
- viii. Operating manuals and maintenance manual of all equipment's
- ix. Safe worthiness certificates of all lifting appliances and gears
- x. Medical fitness record for all personnel
- xi. Risk identification, assessment and control details
- xii. Environmental management reports
- xiii. Emergency management records including mock drill

11.4.6 Audit Preparation

- i. Audit team members are required to gather information by observations through interviews and by checks of hardware and documentation.
- ii. Audit team shall prepare checklist to cover all parts based on SHE legislations rules and regulations and K-RIDE requirements.
- iii. Audit team members shall verify the facts and findings leading to the identified gaps and weakness.
- iv. Audit leader has overall responsibility for reaching a conclusion.

11.4.7 Reporting

11.4.7.1 Audit report shall be prepared and directly sent to the Employer within 7 days of conducting the audit with a copy to the contractor.

11.4.8 Report contents

- i. Executing summary - based on the finalized checklists as written the findings to the Employer by the audit team members, the audit leader will compile a concise and accurate summary of observations and findings.
- ii. Introduction - this will contain basic information regarding the facilities or organization audited, the specific audit dates (inclusion of those for preparation and post-audit activities).
- iii. Principal positive findings - This will contain the summary of positive aspects as observed by the auditors. It will also contain highlights of those issue, which may warrant dissemination as best practice regarding methodology used or achievement.
- iv. Audit Findings - All audit findings as detailed in the audit checklists shall be grouped together as priority 1 and 2 as detailed below in a separate listing.
 - a. Priority 1: Actions to rectify gaps or weakness should generally be implemented within 2 - weeks, if risk potential is high or unacceptable.
 - b. Priority 2: Actions should be generally implemented or rectified with a maximum of 3 - 4 weeks, if not rectified would create a likelihood of minor injury or business loss.

11.4.9 Conformity Report & Action by Employer

11.4.9.1 The auditor shall inspect the site after 14 days of conducting initial audit for checking the adequacy of implementation of items maintained under priority 1 by the contractor and shall submit a conformity / non-conformity report to the Employer with a copy to the contractor.

11.4.9.2 The auditor shall again inspect after 28 days of conducting initial audit for checking the adequacy of implementation of items mentioned under priority 2 by the contractor and shall submit a conformity / non-conformity report to the Employer with a copy to the contractor.

11.4.9.3 In case of non-conformity of items mentioned by auditor, the Employer shall take necessary steps including stoppage of work and or imposing any penalty for getting the item implemented.

11.4.10 Failure of contractor to conduct External SHE Audit

11.4.10.1 If the contractor fails to conduct the external SHE audit in time, the Employer at the cost of contractor shall get it done.

12.0 SHE COMMUNICATION

12.1 The contractor shall take every effort to communicate the Safety, Occupational health and Environment management measures through posters campaigns / billboards / banners / glow signs being displayed around the work site as part of the effort to rise safety awareness amongst the work force. Posters should be in Hindi, English and other suitable language deemed appropriate. Posters / billboards / banners / glow signs should be changed at least once in a month to maintain the impact.

- 12.2 The list indicated are the minimum requirements of the Employer and the contractor is encouraged to further the SHE communication activities by formulating suitable reward schemes for safety performers and any other activities, which deem fit for the purpose.

13.0 SHE SUBMITTALS TO THE EMPLOYER

- 13.1 The contractor's SHE management should send the following reports to the Employer periodically:

- i. Daily Reporting of total no of workmen (as given in Clause 13.2)
- ii. Monthly SHE Report (as given in Clause 13.3)
- iii. SHE Committee Meeting Minutes (as given in Clause 7.9.1)
- iv. SHE Inspection Reports
- v. SHE Audit Reports
 - a. Monthly Audit Rating Score (MARS) report
 - b. External SHE Audit
 - c. Electrical Safety Audit
- vii) Air and Noise Quality monitoring report

- 13.2 Daily Reporting of total number of workmen

- 13.2.1 The contractor shall report to the Employer the total number of workmen engaged by all including any subcontractor within 2 hours of starting of any shift in any day. This reporting shall be the primary duty of the Chief SHE Manager of the contractor and reporting shall be through tele-fax / email. The onus of checking the receipt of the same by the Employer lies with the contractor. If the information is not received or received more than 2 hours after starting of the shift, penalty shall be levied as per relevant clause.

- 13.3 Monthly SHE Report

- 13.3.1 The contractor shall prepare a monthly SHE report consisting of the following and submit 3 copies within 7th of next month to the Employer as specified in the Project SHE manual.

- i) Monthly man-hour details as specified in the Project SHE manual
- ii) Monthly accident / incident details as specified in the Project SHE manual
- iii) SHE committee details
- iv) Details of SHE training conducted in the month
- v) SHE Inspection
- vi) SHE internal audit details like electrical audit etc.
- vii) SHE Communication activities under taken in the month indicating the number of posters displayed and balance availability in stock.
- viii) Air quality / Noise monitoring details
- ix) Toolbox talks details
- x) PPE details: Quantity purchased, issued to the workmen and stock available.
- xi) Details on IP 44 panel boards, lighting poles, welding and cutting equipment's, Ladders, Hoists, tools & tackles.
- xii) Monthly Lux meter study results
- xiii) Housekeeping
- xiv) Barricade maintenance details
- xv) No of critical excavations

- xvi) Health & Welfare activities
- xvii) Safety walk conducted by Contractors' Project Manager in the month
- xviii) SHE Activities Planned for next month

14.0 ACCIDENT REPORTING AND INVESTIGATION

14.1 Reporting to Employer

14.1.1 All accidents and dangerous occurrences shall immediately be informed verbally to the Employer. This will enable the Employer to reach to the scene of accident / dangerous occurrences to monitor/assist any rescue work and/or start conducting the investigation process so that the evidences are not lost.

14.1.2 Reports of all accidents (fatal / injury) and dangerous occurrences shall also be sent within 24 hours as per format provided in the Employer's Project SHE manual.

14.1.3 No accident / dangerous occurrences are exempted from reporting to the Employer.

14.1.4 Any willful delay in verbal and written reporting to the Employer shall be penalized as per relevant clause.

14.2 Reporting to Govt. organizations

14.2.1 In addition to the above verbal and written reporting to the Employer, as per Rule 210 of BOCWR, notice of any accident to a worker at the building or construction site that:

- a. causes loss of life; or
- b. disables a worker from working for a period of 48 hours or more immediately following the accident;
- c. shall forthwith be sent by telegram, telephone, fax, or similar other means including special messenger within four hours in case of fatal accidents and 72 hours in case of other accidents, to:

- i. the Regional Labor Commissioner, wherein the contractor has registered the firm/work
- ii. the board with which the worker involved was registered as a beneficiary;
- iii. Director General and
- iv. the next of kin or other relative of the worker involved in the accident;

14.2.2 Further, notice of accident shall be sent in respect of an accident which

- a. causes loss of life; or
- b. disables the injured worker from work for more than 10 days to

- i. the officer-in-charge of the nearest police station;
- ii. the District Magistrate or, if the District Magistrate by order so desires, to
- iii. the Sub-Divisional Magistrate

14.2.3 In case of an accident-causing minor injury, first-aid shall be administered and the injured worker shall be immediately transferred to a hospital or other place for medical treatment.

14.2.4 Where any accident-causing disablement that subsequently results in death, notice in writing of such death, shall be sent to the authorities mentioned in clause 14.2.1 and 14.2.2 above within 72 hours of such death.

14.2.5 Reporting of dangerous occurrences:

14.2.5.1 The following classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker, namely:

- a. collapse or failure of lifting appliances, or hoist, or conveyors, or similar equipment for handling of building or construction material or breakage or failure of rope, chain or loose gears; or overturning of cranes used in construction work;

- b. falling of objects from height;
 - c. collapse or subsidence of soil, tunnel, pipe lines, any wall, floor, gallery, roof or any other part of any structure, launching girder, platform, staging, scaffolding or means of access including formwork;
 - d. explosion of receiver or vessel used for storage of pressure greater than atmospheric pressure, of any gas or gases or any liquid or solid used as building material;
 - e. fire and explosion causing damage to any place on construction site where building workers are employed;
 - f. spillage or leakage of any hazardous substance and damage to their container;
 - g. collapse, capsizing, toppling or collision of transport equipment;
 - h. leakage or release of harmful toxic gases at the construction site;
- 14.2.6 In case of failure of launching girder, lifting appliance, loose gear, hoist or building and other construction work, machinery and transport equipment at a construction site, such appliances, gear, hoist, machinery or equipment and the site of such occurrence shall, as far as practicable, be kept undisturbed until inspected by the Authorities;
- 14.2.7 Every notice given for fatal accidents or dangerous occurrences shall be followed by a written report to the concerned Authorities under Section 39 of BOCWA and the Director General in the specified Form XIV of BOCWR.
- 14.3 Accident investigation
 - 14.3.1 General
 - 14.3.1.1 Investigations should be conducted in an open and positive atmosphere that encourages the witnesses to talk freely. The primary objective is to ascertain the facts with a view to prevent future and possibly more serious occurrences.
 - 14.3.1.2 Accidents and Dangerous Occurrences which result in death, serious injury or serious damage must be investigated by the Contractor immediately to find out the cause of the accident/occurrence so that measures can be formulated to prevent any recurrence.
 - 14.3.1.3 Near misses and minor accidents should also be investigated by the Contractor as soon as possible as they are signals that there are inadequacies in the safety management system.
 - 14.3.2 Procedure of Incident Investigation
 - 14.3.2.1 It is important after any accident or dangerous occurrence that information relating to the incident is gathered in an organized way. The following steps shall be followed:
 - a. Take photographs and make sketches
 - b. Examine involved equipment, workplace or material and the environmental conditions
 - c. Interview the injured, eye-witnesses and other involved parties
 - d. Consult expert opinion where necessary
 - e. Identify the specific contractor or sub-contractor involved.
 - 14.3.2.2 Having gathered information; it is then necessary to make an analysis of incident
 - a. Establish the chain of events leading to the accident or incident
 - b. Find out at what stage the accident took place

- c. Consider all possible causes and the interaction of different factors that led up to the accident and identify the most probable cause. The cause of an accident should never be classified as carelessness. The specific act or omission that caused the accident must be identified.

14.3.2.3 The next stage is to proceed with the follow-up action

- a. Report on the findings and conclusions
- b. Formulate preventive measures to avoid recurrence
- c. Publicize the findings and the remedial actions taken

14.4 Employers' independent incident investigation

14.4.1 In case of fatal / dangerous occurrence the Employer shall also conduct independent investigation. Contractor and his staff shall extend necessary co-operation and testify about the accident.

14.4.2 The contractor shall take every effort to preserve the scene of accident till the Employer completes the investigation.

14.4.3 All persons summoned by the Employer in connection to witness recording shall obey the instructions without delay. Any willful suppression of information by any person shall be removed from the site immediately and / or punishable as per relevant penalty clause.

15.0 EMERGENCY PREPAREDNESS PLAN

15.1 The Contractor shall prepare as required under Rule 36 of BOCWR, an Emergency Response Plan for all work sites as a part of the Contractor SHE Plan. The plan shall integrate the emergency response plans of the Contractor and all other subcontractors. The Emergency Response Plan shall be submitted for approval to the Director General. It shall detail the Contractor's procedures, including detailed communications arrangements, for dealing with all emergencies that could affect the Site. This includes where applicable, injury, sickness, evacuation, fire, chemical spillage, severe weather and rescue.

15.2 The contractor shall ensure that an Emergency Response Plan is prepared to deal with emergencies arising out of:

- i. Fire and explosion
- ii. Collapse of lifting appliances and transport equipment
- iii. Collapse of building, sheds or structure etc.
- iv. Gas leakage or spillage of dangerous goods or chemicals
- v. Bomb threatening, Criminal or Terrorist attack
- vi. Drowning of workers
- vii. Landslides getting workers buried floods, Earthquake, storms and other natural calamities.

15.3 Arrangements shall be made for emergency medical treatment and evacuation of the victim in the event of an accident or dangerous incident occurring, the chain of command and the responsible persons of the contractor with their telephone numbers and addresses for quick communication shall be adequately publicized and conspicuously displayed in the workplace.

15.4 Contractors shall require to tie-up with the hospitals and fire stations located in the neighborhood for attending to the casualties promptly and emergency vehicle kept on standby duty during the working hours for the purpose.

- 15.5 Contractor shall conduct an onsite emergency mock drill once in every month for all his workers and his subcontractor's workers.
- 15.6 It shall be the responsibility of the contractor to keep the Local Law & Order Authorities informed and seek urgent help, as the case may be, so as to mitigate the consequences of an emergency. Prompt communication to K-RIDE, telephonically initially and followed by a written report, shall be made by the contractor.
- 16.0 EXPERTS/AGENCIES FOR SHE SERVICES**
- 16.1 Contractors may utilize the services of experts/agencies empaneled under Rule 250 of BOCWR for the purpose of training, internal audit and any other SHE services with prior approval of the Employer.
- 16.2 As an aide to contractors, a list of experts/agencies and the offered service are given in General Instruction K-RIDE/SHE/CEO/010 for ready reference. In addition to it if the contractor would like to use any expert/agencies' services for any SHE activities the same can also be allowed provided that they are competent and meet to the general requirements of Employer. In every case prior approval of the Employer is mandatory.

PART - II - SAFETY

17.0 Housekeeping

- 17.1 Housekeeping is the act of keeping the working environment cleared of all unnecessary waste, thereby providing a first-line of defense against accidents and injuries.
- 17.2 Contractor shall understand and accept that improper housekeeping is the primary hazard in any construction site and ensure that a high degree of housekeeping is always maintained. Indeed "Cleanliness is indeed next to Godliness"
- 17.3 Housekeeping is the responsibility of all site personnel, and line management commitment shall be demonstrated by the continued efforts of supervising staff towards this activity.
- 17.4 General Housekeeping shall be carried out by the contractor and ensured at all times at Work Site, Construction Depot, Batching Plant, Labour Camp, Stores, Offices and toilets/urinals. Towards this the Contractor shall constitute a special group of housekeeping personnel as per General Instruction K-RIDE/SHE/CEO/001. This group shall ensure daily cleaning at work sites and surrounding areas and maintain a register as per the approved format by the Employer.
- 17.5 Adequate time shall be assigned to ensure that good housekeeping is maintained. Team of housekeeping squad shall carry out this.
- 17.6 The contractor shall be responsible to provide segregated containers for disposal of debris at required places and regular cleaning of the same.
- 17.7 Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the surrounding area from excavated soil, rubbish etc., which may cause inconvenience to and endanger the public. The barricade especially those exposed to public shall be aesthetically maintained by regular cleaning and painting as directed by the Employer. These shall be maintained in one line and level.
- 17.8 The structure dimension of the barricade, material and composition, its colour scheme, K-RIDE logo and other details shall be in accordance with specifications laid down in tender document.
- 17.9 All stairways, passageways and gangways shall be maintained without any blockages or obstructions. All emergency exits passageways, exits fire doors, break-glass alarm points, firefighting equipment, first aid stations, and other emergency stations shall be kept clean, unobstructed and in good working order.
- 17.10 Lumber with protruding nails shall be bent or removed and properly stacked.
- 17.11 All surplus earth and debris are removed/disposed of from the working areas to officially designated dumpsites. Trucks carrying sand, earth and any pulverized materials etc. in order to avoid dust or odor impact shall be covered while moving.
- The tires of the trucks leaving the site shall be cleaned with water, wherever the possibility of spillage on carriageways meant for regular road traffic exists.
- 17.12 No parking of trucks/trolleys, cranes and trailers etc. shall be allowed on roads, which may obstruct the traffic movement.

- 17.13 Roads shall be kept clear and materials like: pipes, steel, sand boulders, concrete, chips and brick etc. shall not be allowed on the roads to obstruct free movement of road traffic.
- 17.14 Water logging or bentonite spillage on roads shall not be allowed. If bentonite spillage is observed on road endangering the safety of road users, the contractor shall be penalized as per relevant clause.
- 17.15 Proper and safe stacking of material are of paramount importance at yards, stores and such locations where material would be unloaded for future use. The storage area shall be well laid out with easy access and material stored / stacked in an orderly and safe manner.
- 17.16 Flammable chemicals / compressed gas cylinders shall be safely stored.
- 17.17 Unused/surplus cables, steel items and steel scrap lying scattered at different places within the working areas shall be removed to identified locations(s).
- 17.18 All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from work place to identified location(s).
- 17.19 Empty cement bags and other packaging material shall be properly stacked and removed.
- 17.20 The Contractor shall ensure that all his sub-contractors maintain the site reasonably clean through provisions related to house keeping

18.0 WORKING AT HEIGHT

18.1 Definitions

- 18.1.1 "Access" and "egress" include ascent and descent.
- 18.1.2 "Fragile surface" means a surface, which would be able to fail if any reasonably foreseeable loading were to be applied to it.
- 18.1.3 "Line" includes rope, chain or webbing
- 18.1.4 "Personal fall protection" means -
- a fall prevention, work restraint, work positioning, fall arrest or rescue system, other than a system in which the only safeguards are collective safeguards; or
 - Rope access and positioning techniques;
- 18.1.5 "Work at height" means -
- Work in any place, including a place at or below ground level;
 - Obtaining access to or egress from such place while at work, except by a staircase in a permanent workplace,
- Where, if protective measures were not taken, a person could fall a distance liable to cause personal injury;
- 18.1.6 "Work equipment" means any machinery, appliance, apparatus, tool or installation for use at work (whether exclusively or not) and includes
- A guard-rail, toe-board, barrier or similar collective means of protection
 - A working platform

- c. A net, airbag or other collective safe guard for arresting falls.
- d. Personal fall protection system
- e. Ladders

18.1.7 "Working platform"

- a. means any platform used as a place of work or as a means of access to or egress from a place of work;
- b. Includes any scaffold, suspended scaffold, cradle, mobile platforms, trestle, gangway, gantry and stairway which is so used

18.2 Organization and planning

The contractor shall ensure that work at height is

- i) properly planned for any emergencies and rescue
- ii) appropriately supervised; and
- iii) Carried out in a manner, which is reasonably practicable safe.

18.3 The contractor shall ensure that work at height is carried out only when the weather conditions do not jeopardize the health or safety of persons involved in the work.

18.4 Competence

The contractor shall ensure that no person engages in any activity, including organization, planning and supervision, in relation to work at height or work equipment for use in such work unless he is competent to do so or, if being trained, is being supervised by a competent person.

18.5 Avoidance of risks from work at height

The contractor shall ensure that work is not carried out at height where it is reasonably practicable to carry out the work safely otherwise than at height.

18.6 Where work is carried out at height, the contractor shall take suitable and sufficient measures as given below to prevent, so far as is reasonably practicable, any person falling a distance liable to cause personal injury.

- a) His ensuring that the work is carried out
 - i. from an existing place of work; or
 - ii. (in the case of obtaining access or egress) using an existing means, complying to the requirements as given in clause 18.15.

Where it is reasonably practicable to carry it out safely and under appropriate ergonomic conditions; and

- b) where it is not reasonably practicable for the work to be carried out in accordance with subparagraph (a), his providing sufficient work equipment for preventing, so far as is reasonably practicable, a fall occurring.

18.7 Where the measures taken under clause 18.6 do not eliminate the risk of a fall occurring, every contractor shall

- a) so far as is reasonably practicable, provide sufficient work equipment to minimize –
 - i) the distance and consequences; or
 - ii) where it is not reasonably practicable to minimize the distance, the consequences, of a fall; and

- b) Without prejudice to the generality of clause **18.4** provide such additional training and instruction or take other additional suitable and sufficient measures to prevent, so far as is reasonably practicable, any person falling a distance liable to cause personal injury.

18.8 Selection of 'work equipment' for work at height

- 1) The contractor, in selecting work equipment for use in work at height, shall
 - a) give collective protection measures priority over personal protection measures; and
 - b) take account of
 - i. the working conditions and the risks to the safety of persons at the place where the work equipment is to be used;
 - ii. in the case of work equipment for access and egress, the distance to be negotiated;
 - iii. the distance and consequences of a potential fall;
 - iv. the duration and frequency of use;
 - v. the need for easy and timely evacuation and rescue in an emergency; and
 - vi. any additional risk posed by the use, installation or removal of that work equipment or by evacuation and rescue from it;
- 2) The contractor shall select work equipment for work at height which:
 - a) Has characteristics including dimensions which:
 - i) are appropriate to the nature of the work to be performed and the foreseeable loadings; and
 - ii) allow passage without risk; and
 - b) Is in other respects the most suitable work equipment, having regard in particular to the purposes specified in **18.5** and **18.6**.

18.9 Fragile surfaces

- 18.9.1 The contractor shall ensure that no person at work passes across or near, or working on, from or near, a fragile surface where it is reasonably practicable to carry out work safely and under appropriate ergonomic conditions without his doing so.
- 18.9.2 Where it is not reasonably practicable to carry out work safely and under appropriate ergonomic conditions without passing across or near, or working on, from or near, a fragile surface, every contractor shall,
 - a) ensure, so far as is reasonably practicable, that suitable and sufficient platforms, coverings, guard rails or similar means of support or protection are provided and used so that any foreseeable loading is supported by such supports or borne by such protection;
 - b) Where a risk of a person at work falling remains despite the measures taken under the preceding provisions of this regulation, take suitable and sufficient measures to minimize the distances and consequences of his fall.
- 18.9.3 Where any person at work may pass across or near, or work on, from or near, a fragile surface, every contractor shall ensure that
 - a) prominent warning notices are so far as is reasonably practicable affixed at the approach to the place where the fragile surface is situated; or

- b) Where that is not reasonably practicable, such persons are made aware of it by other means.

18.10 Falling objects

- 18.10.1 The contractor shall, where necessary to prevent injury to any person, take suitable and sufficient steps to prevent, so far as is reasonably practicable, the fall of any material or object.
- 18.10.2 Where it is not reasonably practicable to comply with the requirements of 18.9, every contractor shall take suitable and sufficient steps to prevent any person being struck by any falling material or object which is liable to cause personal injury.
- 18.10.3 The contractor shall ensure that no material or object is thrown or tipped from height in circumstances where it is liable to cause injury to any person.
- 18.10.4 Every employer shall ensure that materials and objects are stored in such a way as to prevent risk to any person arising from the collapse, overturning or unintended movement of such materials or objects.

18.11 Danger areas

- 18.11.1 Without prejudice to the preceding requirements of these Regulations, every contractor shall ensure that
 - a) Where a workplace contains an area in which, owing to the nature of the work, there is a risk of any person at work
 - i) Falling a distance; or
 - ii) Being struck by a falling object, which is liable to cause personal injury, the workplace is so far as is reasonably practicable equipped with devices preventing unauthorized persons from entering such area; and
 - b) Such area is clearly indicated.

18.12 Inspection of work equipment

- 18.12.1 The contractor shall ensure that, where the safety of work equipment depends on how it is installed or assembled, it is not used after installation or assembly in any position unless it has been inspected in that position.
- 18.12.2 The contractor shall ensure that work equipment exposed to conditions causing deterioration which is liable to result in dangerous situations is inspected
 - a) At suitable intervals; and
 - b) Each time that exceptional circumstances which are liable to jeopardize the safety of the work equipment have occurred, to ensure that health and safety conditions are maintained and that any deterioration can be detected and remedied in good time.
- 18.12.3 Without prejudice to paragraph 18.12.1, the contractor shall ensure that a working platform
 - a) Used for construction work; and
 - b) From which a person could fall 2 meters or more,

Is not used in any position unless it has been inspected in that position or, in the case of a mobile working platform, inspected on the site, within the previous 7 days.

- 18.12.4 The contractor shall ensure that the reports of all inspections are properly maintained and shown to the Employer as and when required.
- 18.12.5 In this clause "inspection",
- a) Means such visual or more rigorous inspection by a competent person as is appropriate for safety purposes;
 - b) Includes any testing appropriate for those purposes,
- 18.13 Inspection of places of work at height
- 18.13.1 The contractor shall so far as be reasonably practicable ensure that the surface and every parapet, permanent rail or other such fall protection measure of every place of work at height are checked on each occasion before the place is used.
- 18.14 Duties of persons at work
- 18.14.1 Any workmen employed by the contractor shall report to the supervisor about any defect relating to work at height which he knows is likely to endanger the safety of himself or another person.
- 18.14.2 Every workman shall use any work equipment or safety device provided to him for work at height by the contractor, in accordance with
- a) any training in the use of the work equipment or device concerned which have been received by him; and
 - b) the instructions respecting that use which have been provided to him by the contractor as per the requirements of the Employer
- 18.15 Requirements for existing places of work and means of access or egress at height Every existing place of work or means of access or egress at height shall
- i. be stable and of sufficient strength and rigidity for the purpose for which it is intended to be or is being used;
 - ii. where applicable, rest on a stable, sufficiently strong surface;
 - iii. be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work to be carried out there;
 - iv. possess suitable and sufficient means for preventing a fall;
 - v. possess a surface which has no gap
 - i) through which a person could fall;
 - ii) through which any material or object could fall and injure a person; or
 - iii) giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk;
 - vi. be so constructed and used, and maintained in such condition, as to prevent, so far as is reasonably practicable -

- i) the risk of slipping or tripping; or
 - ii) any person being caught between it and any adjacent structure;
- vii. where it has moving parts, be prevented by appropriate devices from moving inadvertently during work at height.

18.16 Requirements for guardrails, toe-boards, barriers and similar collective means of protection

- i) Unless the context otherwise requires, any reference in this section to means of protection is to a guardrail, toe-board, barrier or similar collective means of protection.
- ii) Means of protection shall
 - a) be of sufficient dimensions, of sufficient strength and rigidity for the purposes for which they are being used, and otherwise suitable;
 - b) be so placed, secured and used as to ensure, so far as is reasonably practicable, that they do not become accidentally displaced; and
 - c) be so placed as to prevent, so far as is practicable, the fall of any person, or of any material or object, from any place of work.
- iii) In relation to work at height involved in construction work
 - a) the top guard-rail or other similar means of protection shall be at least 950 millimeters above the edge from which any person is liable to fall;
 - b) toe-boards shall be suitable and sufficient to prevent the fall of any person, or any material or object, from any place of work; and
 - c) any intermediate guardrail or similar means of protection shall be positioned so that any gap between it and other means of protection does not exceed 470 millimeters.
- iv) Any structure or part of a structure which supports means of protection or to which means of protection are attached shall be of sufficient strength and suitable for the purpose of such support or attachment.

18.17 REQUIREMENTS FOR ALL WORKING PLATFORMS

- i. Every working platform requires a supporting structure for holding it
- ii. Any surface upon which any supporting structure rests shall be stable, of sufficient strength and of suitable composition safely to support the supporting structure, the working platform and any loading intended to be placed on the working platform.
- iii. Stability of supporting structure

Any supporting structure shall

- a) be suitable and of sufficient strength and rigidity for the purpose for which it is being used;
- b) in the case of a wheeled structure, be prevented by appropriate devices from moving inadvertently during work at height;
- c) in other cases, be prevented from slipping by secure attachment to the bearing surface or to another structure, provision of an effective anti-slip device or by other means of equivalent effectiveness;
- d) be stable while being erected, used and dismantled; and
- e) when altered or modified, be so altered or modified as to ensure that it remains stable.

- f) Have suitable base plates and properly footed thereby

iv. Stability of working platforms

A working platform shall

- a) be suitable and of sufficient strength and rigidity for the purpose or purposes for which it is intended to be used or is being used;
- b) be so erected and used as to ensure that its components do not become accidentally displaced so as to endanger any person;
- c) when altered or modified, be so altered or modified as to ensure that it remains stable; and
- d) be dismantled in such a way as to prevent accidental displacement.

v) Safety on working platforms

A working platform shall

- a) be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work being carried out there;
- b) possess a suitable surface and, in particular, be so constructed that the surface of the working platform has no gap
 - i. through which a person could fall;
 - ii. through which any material or object could fall and injure a person; or
 - iii. giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk; and
- c) be so erected and used, and maintained in such condition, as to prevent, so far as is reasonably practicable
 - i. the risk of slipping or tripping; or
 - ii. any person being caught between the working platform and any adjacent structure.

vi) Loading

A working platform and any supporting structure shall not be loaded so as to give rise to a risk of collapse or to any deformation, which could affect its safe use.

vii) Additional requirements for scaffolding

Strength and stability calculations for scaffolding shall be carried out unless

- a) a note of the calculations, covering the structural arrangements contemplated, is available; or
- b) it is assembled in conformity with a generally recognized standard configuration.

viii) Depending on the complexity of the scaffolding selected, a competent person shall draw up an assembly, use and dismantling plan. This may be in the form of a standard plan, supplemented by items relating to specific details of the scaffolding in question.

ix) A copy of the plan, including any instructions it may contain, shall be kept available for the use of persons concerned in the assembly, use, dismantling or alteration of scaffolding until it has been dismantled.

- x) The dimension's form and layout of scaffolding decks shall be appropriate to the nature of the work to be performed and suitable for the loads to be carried and permit work and passage in safety.
- xi) While a scaffold is not available for use, including during its assembly, dismantling or alteration, it shall be marked with general warning signs in accordance with and be suitably delineated by physical means preventing access to the danger zone.
- xii) Scaffolding may be assembled, dismantled or significantly altered only under the supervision of a competent person and by persons who have received appropriate and specific training in the operations envisaged which addresses specific risks which the operations may entail and precautions to be taken, and more particularly in
 - a) understanding of the plan for the assembly, dismantling or alteration of the scaffolding concerned;
 - b) safety during the assembly, dismantling or alteration of the scaffolding concerned;
 - c) measures to prevent the risk of persons, materials or objects falling;
 - d) safety measures in the event of changing weather conditions which could adversely affect the safety of the scaffolding concerned;
 - e) permissible loadings;
 - f) any other risks which the assembly, dismantling or alteration of the scaffolding may entail.

18.18 Requirements for Collective Safeguards for Arresting Falls

- i. Collective safeguard area by safety net, airbag or other collective safeguard for arresting falls
- ii. A safeguard shall be used only if
 - a) a risk assessment has demonstrated that the work activity can so far as is reasonably practicable be performed safely while using it and without affecting its effectiveness;
 - b) the use of other, safer work equipment is not reasonably practicable; and
 - c) a sufficient number of available persons have received adequate training specific to the safeguard, including rescue procedures.
- iii) A safeguard shall be suitable and of sufficient strength to arrest safely the fall of any person who is liable to fall.
- iv) A safeguard shall
 - a) in the case of a safeguard which is designed to be attached, be securely attached to all the required anchors, and the anchors and the means of attachment thereto shall be suitable and of sufficient strength and stability for the purpose of safely supporting the foreseeable loading in arresting any fall and during any subsequent rescue;
 - b) in the case of an airbag, landing mat or similar safeguard, be stable; and
 - c) in the case of a safeguard, which distorts in arresting a fall, afford sufficient clearance.
- v) Suitable and sufficient steps shall be taken to ensure, so far as practicable, that in the event of a fall by any person the safeguard does not itself cause injury to that person.

18.19 Requirements for personal fall protection systems

- i) A personal fall protection system shall be used only if
 - a) a risk assessment has demonstrated that

- i) the work can so far as be reasonably practicable be performed safely while using that system; and
 - ii) the use of other safer work equipment is not reasonably practicable; and
- b) the user and a sufficient number of available persons have received adequate training specific to the operations envisaged, including rescue procedures.
- ii) A personal fall protection system shall
 - a) be suitable and of sufficient strength for the purposes for which it is being used having regard to the work being carried out and any foreseeable loading;
 - b) where necessary, fit the user
 - c) be correctly fitted
 - d) be designed to minimize injury to the user and, where necessary, be adjusted to prevent the user falling or slipping from it, should a fall occur; and;
 - e) be so designed, installed and used as to prevent unplanned or uncontrolled movement of the user
- iii. A personal fall protection system designed for use with an anchor shall be securely attached to at least one anchor, and each anchor and the means of attachment thereto shall be suitable and of sufficient strength and stability for the purpose of supporting any foreseeable loading.
- iv. Suitable and sufficient steps shall be taken to prevent any person falling or slipping from a personal fall protection system.

18.20 Requirements for Ladders

- 1) Every contractor shall ensure that a ladder is used for work at height only if a risk assessment has demonstrated that the use of more suitable work equipment is not justified because of the low risk and
 - i) The short duration of use; or
 - ii) Existing features on site, which he cannot alter.
- 2) Only metal ladders shall be allowed. Bamboo ladders are prohibited.
- 3) Any surface upon which a ladder rests shall be stable, firm, of sufficient strength and of suitable composition safely to support the ladder so that its rungs or steps remain horizontal, and any loading intended to be placed on it.
- 4) A ladder shall be so positioned as to ensure its stability during use
- 5) A suspended ladder shall be attached in a secure manner and so that, with the exception of a flexible ladder, it cannot be displaced and swinging is prevented.
- 6) A portable ladder shall be prevented from slipping during use by –
 - i) securing the stiles at or near their upper or lower ends;
 - ii) an effective anti-slip or other effective stability device; or
 - iii) any other arrangement of equivalent effectiveness.

- 7) A ladder used for access shall be long enough to protrude sufficiently above the place of landing to which it provides access, unless other measures have been taken to ensure a firm handhold.
- 8) No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.
- 9) A mobile ladder shall be prevented from moving before it is stepped on.
- 10) Where a ladder or run of ladders raises a vertical distance of 9 meters or more above its base, there shall, where reasonably practicable, be provided at suitable intervals sufficient safe landing areas or rest platforms.
- 11) Every ladder shall be used in such a way that
 - a) A secure handhold and secure support are always available to the user; and
 - b) The user can maintain a safe handhold when carrying a load unless, in the case of a step ladder, the maintenance of a handhold is not practicable when a load is carried, and a risk assessment has demonstrated that the use of a stepladder is justified because of
 - i. the low risk; and
 - ii. the short duration of use.

19.0 OVERHEAD PROTECTION

All contractors shall provide overhead protections as per Rule 41 of BOCWR

- i) Overhead protection should be erected along the periphery of every building which is under construction and the building height shall be 15m or above after construction.
- ii) Overhead protection shall be minimum 2m wide and the outer edge shall be 150mm higher than the inner edge and an angle not more than 200 to its horizontal sloping into the building.
- iii) Overhead protection shall not be erected more than a height of 5m from the base of the building.
- iv) Areas of inadvertent hazard of falling of material shall be guarded or barricaded or roped-off thereby by the contractor.

20.0 SLIPPING, TRIPPING, CUTTING, DROWNING AND FALLING HAZARDS

As per Rule 42 of BOCWR,

- i) All places should be free from dust, debris or similar materials.
- ii) Sharp projections or any protruding nails or similar objects shall be suitably guarded or shall even be avoided to make the place safe to work.
- iii) Contractor shall not allow workmen to work or use platforms, scaffolds/passageways or any walkways, which has water, or oil or similar substances spilt and has a slipping hazard, unless it is cleaned off or covered or sanded or saw dusted or make it safe with any suitable material.
- iv) When workers are exposed to areas where fall into water is possible, the contractor shall provide suitable and adequate equipment for saving the workers from drowning and rescuing from such

hazard. If the Employer considers, the contractor shall provide well-equipped boat or launch, manned with trained personnel at the work place.

- v) Open side or opening where worker, equipment, vehicle or lifting appliance may fall at a building or outside shall be guarded suitably except in places of free access by reasons of nature of work.
- vi) Suitable safety net shall be provided at places of material / man falling is possible in accordance with national standards.

21.0 LIFTING APPLIANCES AND GEAR

- 21.1 Lifting appliances means a crane, hoist machinery, derrick, winch, gin pole, sheer legs, jack, hoist drum, slewing machinery, slewing bearing fasteners, luffing machinery sheaves, pulley blocks, hooks or other equipment used for lifting materials, objects or building workers and lifting gears means ropes, chain slings, shackles, hooks, lifting lugs, wire ropes, lifting eyebolts and events and other accessories of a lifting appliance.
- 21.2 No machine shall be selected to do any lifting on a specific job until its size and characteristics are considered against:
- i. the weights, dimensions and lift radii/ of the heaviest and largest loads
 - ii. the maximum lift height, the maximum lift radius and the weight of the loads that must be handled at each
 - iii. the number and frequency of lifts to be made
 - iv. how long the crane will be required on site?
 - v. the type of lifting to be done (for example, is precision placement of loads important?)
 - vi. the type of carrier required (this depends on ground conditions and machine capacity in its operating quadrants) capacity is normally greatest over the rear, less over the side, and non-existent over the front
 - vii. whether loads will have to be walked or carried
 - viii. whether loads will have to be suspended for lengthy periods
 - ix. the site conditions, including the ground where the machine will be set up, access roads and ramps it must travel, space for erection and any obstacles that might impede access or operation
- 21.3 The contractor shall ensure that a valid certificate of fitness issued as per clause 21.5 is available for all lifting appliances including synchronized mobile jacks, pre-stressing hydraulic jacks, jacks fitted with launching girders etc. and Employers approval before inducting to the site. Only after obtaining the approval from the Employer any lifting appliances and gear shall be used.
- 21.4 The laminated photocopies of fitness certificate issued by competent person, the Employers' approval letter, the operators' photo, manufacturer's load chart and competency certificate shall always be either kept in the operator cabin or pasted on the visible surface of the lifting appliances.
- 21.5 All lifting appliances and loose gears shall be clearly marked for its safe working load and identification by stamping or other suitable means.
- 21.6 The contractor shall also maintain a register containing a system of identification of all tools and tackles, its date of purchase, safe working load, competent person date of examination etc.

21.7 Test and periodical examination of lifting appliances and gears

21.7.1 All lifting appliances including all parts and gears thereof, whether fixed or movable shall be thoroughly tested and examined by a competent person once at least in every six months or after it has undergone any alterations or repairs liable to affect its strength or stability. Within the validity, if the lifting appliances are shifted to a new site, re-examination by the same competent person for ensuring its safety shall also be done.

21.7.2 Contractors can utilize the services of any competent person as defined in Factories Act, 1948 and approved by Chief Inspector of Factories with the permission of the Employer.

All alarms and signals like automatic safe load indicators (SLI), boom angle indicators, boom extension indicators, over lift boom alarm, swing alarm, hydraulic safety valves, mechanical radius indicators, load moment indicators etc. shall be periodically examined and maintained always in working condition

21.8 Automatic safe load indicators

21.8.1 As stipulated in Rule 78 of BOCWKR 2006, no lifting appliances gear or any other material handling appliance is used, if:

- i. the Inspector having jurisdiction is not satisfied with reference to a certification of test or examination or to an authenticated record maintain as provided under these rules; and
- ii. in the view of such Inspector, the lifting appliance, lifting gear or any other material handling appliance is not safe for use in building or other construction work; and
- iii. no pulley block is used in building or other construction work unless the safe working load and its identification are clearly marked on such block.

21.9 Qualification of operator of lifting appliances and of signaler etc.

21.9.1 The contractor shall not employ any person to drive or operate a lifting machine like crane, hydra etc. whether driven by mechanical power or otherwise or to give signals to work as an operator of a rigger or derricks unless he

- i) is above twenty-one years of age and possesses a valid heavy transport vehicle driving license as per Motor Vehicles Act, 1988 and Rules therein.
- ii) is absolutely competent and reliable
- iii) possesses the knowledge of the inherent risks involved in the operation of lifting appliances by undergoing a formal training at any institution of national importance acceptable to Employer
- iv) is medically examined periodically as specified in schedule VI/ of BOCWR.

21.10 General requirements of appliances

21.10.1 Outdo level

21.10.1.1 One of the most severe effects of being out of fit level is that side loads develop in the boom. Because of side loads all mobile cranes lose capacity rapidly as the degree of out-of-level increases and therefore.

21.10.2 Boom

- i. The boom is one of the more critical elements of the crane and must be in perfect condition at all time. No boom section with a bent lattice member shall be allowed

- ii. All welds shall be crack and corrosion free
 - iii. No member of the boom shall be bent
 - iv. All telescopic boom shall be free from cracks, rust, flaking or cracked paint, bulges, greases or varnishes
- 21.10.3 The sweep area (work area) of the construction machinery shall be always free from obstructions.
- 21.10.4 All hydraulic piping and fittings shall be maintained leak proof.
- 21.10.5 The operator cab shall possess good and safe:
- i. structure, windows and windshield wipers
 - ii. Drivers chair and foot rest
 - iii. Control handles
 - iv. Cab instrumentation
 - v. Telecommunication
 - vi. Cab out fitting
 - vii. wind indicator with an adjustable set point shall be in a position representative for the wind on the crane. The indicator shall give continuous information regarding constant speeds and gusts.
- 21.11 Mandatory rigging requirements
- 21.11.1 Rigging shall be done under experienced and qualified rigger only.
- 21.11.2 The primary requirement in rigging shall be to assess the weight of load before attempting any lift.
- 21.11.3 All hooks shall be fitted with Master Rings having certificate of fitness from the competent person, so that the hooks are subjected to balanced vertical loading only.
- 21.11.4 Only four legged slings shall be allowed which includes master link (ring), intermediate master link (ring) if necessary, chain / wire rope sling, sling hook or other terminal fitting.
- 21.11.5 Hand spliced slings up to 32mm diameter shall not be used at site for any lifting purpose.
- 21.11.6 No load shall be slewed over public areas without stopping the pedestrians and road traffic first.
- 21.11.7 Requirements of outriggers
- i. All outriggers shall be fully extended and all tires are clear of the ground
 - ii. Heavy duty blocking having large bearing area shall be necessary to prevent sinking of floats
- 21.11.8 All loads shall have tag-lines attached in order to ensure that the load can be controlled at all times.
- 21.11.9 No close working to any live overhead power line is permitted without the operation of a strict Permit to Work.
- 21.11.10 Minimum lighting is to be ensured at all lifting operations.
- 21.12 Failure to do any of the above shall attract penalty from the Employer as per relevant clause

22.0 LAUNCHING OPERATION

- 22.1 As launching operation is one of the riskiest job, the contractor shall take utmost precaution at all stages like; planning, establishing casing yard, casting segments, transporting segments, fabrication and erection of launching girders, launching of segments, pre-stressing, auto launching of girders and dismantling of launching girders.
- 22.2 The contractor shall prepare a comprehensive Method Statement for the launching operation, adhering to the SHE conditions laid down in conditions of contract on SHE and project SHE manual. Particular reference shall be made to the provisions on working at height. As the entire process of launching has to be undertaken at an elevated level, the safety of workers and the girder is paramount important. The following general guidelines shall be adhered throughout the launching operation.
- i. Necessary 'working platforms' and fall protection anchorage arrangement shall be provided in the launching girder itself.
 - ii. Provisions for mounting light fittings shall also be made available in the launching girder.
 - iii. The casting yard shall be established ensuring the provision given in clause 38.0
 - iv. The workmen engaged in fabrication of reinforcement, concreting the segment shall be provided with necessary PPEs including compulsory hand protection gloves.
 - v. Casting and curing of segment shall be undertaken under the direct supervision of the responsible engineer of the contractor.
 - vi. Trucks with valid registration, license, safe worthiness certificate, Employer's approval certificate, and pollution under check certificate shall only be used for transport of segments
 - vii. Drivers engaged for driving these trucks, shall be trained once in 6 months at specified locations as directed by the employer on defensive driving.
 - viii. Drivers shall also have undergone proper medical examination as per relevant clause mentioned under 'Medical Facilities'.
 - ix. The segments shall rigidly be secured to the truck with necessary wooden wedges and necessary red indicators/safety tapes provided so that the vehicle is clearly seen by other road users both in day / night time.
 - x. Every launching girder shall have a responsible engineer on duty all the time.
 - xi. All the time from erection to dismantling the area between the two piers wherein launching is in progress shall always be barricaded.
 - xii. Unloading of segments from trucks, lifting of segments, shifting of segments, gluing shall be done under the direct supervision of the approved engineer of the contractor.
 - xiii. Auto launching shall be done only after approval from the Employer. After every auto launching the stability of launching girder shall be ensured.
 - xiv. The vertical deflection of launching girder shall be monitored at all critical stages like with/without loads and after every auto launching.
 - xv. A register containing all important operational details from erection to dismantling of launching girders shall be maintained and made available to Employer whenever called for.
 - xvi. Test certificate for all lifting gears including Mac-alloy bars shall be maintained at a location closer to the launching girder itself so that it can be referred during all inspections.
 - xvii. Adequate lighting at all-time shall be ensured in the entire area of operation.
 - xviii. Access to drinking water & toilet shall be ensured to all workmen engaged for launching process. xix) Proper access ladders/stairways shall be maintained for safe ascending / descending of workmen / engineers.

- 22.3 Non-adherence to any of the clauses mentioned above shall be viewed seriously by the Employer and penalty levied as per relevant clause.

23.0 CONSTRUCTION MACHINERY

A large number of men and machinery are deployed by the contractors for Construction work, bridge rebuilding etc. It is therefore essential that adequate Safety measures are taken for safety of trains as well the workforce.

The following Measures should invariably adopt:

- i) The contractor shall not start any work without the presence of K-RIDE Supervisor or his representative and contractor's supervisor at site.
- ii) Wherever the road vehicles and/or machinery are required to work in the close vicinity of railway line, the work shall be so carried out that there is no infringement to the railway's schedule of dimensions. For this purpose, the area where road vehicles and/or machinery are required to ply, shall be demarcated and acknowledged by the contractor.

Special care shall be taken for turning / reversal of vehicles / machinery without infringing the Running track. Barricading shall be provided wherever justified and feasible as per site conditions.

- iii) The look out and whistle caution orders shall be issued to the trains and speed restriction imposed where considered necessary. Suitable flagmen/ Detonators shall be provided where necessary for protection of trains.
- iv) The supervisor / workmen should be counselled about safety measures.

A competency certificate to the contractor's supervisor as per Proforma Annexed shall be issued by APM which will be valid only for the work which it has been issued.

- v) The unloaded ballast / rails / sleepers / other P. Way materials after unloading Along track should be kept clear off moving dimensions and stacked as per the specified heights and distance from the running track.
- vi) Supplementary site instructions, wherever considered necessary, shall be issued by the Engineer in Charge of K-RIDE.

The Engineer in-charge shall approve the methodology proposed to be adopted by the contractor, with a view to ensure safety of trains, passengers and workers and he shall also ensure that the methods and arrangements are actually available at site before start of the work and the contractor's supervisors and the workers have clearly understood the safety aspect and requirements to be adopted / followed while executing the work. There shall be an assurance register kept at each site, which will have to be signed by both i.e., K-RIDE Supervisor or his representative as well as contractor's supervisor as a token of their having understood the safety precautions to be observed at site."

- 23.1 Construction machineries may include dumpers and dump trucks, lift trucks and telescopic handlers piling rigs, vibro hammers, rail welding equipment's, mobile elevating work platforms, cranes, tipper lorries, lorry loaders, skip wagons, 360° excavators, 180° backhoe loaders, crawler tractors, scrapers, graders, loading shovels, trenchers, side booms, pavers, planers, chippers, road rollers, locomotives, tankers and bowsers, trailers, hydraulic and mechanical breakers etc.

23.2 Safe worthiness certificate

23.2.1 Every construction equipment shall be in sound mechanical working condition and certified by either competent person under Factories Act or manufacturers' warranty in case of brand-new equipment's or authorized persons / firms approved by Employer before induction to any site.

23.2.2 Every such certificate shall have the date of purchase, main overhauling undertaken in the past, any accident to the equipment, visual examination details, critical components safety check, list of safety devices and its working condition, manufacturer's maintenance checklist, past projects wherein the equipment's were used etc. as its minimum content.

23.3 Reverse Horns

23.3.1 All Vehicles shall be fitted with audible reverse alarms and maintained in good working condition. Reversing shall be done only when there is adequate rear-view visibility or under the directions of a banks man.

23.4 General operating procedures

- i) Drivers entering site shall be instructed to follow the safe system of work adopted on site. These shall be verbal instructions or, preferably, written instructions showing the relevant site rules, the site layout, delivery areas, speed limits, etc.
- ii) No passengers shall be carried, unless specific seating has been provided in accordance with the manufacturers' recommendations.
- iii) Working on gradients beyond any equipment's capability shall not be allowed.
- iv) Prevention of dumper and dump truck accidents should be managed by providing wheel stops at a sufficient distance from the edges of excavations, spoil heaps, pits, etc.
- v) The manufacturer's recommended bucket size must not be exceeded in excavators.
- vi) If excavators operating on a gradient which cannot be avoided, it must be ensured that the working cycle is slowed down, that the bucket is not extended too far in the downhill direction, and that travel is undertaken with extreme caution. A large excavator must never be permitted to travel in a confined area, or around people, without a banksman to guide the driver, who should have the excavator attachment close in to the machine, with the bucket just clear of the ground. On wheeled excavators, it is essential that the tires are in good condition and correctly inflated. If stabilizing devices are fitted, they should be employed when the machine is excavating.
- vii) When the front shovel of the 1800 backhoe loaders is being employed, the backhoe attachment shall be in its "travel" position, with the safety locking device in place.
- viii) When operating the backhoe in poor ground conditions, the stabilizers tend to sink into the surface of the ground, reducing stability. Therefore, frequent checks shall be made for the stability of the machine. The loading shovel should always be lowered to the ground to stabilize the machine when the backhoe is employed.
- ix) The netting operation of the skip wagons should be carried out prior to lifting the skip to reduce the risks of working on the rear platform
- x) If a tractor dozer is employed on clearing scrub or felling trees, it shall be provided with adequate driver protection.
- xi) When two or more scrapers are working on the same job, a minimum distance of at least 25m shall be kept between them.
- xii) In case of hydraulic breakers, hydraulic rams and hoses shall be in good working condition

23.5 All wood working machines shall be fitted with suitable guards and devices such as top guard, riving knife, push stick, guards for drive belts and chains, and emergency stop switch easily accessible by the operator.

23.6 Penalty

23.6.1 If any of the above clauses are not adhered, penalty shall be imposed as per relevant clause depending upon the gravity of the unsafe act and or condition.

24.0 MACHINE AND GENERAL AREA GUIDING

24.1 The contractor shall ensure at the construction site all motors, cogwheels, chains and friction gearing, flywheels, shafting, dangerous and moving parts of machinery are securely fenced or legged. The fencing of dangerous part of machinery is not removed while such machinery is in motion or in use.

25.0 MANUAL LIFTING AND CARRYING OF EXCESSIVE WEIGHT

25.1 The contractor shall ensure at his construction site of a building or other construction work that no building worker lifts by hand or carries overhead or over his back or shoulders any material, article, tool or appliances exceeding in weight as said below as per Rule 38 of BOCWR, unless aided by another building worker or device.

Person	Maximum weight in kg.
Adult man	55
Adult woman	30

25.2 No building worker aided by other building worker shall lift or carry weight higher than or exceeding the sum of total of maximum limits set out for each building worker separately as mentioned in the table above.

26.0 SITE ELECTRICITY

26.1 Competency of Electrical personnel:

26.1.1 The contractor shall employ qualified and competent electrical personnel as specified in general instruction K-RIDE/SHE/CE0/001.

26.2 Assessment of power

26.2.1 The contractor shall assess the size and location of the electrical loads and the manner in which they vary with time during the currency of the contract.

26.2.2 The contractor shall elaborate as to how the total supply is to be obtained / generated. The details of the source of electricity, earthing requirement, substation / panel boards, distribution system shall be prepared and necessary approval from Employer obtained before proceeding of the execution of the job.

26.2.3 The main contractor shall take consideration, the requirements of the sub / petty contractors' electric power supply and arrive at the capacity of main source of power supply from diesel generators.

26.2.4 As the sub / petty contractors' small capacity generators create more noise and safety hazard, no small capacity diesel generators shall be allowed for whatsoever the type of job to be executed under this contract.

- 26.2.5 If any unsafe noise making small capacity diesel generators are found used by sub / petty contractors the main contractor shall only be penalized.
- 26.3 Work on site
- 26.3.1 The contractor shall also submit electrical single line diagram, schematic diagram and the details of the equipment for all temporary electrical installation and these diagrams together with the temporary electrical equipment shall be submitted to the Employer's for necessary approval. Failure to do so shall invite penalty as per relevant clause.
- 26.4 Strength and capability of electrical equipment
- 26.4.1 No electrical equipment shall be put into use where its strength and capability may be exceeded in such a way as may give rise to danger.
- 26.5 Adverse or hazardous environments
- 26.5.1 Electrical equipment, which may reasonably foreseeably be exposed to-
- a. Mechanical damage;
 - b. The effects of the weather, natural hazards, temperature or pressure;
 - c. The effects of wet, dirty, dusty or corrosive conditions; or
 - d. any flammable or explosive substance, including dusts, vapors or gases, shall be of such construction or as necessary protected as to prevent, so far as is reasonably practicable, danger arising from such exposure.
- 26.6 Distribution system:
- 26.6.1 The contractor shall provide distribution system for control and distribution of electricity from a main AC supply of 50Hz for typical appliances,
- i) Fixed plant - 400V 3 phase
 - ii) Movable plant fed via trailing cable over 3.75 kW - 400 3 phase
 - iii) Installation in site buildings - 230V single phase
 - iv) Fixed flood lighting - 230V single phase
 - v) Portable and hand tools - 115V single phase
 - vi) Site lighting - 115V single phase
 - vii) Portable hand lamps - 115V single phase
- 26.7 Electrical protection circuits
- 26.7.1 Precautions shall be taken, either by earthing or by other suitable means, to prevent danger arising when any conductor (other than a circuit conductor) which may reasonably foreseeable become charged as a result of either the use of a system, or a fault in a system, becomes so charged. A conductor shall be regarded as earthed when conductors of sufficient strength and current-carrying capability to discharge electrical energy to earth connect it to the general mass of earth.

If a circuit conductor is connected to earth or to any other reference point, nothing which might reasonably be expected to give rise to danger by breaking the electrical continuity or introducing high impedance shall be placed in that conductor unless suitable precautions are taken to prevent that danger.

- 26.7.2 Appropriate electrical protection shall be provided for all circuits, against over load, short circuit and earth fault current.
- 26.7.3 The contractor shall provide sufficient ELCBs (maintain sensitivity 30 mA) / RCCBs for all the equipment's (including Potable equipment's), electrical switchboards, distribution panels etc. to prevent electrical shocks to the workers.
- 26.7.4 All protection devices shall be capable of interrupting the circuit without damage to any equipment's and circuits in case of any fault may occur.
- 26.7.5 Rating of fuses and circuit breakers used for the protection of circuits should be coordinate with equipment power ratings.
- 26.7.6 Protection against lightning shall be ensured to all equipment kept in open at sites.
- 26.7.7 Cables:

Before starting any excavation work adjacent to existing track, the contractor shall ensure that necessary permissions has been obtained and required precautions have been taken for doing such work in terms Joint Procedure Order (JPO). The penalties mentioned in the following JPO shall be levied on the contractor if such event occurs. The JPO is reproduced below:

"JOINT PROCEDURE ORDER FOR UNDERTAKING DIGGING WORK IN THE VICINITY OF UNDERGROUND SIGNALING, ELECTRICAL AND TELECOMMUNICATION CABLES"

- a. A number of Engineering works in connection with gauge conversion/doubling/third line are in progress on various railways, which require extensive digging work near the running track, in close vicinity of the working S&T cables carrying vital safety circuits as well as electrical cables feeding the power supply to cabins, ASM room, RR/ Cabin, Intermediate Block Huts (IBH) etc. Similarly, S&T organization under open line or construction units under CAO/C, are executing various Signaling and Telecom works requiring digging of earth for laying of cables or casting of foundations for the erection of signal posts etc. RailTel is also executing the work of lying of quad cable and OFC on various Railways as a part of sanctioned works for exclusive use of Railways for carrying voice and data i.e., administrative and control communication, PRS, FOIS etc. or shared by RailTel Corporation of India Ltd. On certain sections, digging is also required for lying of electrical cable and casting of foundation for the erection of OHE masts by Electrical Dept. Generally, contractors employed by these organizations execute these works.
- b) However, while carrying out these works near working signaling, telecommunication and electrical cables, at times, cable cuts take place due to JCB machines working along the track or during the digging work being done by contractors carrying out the Civil Engineering Works. Similarly, such cable cuts are also resulting due to works undertaken by S&T or Electrical departments. Such cable faults result in the failure of vital signaling and telecommunication circuits & electrical installations.

- c) Henceforth, the following joint procedure shall be followed by Engineering, Electrical and S&T (and RailTel organization, wherever such works are being done by them) officers of the respective divisions and by the construction organization, while carrying out any digging work near to existing signaling & telecommunication and electrical cables, so that the instances of cable cut due to execution of works, can be controlled and minimized.
1. S&T Department (and RailTel, where they have laid the cables) and Electrical department shall provide a detailed cable route plan showing exact location of cable at an interval of 200m or wherever there is change in alignment so that the same is located easily by the Engineering official/contractor. In addition, S&T department and Electrical department shall also provide cable markers along the alignment of the cable. Sr. DSTE/DSTE or Sr. DEE/DEE of the divisions or Dy. CSTE/C or Dy.CEE/C shall make these cable route plans available to the Sr.DEN/DEN or Dy. CE/C, as the case may be, within 15 days in duplicate. Sr.DEN/DEN or Dy. CE/C will send copies to their field unit i.e. AEN/SE/P. Way & Works.
 2. Before taking up any digging activity on a particular work by any agency, Sr. DSTE/DSTE or Sr.DEE/DEE of the section shall be approached in writing by the concerned Engg. or S&T or Electrical officer for permitting to undertake the work. Sr. DSTE/DSTE or Sr.DEE/DEE, after ensuring that the concerned executing agencies including the contractor have fully understood the S&T and Electrical cable route plan shall permit the work in writing within 7 days of the request by concerned department.
 3. After getting the permission from S&T or Electrical department as the case may be, the relevant portion of the cable route plan shall be attached to the letter through which concerned Engineering issues permission to the contractor. Official for commencement of work and ensuring that the contractors have fully understood the cable route plan and precautions to be taken to prevent damage to the underground cables. The contractor shall be asked to study the cable plan and follow it meticulously to ensure that the safety of the cable is not endangered. Such a provision, including any penalty for default, should form part of agreement also. It is advisable that a suitable post of SE/Sig or SE/Tele or SE/Electrical (TRD or G) shall be created chargeable to the estimates of doubling/gauge conversion, which can help Engineering. Agencies in the execution of the work. However, basic responsibility will be of the department executing the work and the Contractor. Creation of posts is not mandatory.
 4. The SE/P. Way or SE/Works shall pass on the information to the concerned SE/Sig SE/Tele or SE/Electrical (TRD or G) about the works being taken up by the contractors in their sections at least 3 days in advance of the day of the Work. In addition, Engineering control shall also be informed by SE/P. Way or SE/Works, who in turn shall pass on the information to the test room/network operation Centre of RailTel/TPC/Electrical control.
 5. On receiving the above information, SE/Sig or SE/Tele or SE/Electrical (TRD or G) shall visit the site on or before the date of taking up the work and issue permission to the contractor to commence the work after checking that adequate precautions have been taken to avoid the damage to the cables. The permission shall be granted within 3 days of submission of such requests.
 6. The name of the contractor, his contact telephone number, the nature of the work shall be notified in the Engineering control as soon as the concerned Engineering officials issue the letter authorizing commencement of work to the contractor. Test room shall be given copies. Test room shall collect any further details from the Engineering Control and shall pass it on to S&T/RailTel & Electrical officials regularly. In case the supervisors of concerned departments do not turn up on the day as advised in terms of para 4 and 5 above, the works of contractor should not be stopped on this account.

7. In case of works being taken up by the State Government, National Highway Authority etc., the details of the permission given i.e., the nature the work, kilometer etc. be given to the Engineering control including the contact person's number so that the work can be done in a planned manner. The permission letter shall indicate the contact numbers of Test room/network Operating Centre of RailTel/TPC/Elect. Control.
8. Where the nature of the work taken up by the Engineering department is such that the OFC or other S&T cables or Electrical cables is to be shifted and relocated, notice of minimum one week shall be given so that the Division/RailTel/Construction can plan the works properly for shifting. Such shifting works shall in addition, for security and integrity of the cables, be supervised by S&T supervisors/RailTel supervisors/Electrical Supervisors.
9. The concerned SE/P. Way/SE/Works/SE/Sig/SE/Tele/SE/Electrical (TRD or G) or RailTel supervisors supervising the work of the contractor shall ensure that the existing emergency sockets are not damaged in view of their importance in providing communication during accident/emergency.
10. In case of minor nature of works where shifting of cable is not required, in order to prevent damage to the cable, the Engineering contractor shall take out the S&T or optical fiber cable or Electrical cable carefully from the trench and place it properly alongside at a safe location before starting the earthwork under the supervision of SE/Sig or SE/Tele or SE/Electrical (TRD or G). The cable shall be reburied soon after completion of excavation with proper care including placement of the brick over the cable under the supervision of S&T or Electrical supervisors. However, the work will be charged to the concerned Engineering works. The responsibility for ensuring availability of SE (Signal), SE (Electrical) as per para 4 and 5 above lies with the respective department. The contractor will go ahead with the shifting of cables as per the program decided and he will not be held responsible for any cable cut.
11. In all the sections where major project is to be taken up/going on RailTel/S&T department shall deploy their official to take preventive/corrective action at site of work. As regards Electrical Department, the official may be deputed on need basis.
12. No new OFC or quad cable shall be laid close to existing track. It shall be laid close to the Railway boundary on one side of the Railway track to the extent possible to avoid any interference with the future works (doubling etc.). It shall be ensured in the new works of cable laying that the cable route is properly identified with electronic or concrete markers. Wherever multiple cables are laid in a trench, RFID markers may be provided for easy identification of the cable. Henceforth, wherever cable laying is planned, before undertaking the cable laying work, the cable route plan of the same shall be prepared by the Dy. CSTE/A or Dy.CEE/C and shall be got approved from the concerned Sr. DSTE/DSTE or Sr.DEE/DEE and also from the concerned Dy. CE/C for new lines and from the concerned Sr.DEN for all other projects including GC etc., to avoid possible damages in future. Such approvals shall be granted within 15 days of the submission of the request.
13. The works of excavating the trench and lying of the cable should proceed in quick succession, leaving a minimum time between the two activities.
14. In case damage caused to OFC/Quad cable or Electrical cable during execution of the work, the contractor is liable to pay a penalty for damaging the cable. Penalty shall not be levied in case of the following
 - a) Detailed cable route plan as per clause C-1 not provided by concerned department or cable is not protected as per laid down procedures.
 - b) The alignment of the cable does not tally with the information provided to the contractor.
 - c) The cable depth is found to be less than 800 mm from normal ground level.

- d) No representative of S&T department/RailTel was available at site guarding the cables on the fixed pre-determined date and time.

26.8 Penalty to be imposed for damages to cable shall be as under: -

Cable damaged	Penalty per location
Only Quad cable or Signaling cable	Rs.1.00 Lakh
Only OFC	Rs.1.25 Lakh
Both OFC & Quad	Rs.1.50 Lakh
Electrical Cable	Rs.1.00 Lakh

Necessary debit in this regard shall be raised on the department undertaking the work who shall in turn levy the penalty on the defaulting contractor. S&T department shall raise the debits in case of damage to OFC or Quad or Signaling cable and Electrical department shall raise the debits in case of damage to Electrical cable.

15. Railways will not lodge FIR with RPF in case of works being executed by authorized contractors of Railways who have been duly permitted to execute the works in accordance with this JPO. Joint note by the supervisors of the concerned department shall be prepared and the responsibility of the cable cut should be decided without involving RPF. The joint note deciding the fact whether the contractor should be penalized shall be completed in a day's time from the occurrence of cable cut. In all other cases, when the cable is cut by an agency that was not permitted to execute any work, FIR should be lodged with RPF.
16. While giving permission for taking up the works, concerned departments may note that earthwork by engineering contractors will normally be done by machines except in a few isolated locations where the quantity of earth work is very less.
17. Railways shall make necessary correction in their future contract so that this JPO can also be enforced contractually.
18. In case of damages to OFC, RailTel should be paid 5/6th of the penalty recovered. RailTel shall raise demands on the S&T department in this regard.
19. All types of signaling & OHE bonds i.e. rail bond, cross bond and structure bond shall be restored by the contractor with a view to keep rail voltage low to ensure safety of personnel.
20. Above joint circular shall be applicable for construction as well as open line organization of Engineering, S&T and Electrical.
21. S&T cable and electrical cable route plan should be prepared by the concerned S&T and Electrical officers respectively and got approved as stipulated in para C-12 before undertaking the work. The completion cable route plan should be finalized block section by block section as soon as the work is completed.
22. All cable laying works shall be executed as per laid down technical specifications, such as protection measures/protective cover, compaction of refilled material etc.

- 26.8.1 Cables shall be selected after full consideration of the condition to which they shall be exposed and the duties for which they are required. Supply cable up to 3.3 kV shall be in accordance with BS 6346.
- 26.8.2 For supplies to mobile or transportable equipment where operating of the equipment subjects the cable to flexing, the cable shall conform to any of these codes BS 6007 / BS 6500 / BS 7375.
- 26.8.3 Flexible cords with a conductor cross sectional area smaller than 1.5 mm² shall not be used and insulated flexible cable shall conform to BS 6500 and BS 7375.
- 26.8.4 Where low voltage cables are to be used, reference shall be made to BS 7375. The following standards shall also be referred to particularly for underground cables BS 6346 and BS 6708
- 26.8.5 Cables buried directly in the ground shall be of a type incorporating armour or metal sheath or both. Such cables shall be marked by cable covers or a suitable marking tape and be buried at a sufficient depth to avoid their being damaged by any disturbance of the ground. Cable routes shall be marked on the plans kept in the site electrical register.
- 26.8.6 Cabling passing under the walk way and across way for transport and mobile equipment shall be laid in ducts at a minimum depth of 0.6 meters.
- 26.8.7 Cables that need to cross open areas, or where span of 3m or more are involved, a catenary wire on poles or other supports shall be provided for convenient means of suspension. Minimum height shall be 6 m above ground.
- 26.8.8 Cables carrying a voltage to earth in excess of 65V other than supply for welding process shall have metal armor or sheath, which has been effectively earthed and monitored by the contractor. In case of flexible and trailing cables such earthed metal sheath and/or armor should be in addition to the earth core in the cable and shall not be used as the protective conductor.
- 26.8.9 Armoured cables having an over-sheath of polyvinyl chloride (PVC) or oil resisting and flame retardant compound shall be used whenever there is a risk of mechanical damage occurring
- 26.9 Plugs, socket-outlets and couplers:
- 26.9.1 The contractor shall ensure plugs, socket-outlets, and couplers available in the construction site as "splash proof" type. The minimum degree of Ingress Protection should be of IP44 in accordance with BS EN60529.
- 26.9.2 Only plugs and fittings of the weatherproof type shall be used and they should be colour coded in accordance with the internationally recognized standards for example as detailed as follows:
- (a) 110 volts: Yellow.
 - (b) 240 volts: Blue.
 - (c) volts: Red.
- 26.10 Connections
- 26.10.1 Every joint and connection in a system shall be mechanically and electrically suitable for use to prevent danger. Proper cable connectors as per national/international standards shall only be used to connect cables.

- 26.10.2 No loose connections or tapped joints shall be allowed anywhere in the work site, office area, stores and other areas. Penalty as per relevant clause shall be put in case of observation of any tapped joints.
- 26.11 Portable and hand-held equipment's:
- 26.11.1 The contractor shall ensure the use of double insulated or all-insulated portable electrical hand equipment may be used without earthing (i.e., two core cables), but they shall still be used only on 110V because of the risk of damage to trailing leads.
- 26.12 Other equipment's:
- 26.12.1 All equipment shall have the provision for major switch/cut-off switch in the equipment itself.
- 26.12.2 All non-current carrying metal parts of electrical equipment shall be earthed through insulated cable
- 26.12.3 Isolate exposed high-voltage (over 415 Volts) equipment, such as transformer banks, open switches, and similar equipment with exposed energized parts and prevent unauthorized access.
- 26.12.4 Approved perimeter markings shall be used to isolate restricted areas from designated work areas and entryways and shall be erected before work begins and maintained for entire duration of work. Approved perimeter marking shall be installed with either red barrier tape printed with the words "DANGER-HIGH VOLTAGE" or a barrier of yellow or orange synthetic rope, approximately 1 to 1.5 meter above the floor or work surface.
- 26.13 Work on or near live conductors
- 26.13.1 No person shall be engaged in any work activity on or so near any live conductor (other than one suitably covered with insulating material so as to prevent danger) that danger may arise unless-
- it is unreasonable in all the circumstances for it to be dead; and
 - it is reasonable in all the circumstances for him to be at work on or near it while it is live; and
 - Suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.
- 26.14 Inspection and Maintenance
- 26.14.1 All electrical equipment should be permanently numbered and a record kept of the date of issue, date of last inspection and recommended inspection period.
- 26.14.2 Fixed installations shall be inspected at least at three monthly intervals; routine maintenance being carried out in accordance with equipment manufactures recommendations.
- 26.14.3 25 KV AC 50 Hz single phase Traction:
- Induction effect of 25 KV AC 50 Hz single phase Traction
 - The attention of all staff is drawn to the fact that under 25 kVA ac 50 Hz single phase traction, there is heavy induction on all metallic structures and conductors in the vicinity of the track. The induction is two - fold.

Electro- static, which results from the high potential of 25 kVA on the OHE system.

Electro- magnetic, which is proportional to the currents passing from the sub - station to the OHE to the locomotives /EMUs and back partly through the earth.

- II. The voltage induced is quite appreciable on overhead conductors running parallel to the tracks depending on the length of parallelism.

This explains why most of the overhead telecommunication's lines are replaced by underground cables. Special protective measures are required to reduce the adverse effects of induction.

- III. In a railway yard, voltage of the order of 200 volts may be induced on yard lighting mains situated B m away from the center of a double line track, of it runs parallel to the 25 KV lines for a distance of about 270 m; it could be several thousand volts when parallelism is much longer. In such a case, a dangerous voltage due to induction will exist even after power supply to the line has been switched off. No one shall therefore attempt to work on any overhead line running alongside the electrified tracks without taking special precautions of earthing on both sides of the work. Before a section is electrified, the necessary modifications to distribution lines in all stations and yards should be carried out, so as to limit the induced voltage within permissible values, but this by no means limits the need for earthing the lines on both the sides of the working party. Earthing should be done individually by each working party as close to the work spot as possible. The distance between the two earths shall not exceed 1 km.
- IV. Such inductive effects occur on large metallic structures such as fencings, structural steelwork of platforms running parallel to the track. They will therefore, have to be earthed suitably to afford safety.
- V. Inductive effects also show themselves on any metallic conductor, such as metallic clothes-lines, power lines and lines belonging to private parties running parallel and close to the electrified tracks.

Wide publicity should be given to the effects of induction so that special precautions are taken by the private parties.

b. General Precautions

The precautions laid down below must be followed under all circumstances in sections equipped for 25 kVA as single phase, 50 Hz traction.

- i. No work shall be done above or within a distance of 2 m from the live OHE without a "permit-to- work."
- ii. No part of a tree shall be nearer than 4 m from the nearest live conductor. Any tree or branches likely to fall on live conductor should be cut or trimmed periodically to maintain this clearance. Cutting or trimming should be done by the OHE staff themselves or through an agency manage and supervised by them

- iii. Work for trimming of trees should also be done in the presence of authorized OHE staff or supervisor to maintain the safe clearance of 4mt. Any dispute regarding cutting of trees may be done on contract basis or departmentally of the terms & conditions of concerning department.
- iv. No fallen wire or wires shall be touched unless power is switched off and the wire or wires suitably earthed. In case the wires drop at a level crossing, the Gate-keeper shall immediately make arrangements to stop all road traffic and keep the public away.
- v. As far as possible closed wagons shall be used for material trains. In case open or hopper wagons are used, loading and unloading or such wagons in electrified tracks shall be done under the supervision of an Engineering Official not below the rank of a APM who shall personally ensure that no tool or any part of the body of the worker comes within the 'danger zone' i.e., within 2 m of the OHE.
- vi. Permanent Way staff should keep clear of the tracks and avoid contact with the rails either when approaching or reaching the work-spot when an electrically hauled train is within 250m.
- vii. When unloading rails alongside the tracks, it should be ensured that rails do not touch each other to form a continuous metallic mass of length greater than 300m.
- c. Safety precautions on Electrified Sections (Chapter-IV), Electrical Accidents (Chapter-V) Fire Pre cautions (Chapter-VI) of Indian Railways AC Traction Manual Volume - I, as applicable may be followed.
- d. The Training and Competency Certificates (Chapter XII) of Volume-II, Part-/ of Indian Railway AC Traction Manual may be followed.
- e. Power Blocks and Permit to Work are required to be taken in case of construction work going on in the vicinity of electrified line as per applicable Para of Chapter -V/ of volume-II, part - / of Indian Railway AC Traction Manual

27.0 LIGHTING

27.1 The contractor shall provide sufficient site lighting, of the right type and at the right place for it to be properly effective. Lighting ought not to introduce the risk of electric shock. Therefore, 230V supplies should be used for those fittings, which are robustly installed, and well out of reach e.g. flood lighting or high-pressure discharge lamps.

27.2 Selection of Luminaries:

The contractor shall select the luminaries as per the area requirement indicated below:

	Type of Lighting	Area of Requirement	Luminaries
1.	Area Lighting	Workmen and vehicles to move about in safely.	Shovel type: non-symmetrical Symmetrical or non- symmetrical tungsten halogen

2.	Beam flood lighting	Concentrated light over an area from a relatively great distance.	Portable flood light (Conical beam) Wide angle flood (fan shaped beam) Medium or narrow angle flood (Conical beam)
3.	Dispersive lighting	Lighting for indoor	Dispersive (Mercury florescent) Cargo cluster Florescent trough
4.	Walkway lighting	Lighting for stairways, ladder ways, corridors, scaffold access routes, etc.	Well glass unit Bulkhead unit (tungsten filament) Bulk head unit (Florence)
5.	Local lighting	Lighting on sites and fittings are generally accessible to operatives	PAR (Parabolic Aluminis Reflector) lamp cluster Festoons (with or without shades) Adjustable florescent wo lamp Portable flood lamp (mounted on own cable drum)

27.3 The contractor shall ensure that luminaries should always be placed so that no person is required to work in their own shadow and so that the local light for one person is not a source of glare for the others. Strongly made clamps should be available for attaching luminaries to poles and other convenient supports.

27.4 Luminaries should be robust, resistant to corrosion and rain proof especially at the point of the cable entry.

27.5 The correct type of lamp for each luminary should always be used and when lamps need to be replaced if shall be in accordance with the supply voltage.

27.6 Lamp holders not fitted with a lamp should be capped off.

28.0 HAND TOOLS AND POWER TOOLS

28.1 General

28.1.1 The contractor is wholly responsible for the safe condition of tools and equipment used by his employees and that of his sub-contractors.

28.1.2 Use of short / damaged hand tools shall be avoided and the contractor shall ensure all his hand tools used at his worksite are safe to work with or stored and shall also train his employees (including his sub-contractors) for proper use thereby.

28.1.3 All hand tools and power tools shall be duly inspected before use for safe operation.

28.1.4 All hand tools and power tools shall have sufficient grip and the design specification on par with national/international standards on anthropometrics.

28.2 Hand tools

- 28.2.1 Hand tools shall include saws, chisels, axes and hatches, hammers, hand planes, screw drivers, crow bars, and nail pullers.
- 28.2.2 The contractor shall ensure that,
- i. For crosscutting of hardwood, saws with larger teeth points (no. of points per inch) shall be preferred to avoid the saw jumping out of the job.
 - ii. Mushroom headed chisels shall not be used in the worksite where the fragments of the head may cause injury.
 - iii. Unless hatchet has a striking face, it shall be used as a hammer.
 - iv. Only knives of retractable blades shall be used in the worksite.
 - v. No screwdrivers shall be used for scraping, chiseling or punching holes.
 - vi. A pilot hole shall always be driven before driving a screw.
 - vii. Wherever necessary, usage of proper PPEs shall be used by his employees.
- 28.3 Power tools
- 28.3.1 Power tools include drills, planes, routers, saws, jackhammers, grinders, sprayers, chipping hammers, air nozzles and drills.
- 28.3.2 The contractor shall ensure that
- i. Electric tools are properly grounded or / and double insulated.
 - ii. GFCIs/ RCCBs shall be used with all portable electric tool operated especially outdoors or in wet condition.
 - iii. Before making any adjustments or changing attachments, his workers shall disconnect the tool from the power source.
 - iv. When operating in confined spaces or for prolonged periods, hearing protection shall be required. The same shall also apply to working with equipment's, which gives out more noise as mentioned in clause 43.0 of this contract document.
 - v. Tool is held firmly and the material is properly secured before turning on the tool.
 - vi. All drills shall have suitable attachments respective of the operations and powerful for ease of operation.
 - vii. When any work / operation needs to be performed repeatedly or continuously, tools specifically designed for that work shall be used. The same is applicable to detachable tool bit also.
 - viii. Size of the drill shall be determined by the maximum opening of the chuck n case of drill bit.
 - ix. Attachments such as speed reducing screwdrivers and buffers shall be provided to prevent fatigue and undue muscle strain to his workers.
 - x. Stock should be clamped or otherwise secured firmly to prevent it from moving.
 - xi. Workers shall never stand on the top of the ladder to drill holes in walls / ceilings, which can be hazardous, instead standing on the fourth or fifth rung shall be recommended.
 - xii. Electric plane shall not be operated with loose clothing or long scarf or open jacket.
 - xiii. Safety guards used on right angle head or vertical portable grinders must cover a minimum of 1800 of the wheel and the spindle / wheel specifications shall be checked.
 - xiv. All power tools / hand tools shall have guards at their nip points.
 - xv. Low profile safety chain shall be used in case of wood working machines and the saw shall run at high rpm when cutting and also correct chain tension shall be ensured to avoid "kickback".
 - xvi. Leather aprons and gloves shall be used as an additional personal protection auxiliary to withstand kickback.

- xvii. Push sticks shall be provided and properly used to hold the job down on the table while the heels move the stock forward and thus preventing kickbacks.
- xviii. Air pressure is set at a suitable level for air actuated tool or equipment being used. Before changing or adjusting pneumatic tools, air pressure shall be turned off.
- xix. Only trained employees shall use explosive actuated tools and the tool shall also be unloaded when not in use.
- xx. Usage of such explosive actuated tools shall be avoided in case of places where explosive flammable vapors or gases may be present.
- xxi. Explosive actuated tools and their explosives shall be stored separately and be taken out and loaded only before the time of immediate use.
- xxii. Misfired cartridges of explosive actuated tools must be placed in a container of water and be removed safely from the project.
- xxiii. No worker shall point any power operated / hand tool to any other person especially during loading / unloading.

29.0 WELDING, GOUGING AND CUTTING

- 29.1 Gas cylinders in use shall be kept upright on a custom-built stand or trolley fitted with a bracket to accommodate the hoses and equipment or otherwise secured. The metal cap shall be kept in place to protect the valve when the cylinder is not connected for use.
- 29.2 Hose clamp or clip shall be used to connect hoses firmly in both sides of cylinders and torches.
- 29.3 All gas cylinders shall be fixed with pressure regulator and dial gauges
- 29.4 Non-return valve and Flashback arrester shall be fixed at both end of cylinder and torch.
- 29.5 Domestic LPG cylinders shall not be used for Gas welding and Cutting purpose.
- 29.6 DCP or CO2 type Fire Extinguisher not less than 5 kg shall be fixed at or near to welding process zone in an easily accessible location. Fire Extinguisher should confirm to IS 2190: 1992.
- 29.7 Use firewatchers if there is a possibility of ignition unobserved by the operator (e.g. on the other side of bulkheads).
- 29.8 Oxygen cylinders and flammable gas cylinders shall be stored separately, at least 6.6 meters (20 feet) apart or separated by a fire proof, 1.5 meters (5 feet) high partition. Flammable substances shall not be stored within 15 meters of cylinder storage areas.
- 29.9 Transformer used for electrical arc welding shall be fixed with Ammeter and Voltmeter and also fixed with separate main power switch.
- 29.10 Welding grounds and returns should be securely attached to the work by cable lugs, by clamps in the case of stranded conductors, or by bolts for strip conductors. The ground cable will not be attached to equipment or existing installations or apparatus.
- 29.11 Use a low voltage open circuit relay device if welding with alternating current in constricted or damp places.
- 29.12 Take precautions against the risk of increased fume hazards when welding with chrome containing fluxed consumables or high current metal inert gas (MIG) or tungsten inert gas (TIG) processes.

- 29.13 Avoid being in contact with water or wet floors when welding. Use duckboards or rubber protection.
- 29.14 All electrical installations shall meet the IS: 5571: 1997 and NFPA 70 for gas cylinder storage area and other hazardous areas.
- 29.15 The current for Electric arc welding shall not exceed 300 A on a hand welding operation.

30.0 DANGEROUS AND HARMFUL ENVIRONMENT

As per Rule 40 of BOCWR,

- a) When internal combustion engines are to be used into a confined space or excavation or tunnel or any other workplace where neither natural or artificial ventilation system is inadequate to keep carbon monoxide below 50ppm, exposure of building workers shall be avoided unless suitable measures are taken and provided by the contractor.
- b) No worker shall be allowed into any confined space or tank or trench or excavation wherein there is given off any dust, fumes / vapors or other impurities which is likely to be injurious or offensive to the worker, or in which explosive or poisonous or noxious or gaseous material or other harmful articles have been carried or stored or in which dry ice has been used as a refrigerant, which has been fumigated or in which there is a possibility of oxygen deficiency, unless all practical steps have been taken to remove such dust, fumes, other impurities and dangers which may be present and to prevent any further ingress thereof, and such work place or tank or trench or excavation shall be certified by the responsible person to be safe and fit for the entry of such workers.

31.0 FIRE PREVENTION, PROTECTION AND FIGHTING SYSTEM

- 31.1 The contractor shall ensure that construction site is provided with fire extinguishing equipment sufficient to extinguish any probable fire at construction site. An adequate water supply is provided at ample pressure as per national standard.
- 31.2 Recharging of fire extinguishers and their proper maintenance should be ensured and as a minimum should meet Indian National Standards
- 31.3 All drivers of vehicles, foreman, supervisors and managers shall be trained on operating the fire extinguishers and firefighting equipment.
- 31.4 The contractor shall also give consideration to the provision of adequate firefighting arrangements within the underground and tunneling operations including the provision of Fire Service compatible hose connections and emergency lighting
- 31.5 As per Rule 79 (A (7) of The Building and Other Contract Workers (Regulation of Employment and conditions of service) (Karnataka) Rules 2006, all lifting appliances operators shall be provided a cabin which shall be equipped a suitable portable fire extinguisher.
- 31.6 Combustible scrap and other construction debris should be disposed of site on a regular basis. If scrap is to be burnt on site, the burning site should be specified and located at a distance no less than 12 meters from any construction work or any other combustible material.
- 31.7 Every fire, including those extinguished by contractor personnel, shall be reported to the Employer representatives.

- 31.8 Emergency plans and Fire Evacuation plans shall be prepared and issued. Mock drills should be held on a regular basis to ensure the effectiveness of the arrangements and as a part of the programme, the Telephone Number of the local fire brigade should be prominently displayed near each telephone on site.

32.0 CORROSIVE SUBSTANCES

- 32.1 As per Rule 44 of BOCWR, corrosive substances including alkalis and acids shall be stored and used by a person dealing with such substances at a building / construction site in a manner that it does not endanger the building worker and suitable PPE shall be provided by the contractor to the worker during such handling and work. In case of spillage of such substances on building worker, the contractor shall take immediate remedial measures.

33.0 DEMOLITION

- 33.1 The Contractor shall ensure that

- i. All demolition works be carried out in a controlled manner under the management of experienced and competent supervision.
- ii. The concerned department of the Government or local authority is informed and permission obtained wherever required. Media shall also be informed regarding this concern.
- iii. All glass or similar materials or articles in exterior openings are removed before commencing any demolition work and all water, steam, electric, gas and other similar supply lines are put-off and such lines so located or capped with substantial coverings so as to protect it from damage and to afford safety to the building workers and public.
- iv. Examine the walls of all structures adjacent to the structure to be demolished to determine thickness, method of support to such adjacent structures.
- v. No demolishing work be performed if the adjacent structure seems to be unsafe unless and until remedial measures like sheet piling, shoring, bracing or similar means be ensured for safety and stability for adjacent structure from collapsing.
- vi. Debris / bricks and other materials or articles shall be removed by means of
 - a) chutes
 - b) buckets or hoists
 - c) through openings through floors or d) any other safe means
- viii) No person other than building workers or other persons essential to the operation of demolition work shall be permitted to enter a zone of demolition and the area be provided with substantial barricades.

34.0 EXCAVATION AND TUNNELLING

- 34.1 Excavation

- 34.1.1 The contractor shall ensure.

- i. Where any construction building worker engaged in excavation is exposed to hazard of falling or sliding material or article from any bank or side of such excavation which is more than one 1.5 m above his footing, such worker is protected by adequate piling and bracing against such bank or side.
- ii. Where banks of an excavation are undercut, adequate shoring is provided to support the material or article overhanging such bank.
- iii. excavated material is not stored at least 0.65 m from the edge of an open excavation or trench and banks of such excavation or trench are stripped of loose rocks and the banks of such excavation or

trench are stripped of loose rocks and other materials which may slide, roll or fall upon a construction building worker working below such bank

- iv. metal ladders and staircases or ramps are provided, as the case may be, for safe access to and egress from excavation where, the depth of such excavation exceeds 1.5 m and such ladders, staircases or ramps comply with the IS 3696 Part 1&2 and other relevant national standards.
- v. Trench and excavation is protected against falling of a person by suitable measures if the depth of such trench or excavation exceeds 1.5 m and such protection is an improved protection in accordance with the design and drawing of a professional engineer, where such depth exceeds 4m.

34.2 Tunneling

34.2.1 The contractor shall inform in writing to the Director General within 30 days, prior to the commencement of any tunneling work.

34.2.2 The contractor shall appoint a responsible person for safe operation for tunneling work as per Rule 121 &125 of BOCWR.

34.2.3 The contractor shall ensure

- i. every compressed air system in a tunnel is provided with emergency power supply for maintained continued supply of compressed air as per Rule 155 of BOCWR
- ii. Watertight bulkhead doors are installed at the entrance of a tunnel to prevent flooding.
- iii. Reliable and effective means of communication such as telephone or walkie-talkie are provided and maintained for arranging better effective communication at an excavation or tunneling work as per Rule 136 of BOCWR.
- iv. All portable electrical hand tools and inspection lamp used in underground and confined space at an excavation or tunneling work is operated at a voltage not exceeding 24V.
- v. only flame proof equipment of appropriate type as per IS: 5571:2000 and or other relevant national standard is used inside the tunnel
- vi. petrol or LPG of any other flammable substances are not used, stored inside the tunnel except with prior approval from Employer, and also no oxy-acetylene gas is used in a compressed air environment in excavation or tunneling
- vii. Adequate number of water outlets provided for firefighting purpose, an audible fire alarm and adequate number and types of fire extinguishers are provided and maintained.
- viii. Temperature in any working chamber in an excavation or tunneling work where workers employed does not exceed 29°C as per Rule 165 of BOCWR.
- ix. All working areas in a free air tunnel are provided with ventilation system as approved by the Director General and the fresh air supplied in such tunnel is not less than 6 m³/ min for each worker employed in tunnel as per Rule 153 of BOCWR.

34.3 Warning signs and notices:

34.3.1 The contractor shall ensure that

- i) suitable warning signs or notices, required for the safety of building workers carrying out the work of an excavation or tunneling, shall be displayed or erected at conspicuous places in Hind/ and in a language understood by majority of such building workers at such building such excavation or tunneling work
- ii) such warning signs and notices with regard to compressed air working shall include
 - a) the danger involved in such compressed air work
 - b) fire and explosion hazard

- c) The emergency procedures for rescue from such danger or hazards.

35.0 WORK PERMIT SYSTEM

- 35.1 The Contractor shall develop a Work Permit system, which is a formal written system used to control certain types of work that are potentially hazardous. A work permit is a document, which specifies the work to be done, and the precautions to be taken. Work Permits form an essential part of safe systems of work for many construction activities. They allow work to start only after safe procedures have been defined and they provide a clear record that all foreseeable hazards have been considered. Permits to Work are usually required in high-risk areas as identified by the Risk Assessments.
- 35.2 A permit is needed when construction work can only be carried out if normal safeguards are dropped or when new hazards are introduced by the work. Examples of high-risk activities include but are not limited to:
- Entry into confined spaces
 - Work in close proximity to overhead power lines and telecommunication cables.
 - Hot work.
 - To dig-where underground services may be located.
 - Work with heavy moving machinery.
 - Working on electrical equipment
 - Work with radioactive isotopes.
 - Heavy lifting operations and lifting operations closer to live power line
- 35.3 The permit-to-work system should be fully documented, laying down:
- How the system works;
 - The jobs it is to be used for;
 - The responsibilities and training of those involved; and iv. How to check its operation;
- 35.4 A Work Permit authorization form shall be completed with the maximum duration period not exceeding 12 hours.
- 35.5 A copy of each Permit to Work shall be displayed, during its validity, in a conspicuous location in close proximity to the actual works location to which it applies.
- 35.6 Format of Work Permits i.e., Cold Permit (for all works other than Hot or Excavation/ tunneling and Electrical Isolation), Hot Work, Electrical Isolation are given at the end of this document as Form No SF 003, SF 004 & SF 005 respectively. These are indicative and can be suitably modified depending upon site condition.

36.0 TRAFFIC MANAGEMENT

- 36.1 The basic objective of the following guidelines is to lay down procedures to be adopted by contractor to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at construction sites.
- 36.2 All construction workers should be provided with high visibility jackets with reflective tapes as most of viaduct /tunneling and station works or either above or under right-of-way. The conspicuity of workmen at all times shall be increased so as to protect from speeding vehicular traffic.
- 36.3 The guiding principles to be adopted for safety in construction zone are to

- i. Warn the road user clearly and sufficiently in advance.
- ii. Provide safe and clearly marked lanes for guiding road users.
- iii. Provide safe and clearly marked buffer and work zones
- iv. Provide adequate measures that control driver behavior through construction zones.

36.4 Legal permission

36.4.1 In all cases, the contractor shall employ proper precautions. Wherever operations undertaken are likely to interfere with public traffic, specific traffic management plans shall be drawn up and implemented by the contractor in consultation with the approval of local police authorities and/or the concerned metropolitan/civil authorities as the case may be.

36.4.2 Such traffic management plans shall include provision for traffic diversion and selection of alternative routes for transport of equipment. If necessary, the contractor shall carry out road widening before commencement of works to accommodate the extra load

36.5 The primary traffic control devices used in work zones shall include signs, delineators, barricades, cones, pylons, pavement markings and flashing lights.

36.6 The road construction and maintenance signs which fall into the same three major categories as do other traffic signs, that are Regulatory Signs, Warning Signs and Direction (or guidelines) Signs shall only be used. The IRC: 67 (Code of Practice for Road Signs) provide a list of traffic signs. The size, colours and placement of sign shall confirm to IRC: 67.

36.7 Regulatory signs

36.7.1 Regulatory signs impose legal restriction on all traffic. It is essential, therefore, that they are used only after consulting the local police and traffic authorities.

36.8 Warning signs

36.8.1 Warning signs in the traffic control zone shall be utilized to warn the drivers of specific hazards that may be encountered.

36.8.2 The contractor shall place detour signage at strategic locations and install appropriate warning signs. In order to minimize disruption of access to residences and business, the contractor shall maintain at least one entrance to a property where multiple entrances exist.

36.8.3 Materials hanging over / protruded from the chassis / body of any vehicle especially during material handling shall be indicated by red indicator (red light/flag) to indicate the caution to the road users.

36.9 Delineators

The delineators are the elements of a total system of traffic control and have two distinct purposes:

- i. To delineate and guide the driver to and along a safe path ii) As a taper to move traffic from one lane to another.

36.9.1 These channelizing devices such as cones, traffic cylinders, tapes and drums shall be placed in or adjacent to the roadway to control the flow of traffic. These should normally be retro-reflectors complying with IRC: 79 - Recommended Practice for Road Delineators.

36.9.2 Traffic cones and cylinders

36.9.2.1 Traffic cones of 500mm, 750mm and 1000mm high and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally have retro-reflectorized red and white band shall be used wherever required.

36.9.3 Drums

36.9.3.1 Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers.

36.9.4 Barricades

36.9.4.1 Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement. Same the way barricades protect the road users from the danger due to construction equipment and other temporary structures.

36.9.4.2 The structure dimension of the barricade, material and composition, its colour scheme, K-RIDE logo and other details shall be in accordance with specifications laid down in tender document.

36.9.4.3 All barricades shall be erected as per the design requirements of the Employer, numbered, painted and maintained in good condition and also Barricade in-charge maintains a barricade register in site.

36.9.4.4 All barricades shall be conspicuously seen in the dark/night time by the road users so that no vehicle hits the barricade. Conspicuity. Shall be ensured by affixing retro reflective stripes of required size and shape at appropriate angle at the bottom and middle portion of the barricade at a minimum gap of 1000mm. In addition, minimum one red light or red light blinker should be placed at the top of each barricade.

36.9.5 The contractor shall ensure that all his construction vehicles plying on public roads (like dump trucks, trailers, etc.) have proper license to ply on public roads from the State Transport Authority. Drivers holding proper valid license as per the requirements of Motor Vehicles Act shall drive these vehicles

36.9.6 The contractor shall not undertake loading and unloading at carriageways obstructing the free flow of vehicular traffic and encroachment of existing roads by the contractor applying the excuse of work execution.

36.9.7 Safety Fencing:

Before commencing any work close to the running track, the Contractor shall provide safety fencing and obtain the specific permission of Engineer to commence the work in that stretch. The fencing shall be for an as per relevant scheduled item. The Contractor shall maintain the safety fencing in good working condition throughout the period until the work in a given stretch is completed. The Contractor will be paid for providing safety fencing along the track as per the relevant scheduled item.

36.9.8 Tow away vehicle

36.9.8.1 The contractor shall make arrangements keeping tow away van / manpower to tow away any breakdown vehicle in the traffic flow without losing any time at his cost.

36.9.9 Cleaning of road

36.9.9.1 The contractor shall ensure the cleanliness of roads and footpaths by deploying proper manpower for the same. The contractor shall have to ensure proper brooming, cleaning washing of roads and footpaths on all the time throughout the entire stretch till the currency of the contract including disposal of seepage.

37.0 WORK TO ADJACENT RAILWAYS

37.1 Whenever work is to be conducted in close proximity to the live railways then the following measures shall need to be addressed:

Provision of IRPWM (Indian Railways Permanent Way Manual) related to block protection; safety precaution for protection of track must be followed.

- a. Works which is executed within 3.5 mtr from center line of existing Indian Railway track should be executed under block protection and with permit to work from concerned railway
- b. For works to be executed between 3.5 mtr to 6 mtr. from center line of existing Indian Railway track work to be executed after erection of fencing as per approved plan.
- c. For works to be executed beyond 6 mtr from center line of existing Indian Railway track, it must be ensured that no vehicle / construction equipment infringes demarcation line marked at 3.5 mtr from center of existing railway track.
- d. All utilities, signaling cables, signaling equipment, pipelines, gate lodges, staff quarters etc., coming in the alignment must be shifted / relocated as per approved plan before undertaking earth-work Program.
- e. During earth-work if any signaling cable not identified earlier got damaged it should be immediately reported to Railway and immediate action should be taken for repair of the same to avoid interruption to traffic.
- f. Any material unloaded along the track should be kept clear of moving dimensions and stacked at minimum 3.5 mtr from track center of running track.
- g. Movement of vehicle / working of machineries should not be permitted during night. In case night working is to be adopted proper fencing at 3.5 mtr from track center of running track should be erected to ensure that no infringement of moving dimension takes place. Suitable lighting arrangements should also be done.
- h. Working in existing railway station area for modification of existing siding / line must be done after approval of plan and with permit to work from Railway.
- i. Modification to road surface at existing level crossings which may cause interruption to road traffic should be executed as per approved plan with the approval of concerned local authorities.
- j. Launching of girders for construction of ROB / rail flyover / modification to existing ROBs should be done as per approved plan and scheme with permission to work from Railway / road authorities.
- k. For construction of new bridge over major drain / drain / nallaha / rajakaluve / extension of existing bridge over canal approval of respective authorities should be taken before undertaking work.

37.2 The work of formation in banks and cuttings throughout the length of doubling is adjacent to track under running traffic. Many of the bridges on the proposed double line are to be constructed either as extensions or just adjacent to the existing bridges under running traffic. The work of Installation of Track throughout the length of doubling is adjacent to track under running traffic. The work of Installation of Track and Signals in the Station yards including alterations to the existing Track and Signals has to be done adjacent to or in

replacement of the existing Track and Signals which are under running traffic. The contractor shall ensure that the safety of the running lines and running traffic is not endangered, because of his work.

37.2.1 Any traffic/traction blocks, temporary speed restrictions and caution orders required in this connection shall also be got sanctioned from the Railway authorities well in advance, through the Engineer. The Railways may sanction the same for specific sites within the overall recovery time available in the Railway's time table. The contractor shall have to schedule his programme according to the convenience of the Railways. No claim from the contractor for any delay/inconvenience/loss on this account shall be entertained by the Employer.

37.2.2 The contractor shall provide at site at his own cost, all protection measures including exhibition and lighting of all Temporary Engineering Signals as per Railway rules, instructions and norms. All lights provided by the contractor shall be screened so as not to interfere with any signal light on the Railways or with any traffic or signal lights of any local or other authority.

37.3 Ancillary and Temporary works

The Contractor's proposals for erection of all ancillary and temporary works shall be in conformity with the proposals submitted along with the tender and modifications thereto as approved by the Engineer.

The Contractor shall submit drawings, supporting design calculations where called for by the Engineer and other relevant details of all such works to the Engineer for approval at least one month before he desires to commence such works. Approval by the Engineer of any such proposal shall not relieve the contractor of his responsibility for the sufficiency of such works.

The contractor shall, at his own cost, design and provide any temporary arrangements including relieving/service girders required in connection with the above said works and remove the same, when no longer required. These arrangements shall conform to Railway norms. The contractor shall obtain all necessary approvals and sanctions of the concerned Railway authorities including Commissioner of Railway Safety through the Engineer/ Employer in advance and well in time.

The contractor shall ensure and be entirely responsible for proper design, fabrication, provision and upkeep of all temporary arrangements and all associated activities so as not to endanger safety of any assets, running track, traffic and traveling public and for following all extent instructions, norms, practice and procedures laid down by Railway authorities in this respect, which may be ascertained from the Railways through the Engineer.

If required, Railways may, in order to ensure the safety of the running track, post at site Regular Railway staff to watch the efficacy and safety of temporary arrangements and protection measures round the clock for the period the same exist in the running line and till the running line is restored back to normal. Railways may also supervise the insertion, maintenance and removal of the temporary arrangements. The cost of such staff shall be borne by the Employer.

Notwithstanding the above, the contractor shall not, however, be relieved of his responsibility and obligation as aforesaid.

Save as provided in (e) above, the contractor shall bear the cost of complying with all safety requirements. No extra payment will be made for complying with the safety provisions under this chapter and the cost of all such elements to meet the safety requirements shall be deemed to be included in the Bill of Quantities.

- 37.3.1 The contractor remains fully responsible for ensuring safety. In case of any accident, the Contractor shall bear cost of all damages to his equipment and men and also damages to Railway and its passengers.

Suitable barricading to forewarn road vehicle driver shall be provided by the contractor. The luminous tape, strung on bamboo or steel poles can be considered for such barricading. Barricading arrangement should be got approved by the Engineer.

37.4 Indemnity by Contractor

The Contractor shall indemnify and save harmless the Railway/Employer/Engineer from and against all actions, suit proceedings, losses, costs, damages, claims, and demands of every nature and description brought or recovered against the Railways/ Employer/Engineer by reason of any act or omission of the contractor, his agents or employees, in the execution of the works or in his guarding the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

38.0 BATCHING PLANT AND CASTING YARD LAYOUT

- i. The batching plant / casting yard shall be effectively planned for smooth flow of unloading and stacking the aggregates reinforcements and cement, batching plant, transport of concrete, casting the segment, stacking the segment and loading the segments to the trucks. As far as possible the conflicts should be avoided.
- ii. The batching plant / casting yard shall be barricaded and made as a compulsory PPE zone
- iii. If in case of material unloading area is not maintainable as PPE zone, the same shall be segregated properly and made as a non-PPE zone with appropriate barrications.
- iv. Electrical system shall also be suitably planned so that location of diesel generator, if any, location of DBs, routing of cables and positioning of area lighting poles/masts does not infringe on any other utility and pose danger.
- v. Drainage shall be effectively provided and waste water shall be disposed after proper treatment
- vi. Time office, canteen, drinking water, toilet and rest place shall be suitably located for the easy access to workers. All the facilities shall be properly cleaned and maintained during the entire period of operation.
- vii. Manual handling of cement shall be avoided to a larger extent. Whenever it is absolutely necessary the workmen shall be given full body protection, hand protection and respiratory protection as a basic measure of ensuring better health.
- viii. The PPEs provided to cement handling workmen shall conform to international standards.
- ix. Access roads and internal circulation roads shall be well laid and maintained properly at all time.
- x. Non-adherence to any of the above provision shall be penalized as per relevant penalty clause.

39.0 PERSONAL PROTECTIVE EQUIPMENTS (PPEs)

39.1 The contractor shall provide required PPEs to workmen to protect against safety and / or health hazards.

Primarily PPEs are required for the following protection

- i. Head Protection (Safety helmets)
- ii. Foot Protection (Safety footwear, Gumboot, etc.)
- iii. Body Protection (High visibility clothing (waistcoat/jacket), Apron, etc.)
- iv. Personal fall protection (Full body harness, Rope-grape fall arrester, etc.)
- v. Eye Protection (Goggles, Welders glasses, etc.)
- vi. Hand Protection (Gloves, Finger coats, etc.)
- vii. Respiratory Protection. (Nose mask, SCBAs, etc.)
- viii. Hearing Protection (Ear plugs, Ear muffs, etc.)

39.2 The PPEs and safety appliances provided by the contractor shall be of the standard as prescribed by Bureau of Indian Standards (BIS). If materials conforming to BIS standards are not available, the contractor as approved by the Employer shall procure PPE and safety appliances.

39.3 All construction workers should be provided with high visibility jackets with reflective tapes confirming to the requirement specified under BS EN 471: 1994 as most of viaduct / tunneling and station works are executed either above or under right-of-way. The conspicuity of workmen at all times shall be increased so as to protect them from speeding vehicular traffic.

39.4 The contractor shall provide safety helmet, safety shoe and high visibility clothing for all employees including workmen, traffic marshal and other employees who are engaged for any work under this contract as per the following requirement.

All employees of the Contractor including workmen	Traffic marshals
<ol style="list-style-type: none"> i. Hard hat with company Logo ii. Safety boots iii. Hi-visibility waistcoat covering upper body and meeting the following requirement as per BS EN 471:1994: <ol style="list-style-type: none"> a. Background in fluorescent orange-red in colour b. Two vertical green strips of 5cm wide on front side, covering the torso at least 500 cm² c. Two diagonal strips of 5 cm wide on back in an 'X' pattern covering at least 570cm² d. Horizontal strips not less than 5cm wide running around the bottom of the vertical Strip in front and 'X' pattern at back. e. The bottom strip shall be at a distance of 5cm from the bottom of the vest. f. Strips must be retro reflective and fluorescent 	<ol style="list-style-type: none"> i. Hard hat with reflective tape ii. Safety boots iii. Hi-visibility jacket covering upper body and meeting the following requirements as per BS EN 471:1994: <ol style="list-style-type: none"> a. Background in fluorescent orange- red in colour b. Jackets with full-length sleeves with two bands of retro reflective material, which shall be placed at the same height on the garment as those of the torso. The upper band shall encircle the upper part of the sleeves between the elbow and the shoulder; the bottom of the lower band shall not be less than 5cm from the bottom of the sleeve. c. Two vertical green strips of 5cm wide on front side, covering the torso at least 500 cm² d. Two diagonal strips of 5 cm wide on back in an 'X' pattern covering at least 570cm² e. Horizontal strips not less than 5cm wide running around the bottom of the vertical strip in front and 'X' pattern at back.

g. Waistcoat shall have a side adjustable fit and a side and front tear-away feature on Vests made of nylon.	f. The bottom strip shall be at a distance of 5cm from the bottom of the vest.
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39.4.1 Color coding for helmets

Safety Helmet Colour Code (Every Helmet should have the LOGO* affixed /painted)	Person to use
White	K-RIDE staffs
Grey	All Designers, Architect, Consultants, etc.
Violet	Main Contractors (Engineers / Supervisors)
Blue	All Sub-contractors (Engineers /Supervisors)
Red	Electricians (Both Contractor and Sub-contractor)
Green	Safety Professionals (Both Contractor and Sub-contractor)
Orange	Security Guards / Traffic marshals
Yellow	All workmen
White (with "VISITOR" sticker)	Visitors

Notes: LOGO

- 1) Logo shall have its outer dimension 2"X2" and shall be conspicuous
- 2) Logo shall be either painted or affixed
- 3) No words shall come either on Top / Bottom of Logo

Logo of the corresponding main contracting company for their employees and sub-contracting company for their employees shall only be used.

- 39.5 In addition to the above any other PPE required for any specific jobs like, welding and cutting, working at height, tunneling etc. shall also be provided to all workmen and also ensure that all workmen use the PPEs properly while on the job.
- 39.6 The contractor shall not pay any cash amount in lieu of PPE to the workers/sub-contractors and expect them to buy and use during work.
- 39.7 The contractor shall at all-time maintain a minimum of 10% spare PPEs and safety appliances and properly record and show to the Employer during the inspections. Failing to do so shall invite appropriate penalty as per the provisions of the contract.
- 39.8 It is always the duty of the contractor to provide required PPEs for all visitors. Towards this required quantity of PPEs shall be kept always at the security post.
- 39.9 Damage to Railway Property or Life or Private Property
- 39.9.1 The contractor shall be responsible for all risks to the works and for the trespass and shall make good at his own expense all loss or damage whether to the works themselves or to any other property of the Railway

or the lives of persons or property of others from whatsoever cause in connection with the works until they are taken over by the Employer and this although all reasonable and proper precautions may have been taken by the Contractor, and in case the Railway/Employer/Engineer shall be called upon to make good any costs, loss or damages, or to pay any compensation, including that payable under the provisions of Workmen's compensation act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid, by reason of any act, or any negligence or any omissions on the part of the contractor, the amount of any costs or charges including costs and charges in connection with legal proceedings, which the Railway/Employer/Engineer may incur in reference thereto, shall be charged to the contractor. The Railway/Employer/Engineer shall have the power and right to pay or to defend or compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to Contractor, as aforesaid, any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expense shall not be called in question by the Contractor.

39.9.2 Safety of Public

- i. The Contractor shall be responsible to take all precautions to ensure the safety of the Public whether on Public or Railway property and shall post such look out men as may in the opinion of the Engineer be required to comply with regulations pertaining to the work.
- ii. The Contractor shall provide effective barricading using G.I. corrugated sheets around foundation pits, trenches, erection sites, demolition sites etc., to prevent accidents and injuries to the public. He shall erect barricading duly leaving safe passage for the movement of the public as per the directions of Engineer.
- iii. No payment will be made for providing such barricading and the rates quoted by the Contractor shall be inclusive of such safety measures.

39.9.3 Reporting of Accidents

The Contractor shall report to the Engineer details of any accidents as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer and the Employer immediately by the quickest available means.

39.9.4 Life-saving Appliances and First-aid Equipment

The Contractor shall provide and maintain upon the Works sufficient, proper and efficient life-saving appliances and first-aid equipment to the approval of the Engineer and in accordance with the requirements of ILO Convention No. 62. The appliances and equipment shall be available for use at all time

39.9.5 Security Measure

- i. Security arrangements for the work shall be in accordance with general requirements and the contractor shall conform to such requirements and shall be held responsible for the action or inaction on the part of his staff, employees and the staff and employees of his subcontractors.
- ii. Contractor's as well as Sub Contractor's employees and representatives shall wear identification Badges (cards), uniforms, helmets, gum boots and other safety/protection gadgets/accessories provided by the Contractor. Badges shall identify the Contractor and show the employee's name and number and shall be worn at all times while at site.

- ii. All vehicles used by the contractor shall be clearly marked with the Contractor's name or identification mark.
- iii. The contractor shall be responsible for security of works for the duration of the contract and shall provide and maintain continuously adequate security personnel to fulfill these obligations. The requirements of security measures shall include, but not be limited to, maintenance of Law and Order at site, provision of all lighting, guard, flagmen, and all other measures necessary for protection of works within the colonies, camps and elsewhere at site, all materials delivered to the site and all persons employed in connection with the works continuously throughout working and non-working periods including nights, Sundays and holidays, for the duration of the contract. However, at work sites in close proximity of traffic corridors where public and traffic are likely to come close to the work area, suitable barricading as proposed by contractor and approved by Engineer shall be provided.
- iv. No separate payment will be made for providing security measures and will be deemed included in the quoted lumpsum price.

39.9.6 Contractor will have to comply the instructions circulated for Safety on Worksites Specially Doubling Works being implemented on Indian Railways as per relevant letters and any subsequent instructions on this issue.

It is presumed that bidders have gone through the Indian Railway's policies including any subsequent instructions on this issue if any, before quoting the rates.

39.9.7 Ensuring Safety at work site
Ensuring safety at work site while carrying out of doubling works is of paramount importance.

39.9.8 Following measures must be ensured:

1. Fencing as per specification lay down along the track at specified distance from centerline of existing track. The fencing should be maintained until the track is handed over to Railways. Accordingly, at locations where it has been broken/stolen away, the same should be restored expeditiously.
2. Contractors to ensure patrolling by Cycle/ Motor Cycle to prevent damage to fencing and to rectify as soon as it is detected.
3. In the stretch where new formation is likely to be used by unauthorized vehicles and likely to create potential unsafe condition, lifting barriers under lock & key at points where contractor's vehicles are required to enter should be provided and the same should be manned to allow entry to only contractor's vehicles and prevent entry of unauthorized vehicles.
4. Other likely entry points on the new formation must be suitably blocked by providing physical obstructions by stacking sleepers or by cross trenches or by erecting fence to prevent entry of unauthorized vehicles. Frequent check exercised to ensure that unauthorized vehicles do not ply.
5. Reducing number and length of such stretches by providing cross-barricades should be done.
6. PMC should be advised to educate his supervisor for each stretch to ensure Safety who should be well conversant safety instructions and should see that the same are not violated. PMC has to be made accountable for lapses on the safety aspects.
7. Periodical formal counseling of all contractor's staff and PMC officials regarding safety instructions and review violations coming to light and taking appropriate action.

8. Counseling of drivers and operators of machinery regarding safety aspect during routine inspection of PMC official's contractors Engineers.
9. All the driver's/machine operators should have competency certificate issued by PMC after examining their knowledge about safety. Only authorized drivers can play within 6.6 m of the existing track will have to be proposed as found necessary.
10. Necessary caution orders to Drivers of trains wherever required in terms of Railway Board's instructions/PCE circulars.
11. In case work is required to be carried out within 3.5 M of existing running line, K-RIDE should be advised well in time and requested to provide look out men and Railway Supervisors for the site. At such locations, close supervision must be ensured.

In terms of contract conditions, preventing entry of outsiders at the worksites is the responsibility of contractor and this has to be ensured.

40.0 VISITORS TO THE SITE

- 40.1 No visitor is allowed to enter the site without the permission of the Employer. All authorized visitors should report at the site office. Contractor shall provide visitor's helmet (White helmet with visitor sticker) and other PPEs like Safety Shoe, reflective jacket, respiratory protection etc. as per requirement of the site.
- 40.2 All Visitors shall be accompanied at all times by a responsible member of the site personnel.
- 40.3 The contractor shall be fully responsible for all visitors' safety and health within the site.
- 40.4 As indicated earlier in this Manual, the Engineer shall undertake regular audits at quarterly intervals, of the Contractor's onsite practices and procedures as a means of assessing the ongoing performance of the Contractor.
- 40.5 The criteria against which the audits will be undertaken shall be derived from the clauses within the Environment Protection Requirements (Appendix II/ herein above), contract-specific Site Environmental Plan and previous site inspection results.
- 40.6 In addition to the quarterly audits by the Engineer, site inspection shall be undertaken by the Contractor's staff to inspect the construction activities in order to ensure that appropriate environmental protection and pollution control measures are properly followed and implemented.
- 40.7 The frequency of site inspection shall be at least once a week.
- 40.8 The Contractor shall prepare an 'Environmental Inspection and Action Reporting System' and submit to the Engineer for approval and make amendments as suggested. It shall contain a contract specific comprehensive Environment Inspection checklist as requirement of Site Environmental Plan.
- 40.9 The area of inspection shall not be limited to environmental compliance within the site but areas outside the site which are likely to be affected, directly or indirectly by activities at site.

- 40.10 Results of inspection shall be discussed with Engineer and his recommendations on better environmental protection shall be notified to the Contractor for taking immediate action and rapid resolution of identified non-compliance.
- 40.11 If significant environmental problems are identified or if there is an environmental complaint or as a part of investigation work, then the Engineer shall also carry out Ad hoc site inspection which shall be attended by Contractor's Representative.
- 40.12 Reporting system
- 40.12.1 Reporting under the Environmental Management System will contain results of monitoring and inspection programs.
- 40.12.2 In Site Environmental Plan, the Contractor shall prepare and submit monthly Environmental Quality Management Reports in accordance with Requirements as per Contract.
- 40.12.3 The monthly report shall include (but not limited to) the following:
- Executive Summary
 - Brief mention of construction activities
 - Monitoring results under AMCP, and NMCP
 - Interpretation of monitoring results, significance and influencing factors
 - Graphical representation of monitored results over past four reporting periods.
 - Measures to control spill under SPCP.
 - Action taken on recommendations under site inspection programme or specific directions.
 - Summary of complaints, results of investigations and follow-up action
 - Future key issues.
- 40.13 Complaint Response Process
- 40.13.1 Inquiries, complaints and requests for information can be expected from a wide range of individuals and organizations both private and government. The majority of complaints is likely to be received by K-RIDE, although the site offices are also likely to be contacted.
- 40.13.2 The objective of complaint process is to ensure that public and agency complaints are addressed and resolved consistently and expeditiously.
- 40.13.3 The Contractor's Site Manager will be notified immediately on receipt of complaint that may relate to environmental impacts. The Site Manager will immediately inform the Engineer and through him the K-RIDE.
- 40.13.4 Field investigation should determine whether the complaint has merit, and if so, action should be taken to address the impact.
- 40.13.5 The outcome of the investigation and the action taken shall be documented on a complaint Performa prepared by the Contractor and approved by the Engineer in advance of the works.
- 40.13.6 Where possible, a formal response to each complaint received shall be prepared by the Contractor within seven days in order to notify the concerned person(s) that action has been taken.

40.14 Completion of the EQM Programme

- 40.14.1 The construction of Bangalore Suburban rail project will be undertaken as a series of individual construction contracts with necessarily different construction program and completion dates.
- 40.14.2 The Engineer shall maintain an overview of the 'impact causing potential' of each site or contract and monitoring parameter with a view to maintaining the most cost-effective use of the environmental resources dedicated to the Project.
- 40.14.3 Termination of EQM should focus on the percentage contract completion status and on the basis of a history of environmental impact arising from the site over a representative period of monitoring.
- 40.14.4 Justifiable application for termination of EQM shall be put forward by the Contractor to the Engineer, as necessary throughout the construction period.

40.15 Working near running line

- 40.15.1 The contractor shall not allow any road vehicle belonging to him or his suppliers etc. to ply in railway land next to the running line. If for execution of certain works viz. earth work for parallel railway line and supply of ballast for new or existing rail line, gauge conversion etc., road vehicles are necessary to be used in railway land next to the railway line, the contractor shall apply to the Engineer for permission giving the type & no. of individual vehicles, names & license particulars of the drivers, location, duration & timings for such work/movement. The Railways/Employer/ Engineer or his authorized representative will personally counsel, examine & certify, the road vehicle drivers, contractor's flag men & supervisor and will give written permission giving names of road vehicle drivers, contractor's flag men and supervisor to be deployed on the work, location, period and timing of the work. This permission will be subject to the following obligatory conditions:
- 40.15.2 Road vehicles can play along the track after suitable cordoning off track with minimum distance of 6 meters from the center of the nearest track. For working of machinery close to the running tracks or plying of road vehicles during night hours, the contractor shall apply to the Engineer in writing for permission, duly indicating the site details in a neat sketch and safety measures proposed to be taken. Subject to the approval of concerned Railway authorities, the Engineer or his authorized representative will communicate permission to the contractor/contractor's representative. The contractor and his men shall strictly adhere to the instructions given along with such permissions.
- 40.15.3 Nominated vehicles and drivers shall be utilized for work in the presence of at least one flag man and one supervisor certified for such work. In order to monitor the activities during night hours, additional staff may have to be posted based on the need of the individual site.
- 40.15.4 The Contractor' machinery, equipment and vehicles shall normally operate 6 m clear of track. Any movement/work at less than 6m and upto a minimum of 3.5m clear of track center, shall be carried out only in the presence of a person (including any railway employee) authorized by the Engineer. No part of the road vehicle shall be allowed at less than 3.5m from track center. Cost of such railway employee shall be borne by the Employer.
- 40.15.5 The Contractor's machinery and equipment like Cranes, Flash Butt Welders, Ballasting machinery, Compactors, Track Laying Systems etc. are required to operate close to the existing line carrying traffic.

Contractor is fully responsible for operating these machineries without endangering the safety of the running line and traffic.

40.15.6 Safety Fencing:

- i) Before commencing any work close to the running track, the Contractor shall provide safety fencing and obtain the specific permission of Engineer to commence the work in that stretch.
- ii) The fencing shall be for an as per relevant scheduled item.
- iii) The Contractor shall maintain the safety fencing in good working condition throughout the period till the work in a given stretch is completed.
- iv) The Contractor will be paid for providing safety fencing along the track as per the relevant item in the Price schedule.

40.16 The contractor's special attention is drawn to Para B26 of Indian Railways Permanent Way Manual introduced under Advance Correction Slip no. 69 dated 23.05.2001, reproduced below which should invariably be complied with "B26 Safe working of Contractors -- A large number of men and machinery are deployed by the contractors for track renewals, gauge conversions, doublings, bridge rebuilding etc. It is therefore essential that adequate safety measures are taken for safety of the trains as well as the work force.

The following measures should invariably be adopted:

- a) The contractor shall not start any work without the presence of Railway supervisor at site.
- b) Wherever the road vehicles and/or machinery are required to work in the close vicinity of railway line, the work shall be so carried out that there is no infringement to the railway's schedule of dimensions. For this purpose, the area where road vehicles and/or Machinery are required to ply, shall be demarcated and acknowledged by the contractor. Special care shall be taken for turning/reversal of road vehicles/machinery without infringing the running track. Barricading shall be provided wherever justified and feasible as per site conditions.
- c) The "look out and whistle" caution orders shall be issued to the trains and speed restrictions imposed where considered necessary. Suitable flag men/detonators shall be provided where necessary for protection of trains.
- d) The supervisors/workmen should be counseled about safety measures. A competency certificate to the contractor's supervisor as per Proforma annexed shall be issued by AEN which will be valid only for the work for which it has been issued.
- e) The unloaded ballast/rails/sleepers/other P. Way materials after unloading along track should be kept clear off moving dimensions and stacked as per the specified heights and distance from the running track.
- f) Supplementary site-specific instructions, wherever considered necessary, shall be issued by the Engineer.

COMPETENCY CERTIFICATE

"Certified that Shri/ _____ P. Way supervisor of
M/S _____ has been examined regarding P. Way working on _____
work. His knowledge has been found satisfactory and he is capable of supervising the work safely.

Authorized Representative / K-RIDE

K-RIDE

- 40.17 The work of formation in banks and cuttings throughout the length of doubling is adjacent to track under running traffic. Many of the bridges on the proposed double line are to be constructed either as extensions or just adjacent to the existing bridges under running traffic. The work of Installation of Track throughout the length of doubling is adjacent to track under running traffic. The work of Installation of Track and Signals in the Station yards including alterations to the existing Track and Signals has to be done adjacent to or in replacement of the existing Track and Signals which are under running traffic. The contractor shall ensure that the safety of the running lines and running traffic is not endangered, because of his work.
- 40.18 Any traffic/traction blocks, temporary speed restrictions and caution orders required in this connection shall also be got sanctioned from the Railway authorities well in advance, through the Engineer. The Railways may sanction the same for specific sites within the overall recovery time available in the Railway's time table. The contractor shall have to schedule his programme according to the convenience of the Railways. No claim from the contractor for any delay/inconvenience/loss on this account shall be entertained by the Employer.
- 40.19 The contractor shall provide at site at his own cost, all protection measures including exhibition and lighting of all Temporary Engineering Signals as per Railway rules, instructions and norms. All lights provided by the contractor shall be screened so as not to interfere with any signal light on the Railways or with any traffic or signal lights of any local or other authority.
- 40.20 Ancillary and Temporary works
- The Contractor's proposals for erection of all ancillary and temporary works shall be in conformity with the proposals submitted along with the tender and modifications thereto as approved by the Engineer.
 - The Contractor shall submit drawings, supporting design calculations where called for by the Engineer and other relevant details of all such works to the Engineer for approval at least one month before he desires to commence such works. Approval by the Engineer of any such proposal shall not relieve the contractor of his responsibility for the sufficiency of such works.
 - The contractor shall, at his own cost, design and provide any temporary arrangements including relieving/service girders required in connection with the above said works and remove the same, when no longer required. These arrangements shall conform to Railway norms. The contractor shall obtain all necessary approvals and sanctions of the concerned Railway authorities including Commissioner of Railway Safety through the Engineer/ Employer in advance and well in time.
 - The contractor shall ensure and be entirely responsible for proper design, fabrication, provision and upkeep of all temporary arrangements and all associated activities so as not to endanger safety of any assets, running track, traffic and traveling public and for following all extent instructions, norms, practice and procedures laid down by Railway authorities in this respect, which may be ascertained from the Railways through the Engineer.
 - If required, Railways may, in order to ensure the safety of the running track, post at site Regular Railway staff to watch the efficacy and safety of temporary arrangements and protection measures round the clock for the period the same exist in the running line and till the running line is restored back to normal. Railways may also supervise the insertion, maintenance and removal of the temporary arrangements. The cost of such staff shall be borne by the Employer.
 - Notwithstanding the above, the contractor shall not, however, be relieved of his responsibility and obligation as aforesaid.
 - Save as provided in Para 7 (e) above, the contractor shall bear the cost of complying with all safety requirements. No extra payment will be made for complying with the safety provisions under this

chapter and the cost of all such elements to meet the safety requirements shall be deemed to be included in the Bill of Quantities.

40.21 The contractor remains fully responsible for ensuring safety. In case of any accident, the Contractor shall bear cost of all damages to his equipment and men and also damages to Railway and its passengers.

40.22 Suitable barricading to forewarn road vehicle driver shall be provided by the contractor. The luminous tape, strung on bamboo or steel poles can be considered for such barricading. Barricading arrangement should be got approved by the Engineer.

40.23 Indemnity by Contractor

The Contractor shall indemnify and save harmless the Railway/Employer/Engineer from and against all actions, suit proceedings, losses, costs, damages, claims, and demands of every nature and description brought or recovered against the Railways/ Employer/Engineer by reason of any act or omission of the contractor, his agents or employees, in the execution of the works or in his guarding the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

40.24 Damage to Railway Property or Life or Private Property

40.25 The contractor shall be responsible for all risks to the works and for the trespass and shall make good at his own expense all loss or damage whether to the works themselves or to any other property of the Railway or the lives of persons or property of others from whatsoever cause in connection with the works until they are taken over by the Employer and this although all reasonable and proper precautions may have been taken by the Contractor, and in case the Railway/Employer/Engineer shall be called upon to make good any costs, loss or damages, or to pay any compensation, including that payable under the provisions of Workmen's compensation act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid, by reason of any act, or any negligence or any omissions on the part of the contractor, the amount of any costs or charges including costs and charges in connection with legal proceedings, which the Railway/Employer/Engineer may incur in reference thereto, shall be charged to the contractor. The Railway/Employer/Engineer shall have the power and right to pay or to defend or compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to Contractor, as aforesaid, any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expense shall not be called in question by the Contractor.

40.26 Safety of Public

- i. The Contractor shall be responsible to take all precautions to ensure the safety of the Public whether on Public or Railway property and shall post such look out men as may in the opinion of the Engineer be required to comply with regulations pertaining to the work.
- ii. The Contractor shall provide effective barricading using G.I. corrugated sheets around foundation pits, trenches, erection sites, demolition sites etc., to prevent accidents and injuries to the public. He shall erect barricading duly leaving safe passage for the movement of the public as per the directions of Engineer.

- iii. No payment will be made for providing such barricading and the rates quoted by the Contractor shall be inclusive of such safety measures. The quoted lumpsum price is inclusive for all the above items of work.

40.27 Reporting of Accidents

The Contractor shall report to the Engineer details of any accidents as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer and the Employer immediately by the quickest available means

40.28 Life-saving Appliances and First-aid Equipment: The Contractor shall provide and maintain upon the Works sufficient, proper and efficient life-saving appliances and first-aid equipment to the approval of the Engineer and in accordance with the requirements of ILO Convention No. 62. The appliances and equipment shall be available for use at all time.

40.29 Security Measure

- i. Security arrangements for the work shall be in accordance with general requirements and the contractor shall conform to such requirements and shall be held responsible for the action or inaction on the part of his staff, employees and the staff and employees of his subcontractors.
- ii. Contractor's as well as Sub Contractor's employees and representatives shall wear identification Badges (cards), uniforms, helmets, gum boots and other safety/protection gadgets/accessories provided by the Contractor. Badges shall identify the Contractor and show the employee's name and number and shall be worn at all times while at site.
- iii. All vehicles used by the contractor shall be clearly marked with the Contractor's name or identification mark.
- iv. The contractor shall be responsible for security of works for the duration of the contract and shall provide and maintain continuously adequate security personnel to fulfill these obligations. The requirements of security measures shall include, but not be limited to, maintenance of Law and Order at site, provision of all lighting, guard, flagmen, and all other measures necessary for protection of works within the colonies, camps and elsewhere at site, all materials delivered to the site and all persons employed in connection with the works continuously throughout working and non-working periods including nights, Sundays and holidays, for the duration of the contract. However, at work sites in close proximity of traffic corridors where public and traffic are likely to come close to the work area, suitable barricading as proposed by contractor and approved by Engineer shall be provided.
- v. No separate payment will be made for providing security measures and will be deemed to be included in the quoted lumpsum price.

40.30 Contractor will have to comply the instructions circulated for Safety on Worksites Specially Doubling Works being implemented on Indian Railways as per relevant letters and any subsequent instructions on this issue.

It is presumed that bidders have gone through the Indian Railway's policies including any subsequent instructions on this issue if any, before quoting the rates

40.31 Ensuring Safety at work site

Ensuring safety at work site while carrying out of doubling works is of paramount importance. Following measures must be ensured: -

1. Fencing as per specification laid down along the track at specified distance from center line of existing track. The fencing should be maintained till the track is handed over to Railways. Accordingly, at locations where it has been broken/stolen away, the same should be restored expeditiously.
2. Contractors to ensure patrolling by Cycle/ Motor Cycle to prevent damage to fencing and to rectify as soon as it is detected.
3. In the stretch where new formation is likely to be used by unauthorized vehicles and likely to create potential unsafe condition, lifting barriers under lock & key at points where contractor's vehicles are required to enter should be provided and the same should be manned to allow entry to only contractor's vehicles and prevent entry of unauthorized vehicles.

Other likely entry points on the new formation must be suitably blocked by providing physical obstructions by stacking sleepers or by cross trenches or by erecting fence to prevent entry of unauthorized vehicles. Frequent check should be exercised to ensure that unauthorized vehicles do not ply.

4. Reducing number and length of such stretches by providing cross barricades should be done.
5. PMC should be advised to educate his supervisor for each stretch to ensure Safety who should be well conversant safety instructions and should see that the same are not violated. PMC has to be made accountable for lapses on the safety aspects.
6. Periodical formal counseling of all contractor's staff and PMC officials regarding safety instructions and review violations coming to light and taking appropriate action.
7. Counseling of drivers and operators of machinery regarding safety aspect during routine inspection of PMC official's contractors Engineers.
8. All the driver's/machine operators should have competency certificate issued by PMC after examining their knowledge about safety. Only authorized drivers can ply within 6.6 m of the existing track will have to be proposed as found necessary.
9. Necessary caution orders to Drivers of trains wherever required in terms of Railway Board's instructions/PCE circulars.
10. In case work is required to be carried out within 3.5 M of existing running line, K-RIDE should be advised well in time and requested to provide look out men and Railway Supervisors for the site. At such locations close supervision must be ensured.

In terms of contract conditions, preventing entry of outsiders at the worksites is the responsibility of contractor and this has to be ensured

40.32 Additional Conditions to Safety at Work Spot

To ensure safety at all the work sites all the time, a dedicated Safety officer duly trained as per the provisions of the contract shall be posted by the contractor for each project. Following works will in general be assigned to safety officer.

1. The Safety officer (in charge) shall be from the permanent rolls of the contractor. He will work under the administrative control of the Project Manager of the contractor.
2. The person from any sub-contractor deputed by the main contractor shall not be designated as Safety officer.
3. The Safety officer shall be overall in charge of the safety methods being undertaken at various work sites. He shall not be given any other task related to the project planning and execution.
4. The Safety officer should be well versed with the safety aspects related to worksites in the vicinity of running railway lines and should impart training to the officials assisting him.
5. The Safety officer shall be given suitable means of transport (depending on the requirement) by the contractor to approach all the work sites frequently and ensure that adequate precautions to ensure safety have been taken. Following items shall be specifically done by the Safety officer.
 - a) Ensuring the provision of the safety fencing. Any shortfall shall be made good immediately.
 - b) Availability of suitable lookout men at each working site. The lookout men shall be in possession of hooters, safety helmet and retro-reflective jacket to warn the site engineer/supervisor and operators/drivers of the equipment's/vehicles working near the running track.
 - c) Arranging issuance of competency certificates by Employer/Engineer with the operator/driver of each equipment/vehicle before deputing for work.
 - d) Take assurance from the contractor officials at regular interval of complying with the safety instructions.
 - e) Any safety violation to be advised to all concerned and remedial action taken thereof.
6. The Safety officer will frequently counsel the contractor engineers / supervisors / operators / drivers/ lookout men about safety provisions during his day to day inspections and keep a record of the same. The Safety officer will prepare a monthly report of the safety inspections carried out and remedial action taken thereof and send it to the Project Manager of the contractor and the employer/engineer.
7. The contractor should open new sites only after discussing the safety measures to be undertaken with his Safety officer and obtaining the permission from Employer/ Engineer.
8. It shall be the duty of the Project Manager and Safety officer of the contractor that the instructions contained in the agreement related to safety and the same issued by the Railway/Employer/Engineer from time to time are strictly complied with.

Based on the above, it is advised that a thorough review of the safety provisions may be undertaken and it should be ensured that competent safety officers are available at all the work spots

PART III: OCCUPATIONAL HEALTH AND WELFARE

41.0 PHYSICAL FITNESS OF WORKMEN

- 41.1 The contractor shall ensure that his employees/workmen subject themselves to such medical examination as required under the law or under the contract provision and keep a record of the same.
- 41.2 The contractor shall not permit any employee/workmen to enter the work area under the influence of alcohol or any drugs.

42.0 MEDICAL FACILITIES

42.1 Medical Examination

- 42.1.1 The contractor shall arrange a medical examination of all his employees including his sub-contractor employees employed as drivers, operators of lifting appliances and transport equipment before employing, after illness or injury, if it appears that the illness or injury might have affected his fitness and, thereafter, once in every two years up to the age of 40 and once in a year, thereafter.

- i. The Contractor shall maintain the confidential records of medical examination or the physician authorized by the Employer.
- ii. No building or other construction worker is charged for the medical examination and the cost of such examination is borne by contractor employing such building worker.
- iii. The medical examination shall include: -
 - a) Full medical and occupational history.
 - b) Clinical examination with particular reference to
 - i. General Physique;
 - ii. Vision: - Total visual performance using standard Orth orator like Titmus Vision Tester should be estimated and suitability for placement ascertained in accordance with the prescribed job standards.
 - iii. Hearing: - Persons with normal must be able to hear a forced whisper at twenty-four feet. Persons using hearing aids must be able to hear a warning shout under noisy working conditions.
 - iv. Breathing: - Peak flow rate using standard peak flow meter and the average peak flow rate determined out of these readings of the test performed. The results recorded at pre-placement medical examination could be used as a standard for the same individual at the same altitude for reference during subsequent examination.
 - v. Upper Limbs: - Adequate arm function and grip
 - vi. Spine: - Adequately flexible for the job concerned.
 - vii. Lower Limbs: - Adequate leg and foot concerned.
 - viii. General: - Mental alertness and stability with good eye, hand and foot coordination.
 - c) Any other tests which the examining doctor considers necessary

- 42.1.2 If the contractor fails to get the medical examination conducted as mentioned above, the employer will have the right to get the same conducted by through an agency with intimation to the contractor and deduct the cost and overhead charges.

42.2 Occupational Health Centre

- 42.2.1 The contractor shall ensure at a construction site an occupational health center, mobile or static is provided and maintained in good order. Services and facilities shall be provided in the manner laid down in Schedule X of BOCWR. A construction medical officer appointed in an occupational health center, shall possess the qualification as laid down in Schedule X/ of BOCWR.
- 42.3 Ambulance van and room
- 42.3.1 The Contractor shall ensure at a construction site of a building or other construction work that an ambulance van and room are provided at such construction site or an arrangement is made with a nearby hospital for providing such ambulance van for transportation of serious cases of accident or sickness of workers to hospital promptly and such ambulance room and van are maintained in good repair and is equipped with standard facilities specified in Schedule IV and Schedule V of BOCWR, respectively.
- 42.4 First-aid boxes
- 42.4.1 The contractor shall ensure at a construction site one First-aid box for 100 workers provided and maintained for providing First-aid to the building workers. Every First-aid box is distinctly marked "First-aid" and is equipped with the articles specified in Schedule II/ of BOCWR.
- 42.5 HIV/ AIDS prevention and control
- 42.5.1 The contractor shall adopt the Employer's Policy on "HIV / AIDS Prevention and Control for Workmen Engaged by Contractors" and the copy of the policy is given in Appendix No: 4.
- 42.5.2 The Employer will engage a professional agency for implementing the guidelines laid down in the policy and communicate to the contractor.
- 42.5.3 The Contractor shall extend necessary support to the appointed agency by deputing the workmen to attend the awareness creation programme.
- 42.5.4 The contractor shall also extend necessary organizational support to the appointed agency for the effective implementation of the Employers' workplace policy on HIV/AIDS for workmen of the Contractors.
- 42.5.5 As laid down in the policy the contractor shall identify peer educators (1 for every 100 workers) and refer them for professional training to the Employers' appointed agency for the purpose.
- 42.5.6 The peer educators on completion of the training shall serve as the focal point for any information, education and awareness campaign among the workmen throughout the contract period.
- 42.5.7 The peer educators will be paid a monthly honorarium as fixed by the Employer for rendering his services in addition to his regular duty.
- 42.5.8 The total number of peer educators (1 for 100 workers) shall always be maintained by the contractor.
- 42.5.9 In case if these peer educators leave the contractor by creating vacancy, then the contractor at his own expense train the new replacement peer educator from the Employers' appointed agency for the purpose.

42.5.10 It is suggested to the contractor that due care should be taken to select the peer educators from among the group of workmen so that they remain with the contractor throughout the contract period.

42.6 Prevention of mosquito breeding

42.6.1 Measures shall be taken to prevent mosquito breeding at site. The measures to be taken shall include:

- i. Empty cans, oil drums, packing and other receptacles, which may retain water shall be deposited at a central collection point and shall be removed from the site regularly.
- ii. Still waters shall be treated at least once every week with oil in order to prevent mosquito breeding.
- iii. Contractor's equipment and other items on the site, which may retain water, shall be stored, covered or treated in such a manner that water could not be retained.
- iv. Water storage tanks shall be provided.

42.6.2 Posters in both Hindi, English and local language which draw attention to the dangers of permitting mosquito breeding, shall be displayed prominently on the site.

42.6.3 The contractor at periodic interval shall arrange to prevent mosquito breeding by fumigation / spraying of insecticides. Most effective insecticides shall include SOLFAC WP 10 or Baytex, The Ideal Larvicide etc.

42.7 Alcohol and drugs

42.7.1 The contractor shall ensure at all times that no employee is working under the influence of alcohol / drugs which are punishable under Govt. regulations.

42.7.2 Smoking at public worksites by any employee is also prohibited as per Govt. regulations.

43.0 NOISE

43.1 The Contractor shall consider noise as an environmental constraint in his design, planning and execution of the Works and provide demonstrable evidence of the same on Employer's request.

The Contractor shall, at his own expense, take all appropriate measures to ensure that work carried out by the Contractor and by his sub-Contractors, whether on or off the Site, will not cause any unnecessary or excessive noise which may disturb the occupants of any nearby dwellings, schools, hospitals, or premises with similar sensitivity to noise.

43.1.1 Without prejudice to the generality of the foregoing, noise level reduction measures shall include the following:

- i) The Contractor shall ensure that all powered mechanical equipment used in the Works shall be effectively sound reduced using the most modern techniques available including but not limited to silencers and mufflers.
- ii) The Contractor shall construct acoustic screens or enclosures around any parts of the Works from which excessive noise may be generated.

43.1.2 The Contractor shall ensure that noise generated by work carried out by the Contractor and his sub-Contractors during daytime and night time shall not exceed the maximum permissible noise limits, whether

continuously or intermittently, as given in the project SHE Manual. The same may be varied from time to time by and at the sole discretion of the Employer. In the event of a breach of this requirement, the Contractor shall immediately re-deploy or adjust the relevant equipment or take other appropriate measures to reduce the noise levels and thereafter maintain them at levels which do not exceed the said limits. Such measures may include without limitation the temporary or permanent cessation of use of certain items of equipment.

43.1.3 The noise monitoring requirements including monitoring locations are given in the project SHE Manual.

43.2 Noise Monitoring

43.2.1 The activities which are expected to cause noise during the construction of BSRP, include noise from construction equipment, construction activities such as portal construction, boring for piling, earthwork excavation, concreting, viaduct construction (including shifting of launching truss / girder) and removal of spoil and movement of construction vehicles and delivery vehicles, traveling to and from the construction and disposal sites.

43.2.2 The level of impact of these noise sources depends upon the noise characteristics of the equipment and activities involved the construction schedule, and the distance from noise sensitive receptors.

43.2.3 The Noise Monitoring and Control Plan (NMCP) in contract specific site Environmental Quality Management Plan prepared by the Contractor shall establish procedures to monitor construction noise and determine when to apply measures to control noise pollution due to construction activities at work sites.

43.2.4 The NMCP will provide site description, define acceptable noise monitoring equipment, provide siting and operating procedures for noise equipment, and indicate reports and record keeping on noise monitoring data.

43.2.5 The NMCP will provide guidance for construction activity. It shall also address noise performance criteria used in the selection of construction equipment.

43.2.6 The Noise Monitoring and Control Plan shall provide for:

- a) Definition of noise-sensitive uses in the zones affected by construction.
- b) Calculation of future noise levels at the closest noise-sensitive receptors to the construction activity based on construction activity and ambient noise levels.
- c) Evaluation and specification of the noise abatement measures that can be applied to meet the noise objectives.
- d) Monitoring construction activity and providing adjustments to noise abatement controls that may be required to increase their effectiveness.
- e) Regular reporting
- f) Requirements of NMCP:
 - (i) It shall specify the nighttime and daytime construction activities, monitoring locations, equipment, procedures, and schedule of measurements and reporting methods to be used.
 - (ii) It shall contain a scaled plan indicating monitoring location, including measurements to be taken at construction site boundaries and at nearby residential zones.

- (iii) a record of the noise characteristics of powered mechanical equipment proposed to be used during day time and night time and of proposed working methods and of potential noise level reduction measures.
 - (iv) Provisions for immediate notification when measured noise levels exceed allowable limits,
 - (v) Provide a reporting procedure whereby noise-monitoring data is furnished to the Engineer on a weekly basis.
- 43.2.7 In defining the requirements of the NMCP, available measures for noise control, such as, the use of equipment with special exhaust silencers or enclosures, and the construction of temporary enclosures or noise barriers around specific construction site activity areas shall be considered. It should also specify the measures to be adopted to counter the impact of noise pollution for public and workers working at site during construction.
- 43.2.8 If the measured noise levels exceed the noise limits, the noise levels shall be reduced by appropriate abatement measures.
- 43.2.9 The NMCP will be reviewed on a regular basis and updated as necessary to assure current construction activities are addressed.
- 43.2.10 The Engineer shall monitor Contractor's performance of tasks specified, and will inspect necessary records, reports and procedures related to the control of noise.
- 43.2.11 Impact monitoring shall be carried out at noise sensitive receptor locations within 200 feet of the construction site once each week and after a change in construction activity. Construction noise measurements shall coincide with daytime and night time periods of maximum noise generating construction activities.
- 43.2.12 Noise Monitoring data will be submitted in a Noise Measurement Report Form. It will contain the type of measurement, duration of measurement, distance of monitoring from construction site, and construction equipment working during monitoring period.
- 43.2.13 appropriate parameter for measuring construction noise impacts shall be the equivalent A-weighted sound pressure level (Leq) measured in decibels (dB). The two statistical sound levels L10 and L90; the level exceeded for 10 and 90 percent of the time respectively, shall also be recorded during monitoring. The L90 may be considered as the ambient level into which the L10 as average peak level intrudes. The Lmax, Leq, L10 and L90 values will be reported in the noise measurement form along with allowable noise limit. The duration of monitoring shall be for a minimum of 30 minutes.
- 43.2.14 In no case shall the Contractor expose the public to construction noise levels exceeding 90dBA (slow) or to impulsive noise levels with a peak sound pressure level exceeding 140dB as measured on an impulse sound level meter.
- 43.2.15 Limit for construction noise is based on the existing ambient noise levels in areas adjoining the construction sites.

- 43.2.16 The noise levels emanating from any source during construction, shall not exceed 5 dB(A) or more above existing ambient pre-construction noise levels when measured at a point outside the premises of the location of source. The same may be varied from time to time by and at the sole discretion of the Engineer.
- 43.2.17 Where there are no ambient noise measurements, the construction activities shall be limited to levels measured at a distance of 200 feet from the construction limits or at the nearest affected building, whichever is closer, as given in Table-2.

TABLE-2**ALLOWABLE CONSTRUCTION NOISE**

LAND USE	MAXIMUM NOISE LEVELS- Lmax dB (A)	
	Day Time	Night Time
Residential	75	65
Commercial		85
Industrial		90

- 43.2.18 At the surface of the construction site during night time hours, the Contractor shall use only equipment that operating under full load meets the noise limits specified in Table-3, if a sensitive receptor would be affected.

TABLE-3

**NOISE EMISSION LIMITS FOR CONSTRUCTION EQUIPMENT USED DURING NIGHTTIME HOURS;
MEASURED AT 50 FEET FROM CONSTRUCTION EQUIPMENT***

Equipment Category	Lmax Level dB(A)
Backhoe	80
Bar Bender	75
Chain Saw	81
Compactor	80
Compressor	80
Concrete Mixer	85
Concrete Pump	82
Crane	85
Dozer	85
Front End Loader	80
Generator	82
Gradall	85
Grader	85
Paver	85
Pneumatic Tools	85
Scraper	85
Tractor	84

Noise emission limits apply to equipment used at surface of the construction site during Night time hours of 9 p.m. to 6 a.m.

43.2.19 The adjustments for close in equipment noise measurement shall be made in accordance with Table-4.

TABLE - 4

ADJUSTMENTS FOR CLOSE-IN EQUIPMENT NOISE MEASUREMENTS (Measurement Values to be subtracted from Measured Sound)

Distance (Feet)	Level to Estimate Sound Level at 50 Feet dB
19-21	8
22-23	7
24-26	6
27-29	5
30-33	4
34-37	3
38-42	2
43-47	1
48-50	0

TABLE- 5

CONSTRUCTION VIBRATION LIMITS VIBRATION TYPE AND PERMISSIBLE

AGGREGATE DURATION	LIMIT
Sustained (1 hr./day)	0.01 in/sec (80 VdB re 10 ⁻⁶ in/sec)
Transient (<1 hr./day)	0.03 in/sec (90 VdB re 10 ⁻⁶ in/sec)
Transient (<10 min/day)	0.10 in/sec (100 VdB re 10 ⁻⁶ in/sec)

- 43.2.20 When Diesel Generator (DG) Sets are used for operation of equipment and machinery, then 'Standards and Guidelines for control of Noise Pollution from Stationery DG Sets', under Environment (Protection) Act, 1986 shall apply.
- 43.2.21 Should the impact monitoring record noise levels which are:
1. Indicative of a deteriorating situation such that closer monitoring is reasonably indicated, or
 2. When in the opinion of the Engineer additional measurements are required in view of deteriorating noise environment, then, the Engineer may require the Contractor to increase the frequency of impact monitoring at any one or more of the monitoring stations until the results indicate an improving and acceptable level of noise.
- 43.2.22 The Contractor shall submit a copy of monitoring results. The results should represent a statistical evaluation of data for evaluation of trends and comparison with noise emission standards.
- 43.2.23 Where the Engineer determines that the recorded Noise level is significantly greater than the acceptable levels, the Engineer may direct the Contractor to take effective remedial measures including, but not limited to, reviewing noise sources and modifying working procedures.
- 43.2.24 The Contractor shall inform the Engineer of all steps taken to investigate cause of exceedance and immediate action taken to avoid further exceedance through written reports and proposals for action under an Event Contingency Plan.
- 43.3 Control Requirements
- 43.3.1 Construction material should be operated and transported in such a manner as not to create unnecessary noise as outlined below:
- i) Perform Work within the procedures outlined herein and comply with applicable codes, regulations, and standards established by the Central and State Government and their agencies.
 - ii) Keep noise to the lowest reasonably practicable level. Appropriate measures will be taken to ensure that construction works will not cause any unnecessary or excessive noise, which may disturb the occupants of any nearby dwellings, schools, hospitals, or premises with similar sensitivity to noise. Use equipment with effective noise-suppression devices and employ other noise control measures as to protect the public.
 - iii) Schedule and conduct operations in a manner that will minimize, to the greatest extent feasible, the disturbance to the public in areas adjacent to the construction activities and to occupants of buildings in the vicinity of the construction activities.
 - iv) The Contractor shall submit to the Employer a Noise Monitoring and Control Plan (NMCP) under contract specific Site Environmental Plan. It shall include full and comprehensive details of all powered mechanical equipment, which he proposes to use during daytime and night - time, and of his proposed working methods and noise level reduction measures. The NMCP shall include detailed noise calculations and vibration levels to demonstrate the anticipated noise generation and vibrations by the Contractor.
 - v) The NMCP prepared by the Contractor shall guide the implementation of construction activity. The NMCP will be reviewed on a regular basis and updated as necessary to assure that current construction activities are addressed. It may appear as a regular agenda item in project coordination meetings, if noise is an issue at any location in the contract.

43.3.2 Dust Control and Silicosis Exposure Reduction Strategy:

The Contractor shall ensure proper dust handling at work site as described in the project specific Environment Management Plan and follow Silicosis Exposure Reduction Strategy as described at Annexure-1 at the end of this document.

43.4 Occupational Noise

- i. Protection against the effects of occupational noise exposure should be provided when the sound level exceeds the threshold values as provided in Project SHE Manual.
- ii. When employees are subjected to sound levels exceeding those listed in the Table, feasible administrative or engineering controls should be utilized as given in this document and K-RIDE's Project SHE Manual.
- iii. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.
- iv. When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. Exposure to different levels for various periods of time shall be computed according to the formula and sample computations, as given in project SHE Manual.

43.5 Vibration Level

43.5.1 In locations where the alignment is close to historical / heritage structures, the contractor shall prepare a monitoring scheme prior to construction at such locations. This scheme for monitoring vibration level at such historical / heritage sites shall be submitted to Employer for his approval. This scheme shall include:

- i. Monitoring requirements for vibrations at regular intervals throughout the construction period.
- ii. Pre-construction structural integrity inspections of historic and sensitive structures in project activity.
- iii. Information dissemination about the construction method, probable effects, quality control measures and precautions to be used.
- iv. The vibration level limits at work sites adjacent to the alignment shall conform to the permitted values of peak p velocity as given in article project SHE Manual.

44.0 VENTILATION AND ILLUMINATION

44.1 Ventilation

44.1.1 The contractor shall ensure at a construction site of a building or other construction work that all working areas in a free tunnel are provided with ventilation system as approved by the DG and the fresh air supply in such tunnel is not less than 6m³/min for each building worker employed underground in such tunnel and the free air flow movement inside such tunnel is not less than 9m/min.

44.1.2 The oxygen level shall not be less than 19.5% in the working environment.

44.2 Illumination

44.2.1 The contractor shall take every effort to illuminate the work site as per the Employer's requirement illustrated in general instruction K-RIDE/SHE/CEO/011.

44.2.2 The contractor shall conduct a monthly illumination monitoring by lux meter for all the locations and the report shall be sent to the Employer within 7th of the next month and the same shall be reviewed during the monthly SHE committee meeting.

45.0 RADIATION

- 45.1 The use of radioactive substances and radiating apparatus shall comply with the Govt. regulatory requirements and all applicable legislations.
- 45.2 Operations involving ionizing radiation shall only be carried out after having been reviewed without objection by the Employers representative and shall be carried out in accordance with a method statement.
- 45.3 Each area containing irradiated apparatus shall have warning notices and barriers, as required by the Regulations, conspicuously posted at or near the area.
- 45.4 Radioactive substances will be stored, used or disposed shall be strictly in accordance with the Govt. Enactments.
- 45.5 The contractor shall ensure that all site personnel and members of the public are not exposed to radiation.

46.0 WELFARE MEASURES FOR WORKERS

46.1 Latrine and Urinal Accommodation

- 46.1.1 The contractor shall provide one latrine seat for every 20 workers up to 100 workers and thereafter one for every additional 50 workers. In addition, one urinal accommodation shall be provided for every 100 workers.
- 46.1.2 When women are employed, separate latrine and urinals accommodation shall be provided on the same scale as mentioned above.
- 46.1.3 Latrine and urinals shall be provided as per Section 33 of BOCWA and maintained as per Rule 243 of BOCWR and shall also comply with the requirements of public health authorities
- 46.1.4 Moving sites
 - 46.1.4.1 In case of works like track laying, the zone of work is constantly moving at elevated level or at underground level. In such cases mobile toilets with proper facility to drain the Sullage shall be provided at reasonably accessible distance.
 - 46.1.4.2 In case if the contractor fails to provide required number of urinals and latrines or fail to maintain it as per the requirements of Public Health laws, the Employer shall have the right to provide/maintain through renowned external agencies like "Sulabh" at the cost of the contractor.

46.2 Canteen

- 46.2.1 In every workplace wherein not less than 250 workers are ordinarily employed the contractor shall provide an adequate canteen conforming to Section 37 of BOCWA, read with Rule 244 of BOCWR and as stipulated in Rule 247 of BOCWR the charges for food stuff shall be based on 'no profit no loss' basis. The price list of all items shall be conspicuously displayed in such canteen.

46.3 Serving of tea and snacks at the workplace

- 46.3.1 As per Rule 246 of BOCWR, at a building or other construction work where a workplace is situated at a distance of more than 200 m from the canteen provided under Rule 244(1) of BOCWR, the contractor

employing building works shall make suitable arrangement for serving tea and light refreshment to such building works at such place.

46.4 Drinking water

46.4.1 As per Section 32 of BOCWA the contractor shall make in every worksite, effective arrangements to provide sufficient supply of wholesome drinking water with minimum quantity of 5 liters per workman per day. Quality of the drinking water shall conform to the requirements of national standards on Public Health

46.4.2 While locating these drinking water facilities due care shall be taken so that these are easily accessible within a distance of 200m from the place of work for all workers at all location of work sites.

46.4.3 All such points shall be legible marked "Drinking Water" in a language understood by a majority of the workmen employed in such place and such point shall be situated within six meters of any washing places, urinals or latrines.

46.5 Labour Accommodation

46.5.1 The contractor shall provide free of charges as near as possible, temporary living accommodation to all workers conforming to provisions of Section 34 of BOCWA. These accommodations shall have cooking place, bathing, washing and lavatory facilities

46.6 Crèche

46.6.1 In every workplace where in more than 50 female workers are ordinarily employed, there shall be provided and maintained a suitable room for use of children under age of 6 yrs., conforming to the provisions of Section 35 of BOCWA.

PART IV: ENVIRONMENTAL MANAGEMENT

47.0 ENVIRONMENTAL MANAGEMENT

Environment Management during construction shall include implementation of Environment Management plan and compliance of pollution control measures at work sites.

Major Statutory Environmental Acts, Rules, Standards, for the time being enforce and as may be amended or substituted from time to time, are listed below:

- i. Environment (Protection) Act, 1986 and Rules therein
- ii. EIA Notification, 2020
- iii. Air (Prevention and Control of Pollution) Act, 1981
- iv. Water (Prevention and Control of Pollution) Act, 1974
- v. Forests (Conservation) Act, 1980
- vi. Coastal Regulation Zone Notification, 2011
- vii. The Wetlands (Conservation and Management) Rules, 2010
- viii. Karnataka Preservation of tress Act 1976
- ix. Noise Pollution (Regulation and Control) Rules, 2000
- x. Public Liability Insurance Act, 1991
- xi. Explosive Act, 1884
- xii. Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016
- xiii. Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
- xiv. The Petroleum Rules, 2002

- xv. Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010 and
- xvi. National Monuments Authority (Condition of Service of Chairman and Members of the Authority and Conduct of Business) Rules, 2011
- xvii. Mineral Concession Rules, 1960
- xviii. National Green Tribunal Act, 2010 and National Green Tribunal (Prevention and Protection) Rules, 2011

47.1 Environmental Monitoring

- 47.1.1 The Contractor's Environmental Team shall carry out the monitoring of environmental impacts during construction. Representative sensitive receivers in the vicinity of the works shall be monitored for noise and air quality impacts.
- 47.1.2 For carrying out impact monitoring for noise and air, equipment shall be provided, operated and maintained by the Contractor. The equipment shall be kept in a good state of repair in accordance with the manufacturer's recommendations and maintained in proper working order with sufficient spare equipment available in the event of breakdown to maintain the planned monitoring program.
- 47.1.3 The calibration of monitoring instruments and their respective calibrators shall be carried out in accordance with the manufacturer's requirements to ensure they perform to the same level of accuracy as stated in the manufacturer's specifications.
- 47.1.4 Suspended Particulate Matter (SPM) levels shall be measured by following the standard high volume sampling method as set out in High Volume Method for Suspended Particulate, BIS: 5182-1981
- 47.1.5 24-hour average SPM concentration shall be measured by drawing air through a High Volume Sampler (HVS) fitted with pre-weighted Glass Fiber filter paper at an average flow rate not less than 1.1m³ per minute.
- 47.1.6 The minimum requirements to the specifications of sound level meter should be as given in IS: 9779-1981
- 47.1.7 Engineer will undertake baseline monitoring to establish background levels. Action Level of the Contractor shall be based on the results of baseline monitoring program, which will be made available to him prior to start of construction.
- 47.1.8 The Contractor's monitoring program is summarized in Table -1.

TABLE-1

SUMMARY OF CONTRACTOR'S MONITORING PROGRAMME

Parameter	Noise	Air
Sampling	Day Time (6 AM to 9 PM) Lmax, Leq, L10, L90, L50 Night Time (9 PM - 6AM) Lmax, Leq, L10, L90, L50, Ldn	RSPM, SPM 24-hours of the day CO: 12 hrs. from BAM to BPM.
Frequency At each location	Once a week (when noise generating activities are underway).	Two 24-hour Samples every fifteen days at uniform intervals.

Parameter	Noise	Air
Locations	To be determined by the Contractor based on noise sensitive receptors	To be determined by the Contractor based on air sensitive receptors
Number of Locations	4 Locations	2 Locations
Duration of Monitoring by contractor	During civil Construction	During Civil Construction
Additional Requirements	Adhoc monitoring as required	Adhoc monitoring as required

47.2 Event Contingency Plan

The Contractor shall prepare an Event Contingency Plan under his Site Environmental Plan. The purpose is to provide, in addition to monitoring activities, procedures for ensuring that if any environmental exceedance of limiting values (either accidental or through inadequate implementation of mitigation measures on part of the Contractor) does occur, the cause is quickly identified and remedied, and that the risk of a similar event recurring is reduced.

47.3 Air Quality

47.3.1 The Contractor shall take all necessary precautions to minimize fugitive dust emissions from operations involving excavation, grading, and clearing of land and disposal of waste. He shall not allow emissions of fugitive dust from any transport, handling, construction or storage activity to remain visible in atmosphere beyond the property line of emission source for any prolonged period of time without notification to the Employer.

47.3.2 The Contractor shall use construction equipment designed and equipped to minimize or control air pollution. He shall maintain evidence of such design and equipment and make these available for inspection by Employer.

47.3.3 If after commencement of construction activity, Employer believes that the Contractor's equipment or methods of working are causing unacceptable air pollution impacts then these shall be inspected and remedial proposals shall be drawn up by the Contractor, submitted for review to the Employer and implemented.

47.3.4 In developing these remedial measures, the Contractor shall inspect and review all dust sources that may be contributing to air pollution. Remedial measures include use of additional / alternative equipment by the Contractor or maintenance / modification of existing equipment of the Contractor.

In the event that approved remedial measures are not being implemented and serious impacts persist, the Employer may direct the Contractor to suspend work until the measures are implemented, as required under the Contract.

47.3.5 Contractor's transport vehicles and other equipment shall conform to emission standards fixed by Statutory Agencies of Government of India or the State Government from time to time. The Contractor shall carry out periodical checks and undertake remedial measures including replacement, if required, so as to operate within permissible norms.

47.3.6 The Contractor shall establish and maintain records of routine maintenance program for internal combustion engine powered vehicles and equipment used on this project. He shall keep records available for inspection by Employer.

- 47.3.7 The Contractor shall cover loads of dust generating materials like debris and soil being transported from construction sites. All trucks carrying loose material should be covered and loaded with sufficient free-board to avoid spills through the tailboard or sideboards.
- 47.3.8 The Contractor shall promptly transport all excavation disposal materials of whatever kind so as not to delay work on the project. Stockpiling of materials will only be allowed at sites designated by the Employer. The Contractor shall place excavation materials in the dumping/disposal areas designated in the plans as given in the specifications.
- 47.3.9 The temporary dumping areas shall be maintained by the Contractor at all times until the excavate is re-utilized for backfilling or as directed by Employer. Dust control activities shall continue even during any work stoppage.
- 47.3.10 The Contractor shall place material in a manner that will minimize dust production. Material shall be minimized each day and wetted, to minimize dust production. During dry weather, dust control methods must be used daily especially on windy, dry days to prevent any dust from blowing across the site perimeter.
- 47.3.11 The Contractor shall water down construction sites as required suppressing dust, during handling of excavation soil or debris or during demolition. The Contractor will make water sprinklers, water supply and water delivering equipment available at any time that it is required for dust control use. Dust screens will be used, as feasible when additional dust control measures are needed especially where the work is near sensitive receptors.
- 47.3.12 The Contractor shall provide a wash pit or a wheel washing and/or vehicle cleaning facility at the exits from work sites such as construction depots and batching plants. At such facility, high-pressure water jets will be directed at the wheels of vehicles to remove all spoil and dirt.
- 47.3.13 The Contractor shall design and implement his blasting techniques so as to minimize dust, noise, vibration generation and prevention fly rock.
- 47.3.14 Blasting technique should be consistent not only with nature and quantity of rock to be blasted but also the location of blasting.
- 47.3.15 The contractor shall give preference to explosives with better environmental characteristics.
- 47.3.16 The Contractor shall protect structures, utilities, pavements roads and other facilities from disfiguration and damage as a result of his activities. Where this is not possible, the contractor shall restore the structures, utilities, pavements, roads and other facilities to their original or better, failing which the rectification / restoration work shall be carried out at the risk and cost of the contractor.
- 47.3.17 The Contractor shall submit to the Employer an Air Monitoring and Control Plan (AMCP) under contract specific Site Environmental Plan to guide construction activity insofar as it relates to monitoring, controlling and mitigating air pollution.

47.4 Air Monitoring

- 47.4.1 Construction activities that will generate dust impacts include excavation (including related activities), material handling and stockpiling, vehicular movement, and wind erosion of unpaved work areas.
- 47.4.2 The impact of fugitive dust on ambient air pollution depends on the quantity generated, as well as the drift potential of the dust particles injected into the atmosphere. Large dust particles will settle out near the source and smaller particles are likely to undergo dispersal over greater distance from the sources and impeded settling. SPM levels will be monitored to evaluate the dust impact during the construction phase of the Project.
- 47.4.3 The Air Quality Monitoring and Control Plan (AMCP) in contract-specific Site Environmental Plan prepared by the Contractor shall establish procedures to monitor impact air quality and measures to control air pollution including dust suppression due to construction activities at work sites. This plan shall contain description of activities that will cause degradation in air quality, environmental procedures to manage pollutants to minimize the air pollution, monitoring program, record keeping and reporting.
- 47.4.4 The Engineer shall monitor Contractor's performance of tasks specified, and will inspect necessary records, reports and procedures related to the control of air quality given in AMCP.
- 47.4.5 Information gathered during the AMCP will be catalogued and maintained by the Contractor and shall be available for review by the Engineer.
- 47.4.6 The exact location of the air monitoring stations located near air sensitive receptors adjoining the construction sites, such as residences, schools, hotels and hospitals and placement of monitoring equipment thereat shall be agreed with the Engineer prior to commencement of air monitoring program.
- 47.4.7 Impact monitoring during the course of the Works shall be carried out at the monitoring stations for two days (continuous twenty-four hours) every fifteen days and where there is a perceived air quality problem.
- 47.4.8 The Contractor shall construct suitable fence, lockable gate, 220V AC power point and suitable access at each air monitoring station. Monitoring stations shall be free from local obstructions or sheltering.
- 47.4.9 Should impact monitoring record dust levels which are:
- i. Indicative of a deteriorating situation such that closer monitoring is reasonably indicated, or
 - ii. When in the opinion of the Engineer additional measurements are required in view of deteriorating air quality,

Then the Engineer may require the Contractor to increase the frequency of impact monitoring at any one or more of the monitoring stations until the results indicate an improving and acceptable level of air quality.

- 47.4.10 The Contractor shall keep records of air quality monitoring (including location, date, time). The Contractor shall submit a copy of monitoring results to the Engineer. The results should represent a statistical evaluation of data by calculating maximum, minimum, mean, standard deviation, geometric mean and percentile calculations for evaluation of frequency distribution, trends, and comparison with emission standards.
- 47.4.11 The National Ambient Air Quality Standards given in Air (Prevention and Control of Pollution) Act, 1981 may be referred by the Contractor for Limit Levels of SPM in ambient air which may be followed in estimating the pollution level caused by Contractor's activities.

- 47.4.12 Where the Engineer determines that the recorded dust (TSP) level is significantly greater than the Limit levels, the Engineer may direct the Contractor to take effective remedial measures including, but not limited to, reviewing dust sources and modifying working procedures.
- 47.4.13 Where the recorded baseline levels exceed the ambient air quality standards, then at such locations the action level is the recorded base line. Contractor shall take all effective remedial measures to contain the levels to their baseline value as a result of his activities. The action level may be varied by and at the sole discretion of the Engineer.
- 47.4.14 The Contractor shall inform the Engineer of all steps taken to investigate cause of exceedance and immediate action taken to avoid further exceedance through written reports and proposals for action under an Event Contingency Plan.

48.0 WATER QUALITY

- 48.1 The Contractor shall comply with the Indian Government legislation and the State regulations in existence insofar as they relate to water pollution control and monitoring. A drainage system should be constructed at the commencement of the Works, to drain off all surface water from the work site into suitable drain outlet.
- 48.2 The Contractor shall provide adequate precautions to ensure that no spoil or debris of any kind is pushed, washed, falls or deposited on land adjacent to the site perimeter including public roads or existing stream courses and drains within or adjacent to the site. In the event of any spoil or debris from construction works being deposited or any silt washed down to any area, then all such spoil, debris or material and silt shall be immediately removed and the affected land and areas restored to their natural state by the Contractor to the satisfaction of the Employer.
- 48.3 Due to lowering of potable water supplies in Bangalore and subsequent contamination of ground water, the Contractor is not allowed to discharge water from the site without the approval of the Employer. The Contractor must comply with the requirements of the Local Ground Water Board for discharge of water arising from dewatering. Any water obtained from dewatering systems installed in the works must be either re-used for construction purposes and this water may subsequently be discharged to the drainage system or, if not re-used, recharged to the ground water at suitable aquifer levels. The Contractor must submit his proposals for approval of Employer, on his proposed locations of dewatering of excavation and collection of water for either construction re-use or recharge directly to aquifers.

The Contractor's recharge proposals must be sufficient for recharging of the quantity of water remaining after deduction of water re-used for construction. During dewatering, the contractor shall monitor ground water levels from wells to ensure that draw down levels do not exceed allowable limits. The Contractor will not be permitted to directly discharge, to the drainage system, unused ground water obtaining from the excavation without obtaining approval of Employer or the Agency controlling the system.

- 48.4 The Contractor shall ensure that earth, bentonite, chemicals and concrete agitator washings etc. are not deposited in the watercourses but are suitably collected and residue disposed of in a manner approved by local authorities.
- 48.5 All water and waste products (surface runoff and wastewater) arising on the site shall be collected and removed from the site via a suitable and properly designed temporary drainage system and disposed of at a location and in a manner that will cause neither pollution nor nuisance.
- 48.6 Any mud slurry from drilling, tunneling, diaphragm wall construction or grouting etc. shall not be discharged into the drainage system unless treatment is carried out that will remove silt, mud particles, bentonite etc.

The Contractor shall provide treatment facilities as necessary to prevent the discharge of contaminated ground water.

48.7 The Contractor shall discharge wastewater arising out of site office, canteen or toilet facilities constructed by him into sewers after obtaining prior approval of agency controlling the system. A wastewater drainage system shall be provided to drain wastewater into the sewerage system.

48.8 The bentonite mixing, treatment and handling system shall be established by the contractor giving due regard to its environmental impacts. The disposal of redundant bentonite shall be carefully considered whether in bulk or liquid form. The disposal location will be advised and agreed with the relevant authorities.

48.9 The Contractor shall take measures to prevent discharge of oil and grease during spillage from reaching drainage system or any water body. Oil removal / interceptors shall be provided to treat oil waste from workshop areas etc.

48.10 The Contractor shall apply to the appropriate authority for installing bore wells for water supply at site.

49.0 ARCHAEOLOGICAL AND HISTORICAL PREVENTION

49.1 The contractor shall seek to accommodate archaeological and historical preservation concerns that may arise due to the construction of the project especially in close vicinity of such areas where such monuments may be located.

49.2 The contractor shall consult the Archaeological Survey of India (ASI) and other parties, on the advice of the Employer, to identify and assess construction effects and seek ways to avoid, minimize or mitigate adverse effects on such monuments.

49.3 Adverse effects may include reasonably foreseeable effects caused by the construction that may occur later in time, be farther removed in distance or those that alter, howsoever temporarily, the significance of the structure.

50.0 LANDSCAPE AND GREENERY

50.1 As far as is reasonably practicable, the Contractor shall maintain ecological balance by preventing deforestation and defacing of natural landscape. In respect of ecological balance, the Contractor shall observe the following instructions.

50.2 The Contractor shall, so conduct his construction operations, as to prevent any avoidable destruction, scarring or defacing of natural surroundings in the vicinity of work.

50.3 Where destruction, scarring, damage or defacing may occur as a result of operations relating to Permanent or Temporary works, the same shall be repaired, replanted or otherwise corrected at Contractor's expense. All work areas shall be smoothened and graded in a manner to conform to natural appearance of the landscape as directed by the Employer.

50.4 A suggested list of trees / shrubs suitable for planting and landscaping is found in Employer's Project SHE Manual.

51.0 FEELING OF TREES

51.1 The contractor shall identify the number and type of trees that are require to be felled as a result of construction of works and facilities related to Bangalore Sub Urban Rail Project and inform the Employer.

51.2 All trees and shrubbery, which are not specifically require to be cleared or removed for construction purposes, shall be preserved and shall be protected from any damage that may be caused by Contractor's construction operations and equipment. The contractor shall not fell, remove or dispose of any tree or forest produce in any land handed over to him for the construction of works and facilities related to Bangalore Sub Urban Rail Project except with the previous permission obtained from the Forest Department.

51.3 The Employer shall arrange permission from the forest department for trees to be felled or translocated.

The Employer will permit the removal of trees or shrubs only after prior approval.

51.4 Special care shall be exercised where trees or shrubs are exposed to injuries by construction equipment, blasting, excavating, dumping, chemical damage or other operation and the Contractor shall adequately protect such trees by used of protective barriers or other methods approved by the Employer. Trees shall not be used for anchorage.

52.0 FLY ASH

52.1 The Employer may require the contractor to use fly ash as a percentage substitution of cement, in concrete for certain structures and works.

52.2 In all such uses of Fly Ash, the contractor shall maintain a detailed record of usage of Fly Ash. The contractor shall also collect related details and provide to the Employer.

52.3 The reporting details on consumption of Fly Ash are found in Employer's SHE Manual.

53.0 WASTE

53.1 The contractor is required to develop, institute and maintain a Waste Management Programme (WMP) during the construction of the project for his works, which may include:

- i. Identification of disposal sites.
- ii. Identification of quantities to be excavated and disposed of.
- iii. Identification of split between waste and inert material
- iv. Identification of amounts intended to be stored temporarily on site location of such storage.
- v. Identification of intended transport means and route.
- vi. Obtaining permission, where required, for disposal.

53.2 Such a mechanism is intended to ensure that the designation of areas for the segregation and temporary storage of reusable and recyclable materials are incorporate into the WMP. The WMP should be prepared and submitted to the Engineer for approval.

53.3 The Contractor shall handle waste in a manner that ensures they are held securely without loss or leakage thus minimizing potential for pollution. The Contractor shall maintain and clean waste storage areas regularly.

53.4 The Contractor shall remove waste in a timely manner and disposed of at landfill sites after obtaining approval of the competent authorities namely BBMP, BDA, BMRDA, BWSSB.

53.5 Burning of wastes is prohibited. The Contractor shall not burn debris or vegetation or construction waste on the site but remove it in accordance with 50.1 above.

53.6 The Contractor shall make arrangement to dispose of metal scrap and other saleable waste to authorized dealer and make available to the Employer on request, records of such sales.

54.0 HAZARDOUS WASTE MANAGEMENT

- 54.1 If encountered or generated as a result of Contractor's activity, then waste classified as hazardous under the "Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, as amended from time to time shall be disposed of in a manner in compliance with the procedure given in the rules under the aforesaid act.
- 54.2 Chemicals classified as hazardous chemicals under "Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 incorporated under the provisions of Environment (Protection) Act, 1986 shall be disposed of in a manner in compliance with the procedure given in the rules under the aforesaid act.
- 54.3 The contractor shall identify the nature and quantity of hazardous waste generated as a result of his activities and shall file a 'Request for Authorization' with Bangalore Pollution Control Board along with a map showing the location of storage area.
- 54.4 Outside the storage area, the contractor shall place a 'display board', which will display quantity and nature of hazardous waste, on date. Hazardous Waste needs to be stored in a secure place
- 54.5 It shall be the responsibility of the contractor to ensure that hazardous wastes are stored, based on the composition, in a manner suitable for handling, storage and transport. The labelling and packaging is required to be easily visible and be able to withstand physical conditions and climatic factors.
- 54.6 The contractor shall approach only Authorized Recyclers of Hazardous Waste for disposal of Hazardous Waste, under intimation to the Employer.
- 54.7 Submittal of all environment related documents and records pertaining to monitoring and trend analysis on key parameters such as but not limited to consumption/efficient use of resources such as energy, water, material such as cement, fly ash, iron and steel, recycle/reuse of waste etc. that shall have demonstrated continual improvement in the implementation of Environmental Management System. Failure to do so the employer shall impose appropriate penalty as indicated under penalty clause.

55.0 ENERGY MANAGEMENT

- 55.1 The contractor shall use and maintain equipment so as to conserve energy and shall be able to produce demonstrable evidence of the same upon Employer's request.
- 55.2 Measures to conserve energy include but not limited to the following:
- i. Use of energy efficient motors and pumps
 - ii. Use of energy efficient lighting, which uses energy efficient luminaries
 - iii. Adequate and uniform illumination level at construction sites suitable for the task
 - iv. Proper size and length of cables and wires to match the rating of equipment
 - v. Use of energy efficient air conditioners
- 55.3 The contractor shall design site offices maximum daylight and minimum heat gain. The rooms shall be well insulated to enhance the efficiency of air conditioners and the use of solar films on windows may be used where feasible.

PART -V: PENALTY AND AWARDS

56.0 CHARGES TO BE RECOVERED FROM CONTRACTOR FOR UNSAFE ACT OR CONDITION

- 56.1 K-RIDE is safety conscious organization. Any reportable accident (fatality / injury) results in loss of life and/or property damage. These accidents not only result in loss of life but also damage the reputation of K-RIDE. Most of the accidents are avoidable and caused preliminary due to contractors' negligence. Hence K-RIDE shall recover the cost of damages from the contractors for every reportable incident (fatality / injury).
- 56.2 In addition, every K-RIDE work site is exposed to public scrutiny as the work is executed just on the right-of-way. Any unsafe act / unsafe condition observed by public further damage our reputation. Because of the non-voluntary compliance of contractors to the condition of contract on SHE and project SHE manual, K-RIDE has been forced to establish safety-enforcing organization. The cost of established such organization is to be recovered from contractors for all observed safety violations at sites.
- 56.3 The following table indicates the Safety, Health and Environment violation (unsafe act / unsafe condition) and charges to be recovered from contractors.

K-RIDE

SL. NO	TOPIC	UNSAFE ACT/UNSAFE CONDITION	DEDUCTIBLE AMOUNT
1	SHE Policy & Plan	i) SHE policy non-compliance of clause 4.1	Rs.5,000 per single violation, compounded to a maximum of Rs.25,000 at any single
		SHE plan: i. Not as per Employers' content and coverage (clause 4.2, 4.7) ii. Delay in submission (clause 4.2, 4.4) iii. Not updated as per employer's instruction as per clause 4.4 iv. Copies not provided to all required	Rs.1,00,000 per single violation, compounded to a maximum of Rs.2,00,000 at any single instance.
2	SHE Organization	i. Not complying to the minimum manpower requirements as mentioned in General Instruction K- RIDE /SHE/CEO/001(clause 6.1.1) ii. Not filling up the vacancies created due to SHE personnel leaving the contractor within 14 days. (clause 6.7) iii. SHE organization not provided with required Audio-visual and other equipment's as per General Instruction K-RIDE / SHE/ CEO/03 (clause 6.9.2) iv. Employing through outsourcing agencies and SHE personal are not in the payroll of the main contractor (Clause 6.5.1) v. Disobedience / Improper conduct of any SHE personnel. (clause 6.2) vi. Chief SHE Manager not reporting directly to CPM of contractor. (Clause 6.6)	Rs.1,00,000 per month for first month and Rs.2,00,000 for subsequent months Rs. 50,000 per month for first month and Rs.1,00,000 for subsequent months For items iii), iv), v) and vi) Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations
3.	SHE Committee	i. Failed to formulate or conduct SHE Committee meeting for any month (clause 7.4) ii. Contractor and Sub-contractor representatives not attending SHE Committee meetings (clause 7.10) iii. Failed to conduct Site inspection before conducting SHE Committee meeting (clause 7.2.1 (viii)) iv. Failed to send SHE Committee Meeting minutes or Agenda to Employer in time (clause 7.8.1, 7.9.1) v. Non-adherence of clause 7.7.1 vi. Non-adherence of clause 7.9	Rs.1,00,000 for the first violation and Rs.5,00,000 for the subsequent violations Rs.5, 000 to the contractor of the member who had not attended the meeting for first violation and Rs. 25,000 for subsequent violations. For item iii), iv), v) and vi) Rs.25,000 for first violation and Rs.50,000 for subsequent violations
4.	ID card	Non-adherence of clause 8.1, 8.2 and 8.3	Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations
5.	SHE Training	i. not complying to the requirements as mentioned in conditions of contract on SHE and project SHE manual with regard to: ii. Induction training not given (clause 8.1) iii. Supervisor/engineer/manager training not conducted as per clause 9.6 iv. Refresher training as per clause 9.7 and 9.11 not conducted v. Tool-box talk not conducted as per clause 9.8 vi. Skill development training not conducted as clause 9.9 vii. Daily Safety Oath not conducted as per clause 9.10 viii. Top management behavior based SHE training conducted (clause 9.4)	For item 1 a) to g) Rs.50,000 for first violation on and Rs.1,00,000 for subsequent violations
6.	SHE Inspection	i. Not complying to the requirements as mentioned in conditions of contract on SHE and project SHE manual as per clause 10.0 ii. Noncompliance of clause 10.3.6	Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations
7.	SHE audit	i. Internal Audit: MARS ii. Not conducted as per SHE Plan (clause 11.2.1) iii. Report not sent to Employer (clause 1.2.6) iv. Action not taken for any month (clause 11.2.4)	For item i) to iii) Rs.50, 000 for first violation and Rs.1,00,000 for subsequent violations

SL. NO	TOPIC	UNSAFE ACT/UNSAFE CONDITION	DEDUCTIBLE AMOUNT
		i. External Audit ii. Not conducted as per SHE Plan (clause 11.4.3) iii. Report not sent to employer (clause 11.4.7) iv. Action not taken for any quarter (clause 11.4.9)	For item iv) to vi) Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations
8.	SHE. Communication	i. Important days to be observed for SHE awareness as furnished by employer not observed (clause 12.2) ii. Posters as furnished by Employer not printed and displayed (clause 12.2)	Rs. 10,000 for first violation and Rs. 50,000 for subsequent Violations 2,00,000 per contract
9.	SHE Submittals	i. noncompliance of clause 13.1 ii. Noncompliance of clause 13.2 iii. Noncompliance of clause 13.3	For item i) - Rs.50,000 for first violation and Rs.1,00,000 for subsequent Violations For item ii) and iii) Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations
10.	Injury and Incidence reporting	i. Fatal accidents ii. Injury accident iii. Abnormal delay in reporting accidents or willful suppression of information about any accidents / dangerous occurrence as per clause 14.1.4 iv. Non-compliance of the clause 14.4	Rs.5,00,000 for first fatality and Rs.10,00,000 for every subsequent fatality. Rs.1,00,000 for first grievously injured person and Rs.2,00,000 for every subsequent grievously injured person (Grievous Injury as defined by Workmen Compensation Act) Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations for items iv) and v) Rs. 50,000 for first violation and Rs.1,00,000 for subsequent violations
11	Emergency Preparedness Plan	Non-compliance of the clause 15.1,15.2, 15.3, 15.4, 15.5 and 15.6	Rs.1,00,000 for non-compliance of any of the clauses
12	Housekeeping	i. Housekeeping maintenance register not properly maintained up to date (clause 17.4) ii. Surrounding areas of drinking water tanks, / taps not hygienically cleaned / maintained (clause 17.4) iii. Office, stores, toilet / urinals not properly cleaned and maintained. (Clause 17.4) iv. Required dustbins at appropriate places not provided / not cleaned. (Clause 17.6) v. Stairways, gangways, passageways blocked. (Clause 17.9) vi. Lumber with protruding nails left as such (clause 17.10) vii. Openings unprotected (clause 17.7) viii. Excavated earth not removed within a reasonable time. (Clause 17.15, 47.8) ix. Truck carrying excavated earth not covered / tires not cleaned. (Clause 17.11) x. Vehicles / equipment's parked / placed on roads obstructing free flow of traffic (clause 17.13) xi. Unused surplus cables / steel scraps lying scattered (clause 17.17) xii. Wooden scraps, empty wooden cable drums lying scattered (clause 17.18) xiii. Water stagnation leading to mosquito breeding (clause 42.6.1)	Rs.10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance

SL. NO	TOPIC	UNSAFE ACT/UNSAFE CONDITION	DEDUCTIBLE AMOUNT
13	Working at Height / Ladders and Scaffolds	<ul style="list-style-type: none"> i. Not using or anchoring Safety Belt (clause 18.9) ii. Not using Safety Net (clause 18.18) iii. Absence of life line or anchorage point to anchor safety belt (clause 18.19) iv. Non-compliance of clause 18.17 v. Using Bamboo ladders (clause 18.20) vi. Painting of ladders Improper usage (less than 1m extension above landing point, not maintaining 1:4 ratio) (clause 18.20) vii. Aluminium ladders without base rubber bush (clause 18.20) viii. Usage of broken / weak ladders (clause 18.20) ix. Usage of re-bar welded ladders (clause 18.20) x. Improper guardrail, toe board, barriers and other means of collective protection (clause 18.16) xi. Improper working platform (clause 18.17) xii. Working at unprotected fragile surface (clause 18.9) xiii. Working at unprotected edges (clause 20.0) 	Rs. 10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance
4	Lifting appliances and gear	<ul style="list-style-type: none"> i. Non availability of fitness certificate per clause 21.3 ii. Documents not displayed on the machine or not available with the operator as per clause 21.4 iii. Maximum safe working load not written on the machine as per clause iv. Non-compliance of 21.6 v. Non –compliance of 21.7 vi. Automatic safe load indicator not provided or not in working condition as per clause 21.8 vii. Age of the operator less than 21 years or without any license and non-compliance of other item as per clause 21.9 viii. Non-compliance of 21.10 ix. Non-compliance of any of the items mentioned regarding rigging requirements as per clause 21.11 x. Failure to submit method statement in case of all critical lifting clause 21.3 xi. Person riding on crane (clause 23.4 xii. Creating more noise and smoke – clause 43.1.1 xiii. Absence of portable fire extinguisher in driver cabin – clause 31.5 xiv. Fail to guard hoist platform (clause 24.0) xv. No fencing of hoist rope movement is (clause 24.0) xvi. Hoist platform not in the horizontal position (clause 21.2) 	Rs. 50,000 per single violation Compounded to a maximum of Rs.5,00,000 at any single instance
15	Launching Operation / Erection	Non-adherence of any of the provisions mentioned in clause 22.2	Rest. 50,000 for first violation and Rs.1,00,000 for subsequent violation
16	Site Electrical safety	<ul style="list-style-type: none"> i. Non-compliance of clause 26.1.1 ii. Non-compliance of clause 26.2.3, 26.2.4 & 26.2.5 iii. Non-compliance of clause 26.3.1 iv. Non-compliance of clause 26.7, 26.8 and 26.9.1 v. Non-compliance of clause 26.10 and 26.13 vi. Non-compliance of clause 28.3.2 vii. Exposed electric lines (fermentative damage) and circuits in the workplace. (Clause 26.5.1) viii. Inserting of wires directly into the socket ix. Improper grounding for the electrical appliances (clause 26.7.1) xi. Electrical cables running on the ground (clause 26.8.5 & 26.8.6) xii. Non-compliance clause 27.0 	Rs. 10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance

SL. NO	TOPIC	UNSAFE ACT/UNSAFE CONDITION	DEDUCTIBLE AMOUNT
17	Hand tools and Power tools	Non-compliance of clause 28.0	Rs. 10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance
18	Gas Cutting	i. Wrong colour coding of cylinder. ii. Cylinders not stored in upright position. (clause 29.1) iii. Flash back arrester, non-return valve and regulator not present or not in working condition. (Clause 29.3 & 29.4) iv. Fail to put cylinders in a cylinder trolley. (Clause 29.1) v. Damaged hose and fail to use hose clamps (clause 29.2) vi. Using domestic LPG cylinders (clause 29.5) vii. Fail to store cylinder 6.6m away from fire prone materials (clause 29.8) viii. VIII. Fire extinguisher not placed in the vicinity during operation (clause 29.6)	Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance
19	Welding	i. Voltmeter and Ammeter not working (clause 29.9) ii. Non-availability of separate switch in the transformer (clause 29.9) iii. Improper grounding and return path. (Clause 29.10) iv. Damaged and bare openings in the welding cable. (Clause 29.10) v. Damaged holder (clause 29.10) vi. Fire extinguisher not placed in the (clause 6.5.1)	Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance
20	Fire precaution	i. Smoking and open flames in fire prone area (clause 31.6) ii. Using more than 24V portable electrical appliances in the fire prone area (clause 34.2.3) iii. Not proper ventilation in cylinder storage area. (Clause 29.8) iv. Absence of fire extinguishers (clause 31.1) v. Fire extinguishers not refilled once in a year (Clause 31.2) vi. Fire extinguisher placed in a not easily accessible location	Rs.5,000 per single violation Compounded to a maximum of Rs.25,000 at any single instance
21.	Excavation, Tunneling and confined Space	i. Non-compliance of clause 34.1.1 ii. Non-compliance of clause 34.2.3 iii. Non-compliance of clause 34.3	For any item from i) and ii) Rs. 10,000 per single violation Compounded to a maximum of Rs. 50,000 at any single instance. For item iii) - Rs.10,000 per first violation and Rs.50,000 for subsequent violations
22.	Work permit system	i. Non-compliance of clause 35.2 ii. Non-compliance of clause 21.11.9	For item i) and ii) Rs.50,000 per first violation and Rs.1,00,000 for subsequent violations
23.	Traffic Management	i. Non-compliance of clause 36.4.1 ii. Non-compliance of clause 36.8.3 iii. Non-compliance of clause 36.9.2 iv. Non-compliance of clause 36.9.3 v. Non-compliance of clause 36.9.7 vi. Non-compliance of clause 36.9.8	Rs.1,00,000 per first violation and Rs.2,00,000 for subsequent violations

SL. NO	TOPIC	UNSAFE ACT/UNSAFE CONDITION	DEDUCTIBLE AMOUNT
		i. Barricades (clause 36.9.4) ii. Not cleared iii. Not in alignment iv. Not numbered v. Not painted vi. Red lights / reflectors not working vii. Damages not repaired viii. Not Secured properly ix. Barricade inspector not employed x. Protruding Parts / portion repaired xi. Barricades maintaining register not properly maintained upto date.	Rs.25,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance
		b. Contractor Vehicles (clause 36.9.5 & 36.9.6) i. Over loading of vehicles ii. Unfit drivers or operators iii. Unlicensed vehicles iv. Absence of traffic marshals v. Absence of reversing alarm vi. Absence of fog light (at winter) vii. Power / hand brakes not in working Condition.	Rs.25,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance
		i. non-cleaning of tires of dumpers and transit mixers (clause 17.11 & 17.14) ii. Mishandling of bentonite like splashing of bentonite outside specified width of barricading iii. Non-cleaning of tires of dumpers and transit mixers before leaving the site and thereby creating a traffic safety hazard to road users	For item i) and ii) Rs.1,00,000 on first observation. Rs. 2,00,000 on second observation Rs. 3,00,000 on third and subsequent observations
24	Batching plant / Casting yard	Non-adherence of any of the provisions mentioned in clause 38.0.	Rs. 10,000 for single violation compounded to a maximum of Rs.1,00,000 at any single instant
25.	PPE	i. Not having (clause 39.1) ii. Not wearing (or) using and kept it elsewhere (clause 39.1) iii. Using damaged one (clause 39.2) Using wrong type (clause 39.5) iv. Using wrong colour helmet or helmet without logo (clause 39.4.1) v. Using for other operation (e.g. Using safety helmet for storing materials or carrying water from one place to other) (clause 39.5) vi. Not conforming to BIS standard (clause 39.2) vii. Non-compliance of clause 39.6, 39.7 and 39.8	For item vii) Rs. 10,000 for first violation and Rs. 50,000 for subsequent violations For item viii) Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations
26	Occupational health	i. Fail to conduct medical examination to workers (clause 42.1) ii. Absence of ambulance van & room (clause 42.3) iii. Workers not having ID card (clause 8.2) iv. Absence of first-aid person in work site. (Clause 42.4) v. Absence or inadequacy of first-aid box. (Clause 42.4) vi. Misuse of first-aid box. (Clause 42.4) vii. First-aid box not satisfy the minimum Indian standard. (Clause 42.4) viii. Smoking inside the construction site (clause 42.7.2) ix. Drink and drive or work (clause 42.7.1) x. Fumigation / insecticides not sprayed to prevent Mosquito breeding (clause 42.6.3) xi. Non-compliance of clause 44.1 and 44.2	Rs.10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance

SL. NO	TOPIC	UNSAFE ACT/UNSAFE CONDITION	DEDUCTIBLE AMOUNT
27	Labour Welfare measures	i. Inadequate number of toilets (clause 46.1.1) ii. Toilets not cleaned properly (clause 46.1.3) iii. Absence of water facilities for toilets and washing places (clause 46.1.3) iv. Toilet placed more than 500m from the work site (clause 46.1.3) v. Accommodation not provided as per BOCWA (Clause 46.5.1) vi. Absence of drinking water (clause 46.4) vii. Excessive noise and vibration (clause 43.0) viii. Canteen not provided (clause 46.2) ix. Food stuff no served on no loss no profit basis (clause 46.3) x. Crèche not provided (clause 46.6) xi. Non adherence of labour welfare provisions of BOCWA (clause 3.3.1.2) xii. Fail to register establishment and display the registration certificate at workplace (clause 3.3.1.2) xiii. Absence of worker register and record (clause 3.3.1.2) xiv. Fail to display an abstract of BOCWA and BOCWR (clause 3.3.1.2)	Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance
28	Environment Management	i. Tire wash facility not provided (clause 47.12) ii. Spillage from vehicles not arrest (clause 48.9) iii. Air monitoring not practiced (clause 47.17) iv. Noise monitoring nor practiced (clause 43.2.1) v. The values of air monitoring and noise monitoring not within acceptable limits (clause 47.12, 43.2.1) vi. Dust control measures at sites not practiced 9clause 47.13) vii. Improper disposal of debris / residues viii. Non-compliance of clause 53.0 & 54.	Rs. 10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance.
29.	Working near existing railway track	i. To start work without erecting barricading as per requirement. ii. To start work in station area without permit to work or without approved plan. iii. To launch girder for RFO/ROB without approved plan and work permit. iv. Infringement of moving dimension by any vehicle / construction equipment with running train causing disruption of traffic, injury to passenger / fatal incident	Rs. 5,00,000 for first violation and Rs.10,00,000 for Subsequent violation.

56.4 Without limiting to the unsafe acts and or conditions mentioned above in clause 56.3 the Employer shall have the right to deduct charges for any other unsafe act and or condition depending upon the gravity of the situation on a case-to-case basis. The charges shall be in comparison with that of the similar offence indicated in clause 56.3.

57.0 STOPPAGE OF WORK

- 57.1 The Employer shall have the right to stop the work at his sole discretion, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and / or property, and / or equipment's. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury / accident.
- 57.2 The contractor shall not proceed with the work until he has complied with each direction to the satisfaction of Employer.
- 57.3 The Contractor shall not be entitled for any damages / compensation for stoppage of work, due to safety reasons and the period of such stoppage of work shall not be taken as an extension of time for Completion of the Facilities and will not be the ground for waiver of levy of liquidated damages.

58.0 AWARDS

The following categories will be considered for awards as per the scheme in practice of Employer

- i. For every safe million-man hour working without any reportable incidents
- ii. Zero fatality contracts
- iii. 100% adherence to voluntary reporting of all accidents throughout the currency of contract
- iv. Safest project team of the year.
- v. Best SHE team of the year.
- vi. Safest Contractor of the year.

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED**APPENDIX NO 1**

Memorandum of Understanding between Karnataka Rail Infrastructure Development Company Ltd. (K-RIDE) and the Contractor for safe execution of contract work

This Memorandum of Understanding is made and executed by and between Rail Infrastructure Development Company (Karnataka) Limited - "K-RIDE" a Company registered under the Companies Act 1956 and having its registered office at Rail Infrastructure Development Company (Karnataka) Limited - 'K-RIDE', 'Samparka Soudha', 1st Floor, (Opp. Orion Mall), Dr. Rajkumar Road, Rajajinagar 1st Block,

Bangalore - 560010 or their authorized representative(s), hereinafter referred to as "EMPLOYER" (which expression shall wherever the context so requires or admits be deemed to mean and include its successors in business and assigns) of the one party

AND

M/s _____ having its registered office at _____
_____ hereinafter referred to as the "CONTRACTOR" (which expression shall wherever the context so requires or admits be deemed to mean and include its successors in business and assigns) of the other party

WITNESSETH THAT

WHEREAS the EMPLOYER gives highest importance to the occupational safety, health and environment during execution of work, seeks cooperation from the CONTRACTOR in this endeavor.

Thus, this Memorandum of Understanding is for promoting the safety, health and environment aspects required to be followed at workplace/site and will be applicable to any site job to be done by the CONTRACTOR

AND

WHEREAS the CONTRACTOR has read all the terms and conditions of the EMPLOYER and whereas the CONTRACTOR has studied the following documents:

- (a) Tender Documents, including Notice Inviting Tender, General Conditions, Special Conditions,

- (b) Conditions of Contract on Safety, Health and Environment and Project Safety, Health and Environment Manual.
- (c) Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996, Central Rules 1998 and subsequent Karnataka Government Rules 2006, Building and Other Construction Workers Welfare Cess Act 1996 and Rules 1998 and notification [Central & State] Collection of cess.
- (d) Indian Electricity Act 2003 and Rules 1956.
- (e) Corresponding International / Bureau of Indian Standard Codes.

The amendments to any of the above rules and any other rules & regulations or procedures, circulars, notices & advices lay down by the EMPLOYER from time to time.

Now it is hereby AGREED AND DECLARED by and between the EMPLOYER and the CONTRACTOR as follows:

- Clause - I The CONTRACTOR shall abide by the terms and conditions stipulated in Condition of Contract on Safety, Health & Environment and Project Safety, Health & Environment Manual
- Clause - II The CONTRACTOR shall undertake full responsibility for safe execution of job at work place/site and safety of his personnel and adjoining road users during work.
- Clause - III Without giving any prior notice, the EMPLOYER shall from time to time be entitled to add/or amend any or all terms and conditions with a view to improving safety and occupational health of personnel and safety of work, with immediate effect and the same shall be binding on the CONTRACTOR. The contractor agrees to implement all such amendments, which shall be laid
- Clause - IV Besides following the guidelines, safety rules and regulations, safety codes given in various safety procedures/documents mentioned above, the CONTRACTOR shall also prepare detailed method statement which includes job safety analysis wherever there are complicated and hazardous/high risk working involved and get it approved from Employer before
- Clause - V Any negligence or violation in implementing any of the provision of the conditions of contract on Safety, Health & Environment and K-RIDE project Safety, Health & Environment Manual shall be viewed seriously and the contractor is liable to compensate the employer for the loss of

In witness thereof the Parties hereto by representatives duly authorized have executed this Memorandum of Understanding on _____ day of _____ 20_____.

Signed on

For and on behalf of KRIDE

Signature:

Name :

Title :

Signed On

For and on behalf of (Contractor)

Signature:

Name :

Title:

KRIDE

K-RIDE: Rail Infrastructure Development Company (Karnataka) Limited

APPENDIX NO 2

Safety, Welfare and Occupational Health requirements as per BOCW Act 1996 and Rules 1998 and BOCWKR Rules 2006.

(This list has been prepared in chronological order with primary importance to Section of Act and secondary importance to Rules)

- S - Refers relevant Sections in BOCWA
 R - Refers relevant Rules in BOCWR
 C - Refers relevant Chapter No. in BOCWR
 P - Refers to relevant rules in BOCWWCR 1998
 K - Refers to relevant rules in BOCWKR 2006

1.	Registration of establishment	S - 7, R - 23 to 27
2.	Display of registration certification at workplace	R - 26 (5)
3.	Hours of work	S - 28 R - 234 to 237
4.	Register of overtime	S - 28; S - 29 R - 241(1) Form XXII
5.	Weekly rest and payment at rest	R - 235
6.	Night shift	R - 236
7.	Maintenance of workers registers and records	S - 30 R - 238
8.	Notice of commencement and completion	S - 46 R - 239
9.	Register of persons employed as building workers	R - 240
10.	Muster roll and wages register	R - 241(1) (a); Form XV/ and
11.	Payment of wages	R - 248
12.	Display of notice of wages regarding	R - 249
13.	Register of damage or loss	R - 241(1)(a); Form XIX, XX,
14.	Issue of wages book	R - 241(2)(a); Form XXIII
15.	Service certificate for each worker	R - 241(2)(b); Form XXIV
16.	Display an abstract of BOCWA and BOCWR	R - 241(5)
17.	Deduction of welfare cess by the government agencies	P - 4(3)
18.	Annual return	R - 242; Form XXV
19.	Drinking water	S - 32
20.	Latrines and Urinals	S - 33 R - 243
21.	Accommodation	S - 34
22.	Crèches	S - 35

23.	First-aid boxes	S - 36 R - 231 and Schedule III
24.	Canteens	S - 37 R - 244
25.	Food stuff and other items served in the canteens	R - 245
26.	Supply of tea and snacks in work place	R - 246
27.	Food charges on no loss no profit basis	R - 247
28.	BOCWKR 2006 welfare Board Rules	K - 261 to 267
29.	Safety committee	S - 38 R - 208
30.	Safety officer	S - 38 R - 209 and Schedule VII
31.	Reporting of accidents and dangerous occurrences	S - 39 R - 210
32.	Procedure for inquiry in to the causes of accidents	R - 211
33.	Responsibility of employer	S - 44 R - 5
34.	Responsibility of Architects, Project engineer and Designers	R - 6
35.	Responsibility of workmen	R - 8
36.	Responsibility for payment of wages and compensation	S - 45
37.	Penalties and Procedures	S - 47; S - 55
38.	Excessive noise, vibration etc.	R - 34
39.	Fire Protection	R - 35
40.	Emergency action plan	R - 36
41.	Fencing of motors	R - 37
42.	Lifting of carrying of excessive weight	R - 38
43.	Health, Safety and Environmental Policy	R - 39
44.	Dangerous and Harmful Environment	R - 40
45.	Overhead protection	R - 41
46.	Slipping, Tripping, Cutting, Drowning and Falling Hazards	R - 42
47.	Dust, Gases, Fumes, etc.	R - 43
48.	Corrosive substance	R - 49
49.	Eye Protection	R - 45
50.	Head Protection and other protection apparel	R - 46; R - 54
51.	Electrical Hazards	R - 47
52.	Vehicular traffic	R - 48
53.	Stability of structure	R - 49
54.	Illumination	R - 50; R - 124
55.	Stacking of materials	R - 51
56.	Disposal of debris	R - 52
57.	Numbering and marking of floors	R - 53
58.	Lifting appliances and gears	C - VII; R - 55 to 81
59.	Runways and Ramps	C - VIII; R - 82 to 85

60.	Working on or adjacent to water	C - IX; R - 86 & 87
61.	Transport and earthmoving equipment's	C - X; R - 88 to 95
62.	Concrete work	C - XI; R - 96 to 107
63.	Demolition	C - XII; R - 108 to 118
64.	Excavation and Tunneling works	C - XIII; R - 119 to 168
65.	Ventilation	R - 153
66.	Construction, repair and maintenance of step roof	C - XIV; R - 169 to 171
67.	Ladders and Step ladders	C - XV; R - 172 to 174
68.	Catch platform and hoardings, chutes, safety belts and nets	C - XVI; R - 175 to 180
69.	Structural frame and formworks	C - XVII; R - 181 to 185
70.	Stacking and unstacking	C - XVIII; R - 186 & 187
71.	Scaffold	C - XIX; R - 188 to 205
72.	Cofferdams and Caissons	C - XX; R - 206 to 211
73.	Explosives	C - XXI; R - 212 & 213
74.	Piling	C - XXII; R - 214 to 222
75.	Medical Examination for building and other construction worker, Crane operator and Transport vehicle drivers	R - 81; R - 223(a)(iii) and Schedule XII
76.	Medical examination for occupational health hazards	R - 223(a)(iv)
77.	Charging of workers for Medical Examination	R - 223(b)
78.	Occupational health centers and Medical officers	R - 225 and Schedule X & XI
79.	Ambulance van & room	R - 226 & 227 and Schedule IV & V
80.	Stretchers	R - 228
81.	Occupational health service for building workers	R - 229
82.	Medical examination for occupational health hazards	R - 223(a)(iv)
83.	Emergency care services and emergency treatment	R - 232
84.	Panel of experts and agencies	Central Rule 250
85.	Power of inspectors	Central rule 251 Karnataka Rules 268

**K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED.
APPENDIX NO 3**

SITE SHE PLAN

Contract No	
Contractor Name	
Project Name	
1	Project Highlights i) Title of the content ii) Contractor Number iii) Brief scope of work iv) Location map/ key plan v) Period of the project
2	SHE Policy
3	Site Organization Chart Chart indicating reporting of SHE personnel
4	Roles & Responsibility Individual responsibility of the vi) Project Manager vii) Construction Manager viii) Construction Supervisors ix) SHE Committee Members x) SHE in charge xi) Site Engineers xii) First Line Supervisors xiii) Sub-contractors
5	SHE Committee xiv) Details - Chairman, Members, Secretary and Employer's representative, xv) Procedures for effective conduct of meeting
6	SHE Training
7	Subcontractor Evaluation, Selection and Control
8	SHE Inspection
9	SHE Audit
10	Accident Investigation And Reporting Procedures
11	Occupational Health Measures
12	Labour Welfare Measures
13	Risk assessment and mitigation procedures

14	Safe work procedures i) Work at Height ii) Structural Steel Erection iii) Launching of segments iv) Floor, Wall Openings and Stairways v) Welding, Cutting and Bracing vi) Lifting appliances vii) Work Permit Systems viii) Electrical Equipment's ix) Mechanical Equipment's x) Excavation xi) Fire Prevention xiii) Hazardous Chemicals and Solvents xiv) Ionizing Radiation xv) Lighting xvi) Abrasive Blasting
15	Work Permit System
16	List of standard job specific PPEs to be used in the site
17	Maintenance of Regime for construction Equipment and Machine
18	Traffic management
19	Housekeeping
20	Environmental Management
21	Emergency Management
22	Visitors and Security arrangement

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED.**APPENDIX NO 4****WORKPLACE POLICY ON HIV/AIDS PREVENTION & CONTROL FOR WORKMEN ENGAGED BY CONTRACTORS**

"Being mobile in and of itself is not a risk factor for HIV infection. It is the situations encountered and the behaviors possibly engaged in during mobility or migration that increase vulnerability and risk regarding HIV / AIDS." UNAIDS, Technical update on 'Population, Mobility and AIDS', February 2001, p.5

K-RIDE: Rail Infrastructure Development Company (Karnataka) Limited recognizes HIV / AIDS as a developmental challenge and realizes the need to respond to it by implementing regular HIV / AIDS prevention programmes and creating a non-discriminatory work environment for HIV infected workmen engaged by contractors. For the purpose of making conscientious, sensitive and compassionate decision in addressing the realities of HIV / AIDS, K-RIDE has established these guidelines based on ILO code of practice on HIV / AIDS.

- Creating awareness through professional agency using IEC (Information, Education and Communication) package specially designed for migrant workers.
- Institutional capacity building by training the project implementation team, Safety, Health & Environment (SHE) Managers, establishing linkages for efficient diagnosis and treatment of the affected workers, effective monitoring of implementation and documentation for further learning.
- Establishing peer educators by selecting them in consultation with contractors and training them through professional agencies so that they become focal point for any information, education and awareness campaigns among the workmen throughout the contract period.
- Promotion of social marketing of condoms through State Aids Control Society.

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED.**GENERAL INSTRUCTION: K-RIDE/SHE/CEO/001****SUGGESTIVE MANPOWER REQUIREMENTS OF SHE ORGANIZATION BASED ON CONTRACT VALUE**

	1	2	3	4	5	6
Awarded Contract value (in Cr.)	Chief SHE Manager	Senior SHE Manager	Junior SHE Manager	Safety Steward	Senior SHE (Electrical) Engineer	Junior SHE (Electrical) Engineer
Up to 2	-	-	1	-	-	1
Up to 10	-	1	Refer Note 1	Refer Note 1	1	Refer Note 1
Up to 25	1	Refer Note 1			1	
Up to 100	1				1	
Up to 250	1				1	
More than 250	1				1	

	7	8	9	10	11	12	13
Awarded Contract value (in Cr.)	*Junior SHE (Fire) Manager / **Senior SHE (Fire) Manager	Occupational Health officer with Necessary Nursing Assistants (Refer Note 3)	Environmental Manager	Senior SHE (Traffic) Engineer (Refer Note 4)	Barricade Maintenance Squad (Refer Note 4)	House Keeping Squad	Labour Welfare Officer
Up to 2	-	-	-	-	Refer Note 5	Refer Note 6	-
Up to 10	-	1 (PT)	1	1			1
Up to 25	1*	1 (PT)	1	1			1
Up to 100	1*	1 (FT)	1	1			1
Up to 250	1**	2 (FT)	1	1			1 with support staff
More than 250	2**	2 (FT)	1 with support staff	1			1 with support staff

Note 1: Adequate, qualified and trained SHE Professionals with required support staff to be deployed at each worksite at each shift.

Note 2: Adequate, qualified and trained Electrical Engineers / supervisors to be deployed at each worksite at each shift.

Note 3: (PT) means Part-Time and (FT) means Full-time.

Note 4: Senior SHE (Traffic) Engineer Post and Barricade Manager (including the staff) Posts are applicable to contracts where the work has to be executed either below or over the right-of-way like Viaduct, Tunnel Contracts wherein erection and maintenance of barricades are paramount important.

Note 5: One Barricade Manager supported by required supervisors and workmen

Note 6: One Housekeeping Manager supported by required supervisors and workmen

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED.**GENERAL INSTRUCTION: K-RIDE/SHE/CEO/002****MINIMUM QUALIFICATION AND EXPERIENCE FOR (SHE) SAFETY, ELECTRICAL, ENVIRONMENTAL TRAFFIC ENGG. AND OCCUPATIONAL HEALTH PROFESSIONAL**

Sl. No	Designation	Qualification	Experience (in years)
1	Chief SHE Manager	<p>The Chief SHE Manager shall have qualified in any of the following degree/diploma:</p> <ul style="list-style-type: none"> i) Post Graduate Diploma in Industrial Safety & Environmental Management (PGDISEM) from National Institute of Industrial Engineering, Mumbai ii) M.E. in Industrial Safety from NIT, Trichy, Tamil Nadu iii) M.E. in Industrial Safety from Mepco Schlenk Engineering College Sivakasi, Tamil Nadu iv) B.E. in Fire and Safety Engg. From Cochin University of Science and Engg. Cochin, Kerala v) B.E. with advanced Safety Management Diploma from CL/ / RL/ Mumba/ / Chennai / Kolkata and Kanpur. vi) B.E / B.Arch., with one-year Full Time advanced Safety diploma from NICMAR, Hyderabad. vii) B. E / B. Tech with any other equivalent State and Central Govt. recognized full time Degree / Diploma in Safety. viii) International qualifications like CSP (Certified Safety Professional), NEBOSH, MIOSH, MSISO etc. 	2 {for all category except (iv) and 5yrs for category (iv)}
2	Senior SHE Manager	<p>As stated in Sl. No:1 and in addition the following categories:</p> <ul style="list-style-type: none"> i) B.Sc. (Physics / Chemistry / Math) with one-year Full Time advanced Safety diploma from NICMAR, Hyderabad ii) B.Sc. / Diploma in Engg. with advanced Safety Management Diploma from CL/ / RL/ / Mumba/ / Chennai / Kolkata and Kanpur. iii) B.Sc. (Physics / Chemistry / Math) with One-year Full Time diploma in Safety Engineering offered by West Bengal State Technical Education Departments and similar courses by other states: iv) Any Graduate or diploma holder with 7 years of work experience in full-fledged SHE department of any Public Sector / Leading Private Sector / MNC / with prior approval of employer on 	2 {for category (i), (ii) and (iii) only}

Sl. No	Designation	Qualification	Experience (in years)
3	Junior SHE Manager	i) Degree in Science / Diploma in Engineering with Govt. Recognized safety diplomas from Correspondence course of NICMAR, Annamalai University, National and State Productivity Councils, Other State Technical Education Boards etc. ii) Any Graduate or diploma holder with 5 years of work experience in full- fledged SHE department of any Public Sector / Leading Private Sector / MNC / with prior approval of employer on a case	2 (for category (i) only)
4	Safety Steward	Any basic qualification with any SHE related certificate courses.	2
5	Senior SHE (Electrical) Manager	Degree in Electrical Engineering + Govt. recognized Electrical License holder	2
6	Junior SHE (Electrical) Manager	Diploma in Electrical Engineering + Govt. recognized Electrical License holder	1
7	Senior SHE (Fire) Manager	i) B.E. (Fire) from National Fire Service College, Nagpur ii) B.E (Fire & Safety) from Cochin University iii) Graduate with any Govt. recognized diploma in Fire Safety with 5 years of experience	2 (for category (i) and (ii) only)
8	Junior SHE (Fire) Manager	Any Diploma holder with any Govt. recognized diploma in Industrial Fire Safety.	1
9	Occupational Health Officer	MBBS with Govt. recognized degree // diploma in Industrial / occupational health	1
10	Environment Manager	Govt. recognized PG Degree / PG Diploma / Degree in Environmental Engineering / Science	2
11	Senior SHE (Traffic)	Govt. recognized PG Degree / Degree / Diploma in Traffic / Transportation	1
	Engineer	Engineering or Planning	
12	House Keeping Squad Manager	Any Diploma in Engineering	1
13	Barricade Manager	Any Diploma in Engineering	1
14	Labour Welfare Officer	Any Degree with Govt. Recognized Degree / Diploma / P G Diploma in Labour Welfare related fields like Law, Personnel / Industrial Relations etc.	2

Note 1: In some extraordinary cases where the candidate had earlier worked in K-RIDE or other MRTS Projects they can be considered for the following posts:

- i. Senior SHE Manager
- ii. Junior SHE Manager
- iii. Safety Steward

Depending upon the qualification and no. of years of experience on a case-to-case basis even if they do not possess the prescribed qualification as listed above.

Note 2: In all other cases other than listed under Note 1 irrespective their earlier experience with MRTS projects the candidates shall qualify as specified above.

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED.**GENERAL INSTRUCTION: K-RIDE /SHE/CEO/003**

SUGGESTIVE REQUIREMENTS OF SHE MONITORING AND AUDIO-VISUAL EQUIPMENTS					
1.	For the purpose of minimum requirements of Audio-visual and Other equipment the contracts are categorized into the following groups:				
	Contract Value (Initial awarded value of contract)			Group	
	Upto 25 Cr			A	
	Upto 100 Cr			B	
	Upto 250 Cr			C	
	More than 250 Cr			D	
2.	Every contractor falling into the above groups shall provide the following minimum required audio visual aids for conducting weekly review, monthly safety committee and other post review meeting of all fatal and major incidences effectively. These audio-visual equipment's are a must for conducting periodical in-house safety presentations in the training programme.				
3.	In addition to the above portable hand held digital sound level meter (SLM) and portable hand held digital lux meter are also to be provided.				
Sl. No	SHE monitoring and Audio-Visual Equipment details	SHE monitoring and Audio-Visual equipment required for			
		Group A Contract	Group B Contract	Group C Contract	Group D Contract
1.	Portable hand held Digital Sound Level Meter (SLM)	1	1	1	1
2.	Portable hand held Digital Lux Meter	1	1	1	1
3.	Laptop Computer with standard configuration including multimedia facilities	1	1	1	1
4.	Colour Printer	1	1	1	1
5.	Computer projector with screen	-	1	1	1
6.	Overhead projector	1			
7.	35mm Camera (For taking accident investigation photos in which case the images cannot be easily altered)	1	1	1	1
8.	Digital camera with flash of minimum 4 mega pixel and video facility	1	1	1	2
9.	Digital still camera with flash of minimum 4 mega pixel	1	2	4	6
10.	Portable loudspeaker (for tool-box talk and emergency purpose)	1	1	2	6
11.	Communication facility like mobile phone, walky-talky etc.	For all supervisors and managers/engineers working in Safety, Health & Environment			
12.	Accident investigation Kit containing the following:	1	1	1	2

<u>SUGGESTIVE REQUIREMENTS OF SHE MONITORING AND AUDIO-VISUAL EQUIPMENTS</u>					
a)	Chalk piece for marking				
b)	Measuring tape for measuring i) Flexible tape - 2m length ii) Metal Foot long scale and iii) Metal tape - 30m				
c)	Equipment tags				
d)	Multipurpose Flash light				
e)	Barrier tape of 20m length				
f)	Accident investigation Forms and checklists				
g)	Enough Paper for witness recording and other noting				
h)	Emergency Phone Numbers list				

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED.
GENERAL INSTRUCTION: K-RIDE/SHE/CEO/004

TOPICS FOR FIRST DAY AT WORK SHE ORIENTATION TRAINING OF WORKMEN

1. HAZARD IDENTIFICATION PROCEDURE

Hazards on site:

- i. Falls
- ii. Earthing work
- iii. Electricity
- iv. Machinery
- v. Handling materials
- vi. Transport
- vii. Site housekeeping
- viii. Fire

2. PERSONAL PROTECTIVE EQUIPMENT

- i. What is available?
- ii. How to obtain it?
- iii. Correct use and care

3. HEALTH

- i. Site welfare facilities
- ii. Potential health hazards
- iii. First Aid/CPR

4. DUTIES OF THE CONTRACTOR

- i. Brief outline of the responsibilities of the Contractor by law
- ii. Details of Contractor's accident prevention policy
- iii. K-RIDE's SHE manual
- iv. Building and other Constructions Welfare Law

5. EMPLOYEE'S DUTIES

- i. Brief outline of responsibilities of employee under law
- ii. Explanation of how new employees fit into the Contractor's plan for accident prevention. (Induction and orientation).

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED.
GENERAL INSTRUCTION: K-RIDE/SHE/CEO/005

ID CARD FORMAT

(85 mm x 55mm)

FRONT SIDE OF ID CARD:

<div style="border: 1px solid black; padding: 2px; display: inline-block;">Company Logo</div>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Name & Address of Main / Sub / Labour contractor</div>
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Name:</div>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Photo</div>
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Designation:</div>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Authorized Signatory</div>

BACKSIDE OF ID CARD:

<div style="border: 1px solid black; padding: 2px; display: inline-block;">Employee Address:</div> <div style="border-bottom: 1px solid black; height: 15px; width: 100%; margin-top: 5px;"></div>
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> 1 This card is the property of "XX" (Main / Sub / Labour Contractor) and must be returned on demand and on transfer / cancellation of employment. 2 A charge will be levied for replacement of the card due to loss or theft </div>
<div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">Main contractors' Address</div>

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED
GENERAL INSTRUCTION: K-RIDE/SHE/CEO/006

SHE TRAINING DETAILS FOR MANAGERS AND SUPERVISORS

1. The Law and Safety	2. Policy and Administration
i) Statutory requirement ii) Appropriate regulations iii) Duties of employer and employee	i) Effect of incentive on accident prevention ii) Human relations iii) Consultation iv) Safety Officer: duties, aims, objectives
3. Safety and the Supervisor	4. Principles of Accident Prevention
i) i) Safety and efficient production go together ii) Accidents affect morale and public relations	v) Attitudes of management, supervision & operation vi) Methods of achieving safe vii) Operations viii) Accident and injury causes
5. Site Inspection	6. Human Behavior
i) The role of management ii) Hazard Identification Procedure iii) Records results iv) Follow-up procedures v) Feedback	i) Motivating agencies ii) Individual behavior vi) Environmental effects vii) Techniques of persuasion
7. Site housekeeping	8. Health
i) Site organization ii) Relationship of site housekeeping to accident iii) Occurrence iv) Site access v) Equipment storage vi) Material stacking vii) Materials handling	i) Medical examination ii) Hazard to health on site iii) Sanitation and welfare iv) Protective clothing v) First Aid/CPR
9. Personal Protective Equipment	10. Electricity
i) Eye, face, hands, feet and legs ii) Respiratory protective equipment iii) Protection against ionizing radiation	i) Appreciation of electrical hazards ii) Power tools iii) Arc welding iv) Low voltage system v) Lighting and power system on sites vi) vi) ELCB, RRCB, Grounding/Ground fault circuit interrupters (GFCIs)
11. Oxygen and Acetylene Equipment	12. Equipment
i) Cylinder storage and maintenance ii) Condition and maintenance of valves, regulators, gauges iii) Condition and maintenance of hoses and fittings iv) Pressures	i) Accidents related to moving parts of machinery ii) Appreciation of principles of guarding iii) Importance of regular maintenance
13. Transportation	14. Excavations
i) Transport to and from site ii) Hazard connected with site transport iii) Competent drivers iv) Dumpers v) Tipping trucks vi) Movement near excavations	i) Method of shoring ii) Precautions while shoring iii) Precautions at edge of excavations iv) Removal of shoring v) Sheet steel piling
15. Working platforms, Ladders & Scaffolding	16. Cranes and other Lifting Machines

<ul style="list-style-type: none"> i) Hazards connected with the use of ladders ii) Maintenance and inspection iii) Type of scaffold iv) Overloading v) Work on roofs vi) Fragile material vii) Openings in walls and floors viii) Use of safety belts and nets 	<ul style="list-style-type: none"> i) Licensing, certification and training required for operation of cranes ii) Slings methods iii) Signaling iv) Access to crane(s) v) Maintenance and examination vi) Ground conditions vii) Hazards and accident prevention methods connected with the use of different types of cranes/heavy equipment viii) Crane Lift Plan for all lifts
17. Lifting Tackle	18. Fire Prevention and Control
<ul style="list-style-type: none"> i) Slings - single and multi-legged ii) Safe working loads (SWLs) iii) Safety hooks and eyebolts iv) Cause of failure v) Maintenance and examination 	<ul style="list-style-type: none"> i) Principle causes determining fire ii) Understanding fire chemistry iii) Firefighting equipment iv) Firefighting training
19. Communications	20. Manual Handling
<ul style="list-style-type: none"> i) Effective methods of communication (particular interest to non-English speaking) ii) Method and preparation of reports iii) Safety committees iv) Safety meeting 	<ul style="list-style-type: none"> i) Body posture and procedure for lifting, pushing, pulling, dragging, sitting and walking ii) Ergonomics iii) Stretching exercises

**K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED GENERAL INSTRUCTION: K-RIDE/SHE/CEO/007
SHE TRAINING MATRIX**

Types of training	Management																			Supervisor										Specific																				
			SHE Leadership	SHE Plan	SHE Improvement Plan	Management of Change	SHE Audit & Inspection	SHE Emergency Response & Preparedness	Incident/Accident Investigation & Reporting	SHE Communication	SHE Promotion & Incentives	Traffic Management	Hazard Identification & Risk Analysis	Permit to work system	Confined space entry	scaffolding	Waste Management	Environment Monitoring	Labour welfare measures	Behavioral Based Safety Management (BBSM)	Job/Task Safety Analysis (JSA)	Safety Training Observation Programme (STOP)	Industrial First Aid & CPR	Incident / Accident Investigation & Reporting	Fire fighting	Confined Space Testing & Certification	Scaffold Erection & Inspection	Rigging	Wire Rope Inspection	Crane Inspection	Electrical/Mechanical Isolation	Permit to Work System	Confined Space Working	Explosive Handling & Control	Heavy Lifting Operation	Radiography (X-Ray)	HAZMAT Handling & Control	Welding, Cutting & Bracing	Power Actuated Hand Tool	Electrical/Mechanical Isolation	Roofing Work	Steel erection work	Scaffold Erection/Dismantling	False-work Erection / Dismantling	Painting in Confined Area					
Project Manager		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•																														
Sr. Construct ion Manager		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•						•							•															
Quality Manager		•	•	•	•	•	•	•	•		•	•	•	•	•	•	•		•	•	•	•	•																											
Planning engineer		•	•	•		•	•	•	•				•		•							•																												
Construct ion Manager		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					•	•	•	•	•																		

	Management																			Supervisor										Specific															
Types of training																																													
	SHE Leadership	SHE Plan	SHE Improvement Plan	Management of Change	SHE Audit & Inspection	SHE Emergency Response & Preparedness	Incident/Accident Investigation & Reporting	SHE Communication	SHE Promotion & Incentives	Traffic Management	Hazard Identification & Risk Analysis	Permit to work system	Confined space entry	scaffolding	Waste Management	Environment Monitoring	Labour welfare measures	Behavioral Based Safety Management (BBSM)	Job/Task Safety Analysis (JSA)	Safety Training Observation Programme (STOP)	Industrial First Aid & CPR	Incident / Accident Investigation & Reporting	Fire fighting	Confined Space Testing & Certification	Scaffold Erection & Inspection	Rigging	Wire Rope Inspection	Crane Inspection	Electrical/Mechanical Isolation	Permit to Work System	Confined Space Working	Explosive Handling & Control	Heavy Lifting Operation	Radiography (X-Ray)	HAZMAT Handling & Control	Welding, Cutting & Bracing	Power Actuated Hand Tool	Electrical/Mechanical Isolation	Roofing Work	Steel erection work	Scaffold Erection/Dismantling	False-work Erection / Dismantling	Painting in Confined Area		
Constru tion Supervis	•		•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Constru ction Forema	•	•				•	•				•	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Machine ry Operator	•					•				•					•						•	•	•			•																			
Material Handler	•					•					•	•		•							•	•	•			•																			
Station Building Workers	•					•						•	•	•	•						•	•	•							•			•				•			•	•	•	•	•	
Steel workers	•					•						•		•	•						•	•	•				•						•	•		•		•	•	•	•	•	•	•	•
Mechani cal workers	•					•									•						•	•	•				•				•			•		•		•	•	•	•	•	•	•	•
Other Civil workers	•					•									•						•	•	•				•				•	•	•		•		•	•	•	•	•	•	•	•	•

Types of training	Management																			Supervisor										Specific																		
		SHE Leadership	SHE Plan	SHE Improvement Plan	Management of Change	SHE Audit & Inspection	SHE Emergency Response & Preparedness	Incident/Accident Investigation & Reporting	SHE Communication	SHE Promotion & Incentives	Traffic Management	Hazard Identification & Risk Analysis	Permit to work system	Confined space entry	scaffolding	Waste Management	Environment Monitoring	Labour welfare measures	Behavioral Based Safety Management (BBSM)	Job/Task Safety Analysis (JSA)	Safety Training Observation Programme (STOP)	Industrial First Aid & CPR	Incident / Accident Investigation & Reporting	Fire fighting	Confined Space Testing & Certification	Scaffold Erection & Inspection	Rigging	Wire Rope Inspection	Crane Inspection	Electrical/Mechanical Isolation	Permit to Work System	Confined Space Working	Explosive Handling & Control	Heavy Lifting Operation	Radiography (X-Ray)	HAZMAT Handling & Control	Welding, Cutting & Bracing	Power Actuated Hand Tool	Electrical/Mechanical Isolation	Roofing Work	Steel erection work	Scaffold Erection/Dismantling	False-work Erection / Dismantling	Painting in Confined Area				
Electrical workers	•					•										•						•		•			•				•	•												•				
Radiographers	•						•									•						•		•							•	•										•						
Transportation	•						•									•						•		•											•													
Drivers																																																
Security Officers	•						•	•			•	•	•		•	•						•	•	•																								
Clerical	•						•									•						•	•	•																								
Medical Doctor	•	•	•				•	•							•	•		•				•																										
Sr. SHE Manager		•					•								•		•					•																										
Jr. SHE Manager	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SHE Supervisors	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

**K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED GENERAL
INSTRUCTION: K-RIDE/SHE/CEO/008
DAYS TO BE OBSERVED FOR CREATING SHE AWARENESS**

1st Monday to Sunday of January	Road Safety Week (Subjected to confirmation from Ministry of Road Transport, Govt. of India every year.)
16th February	Kyoto Protocol Day
March	Red Cross Month
4th March	National Safety Day
7th April	World Health Day
14th April	Fire Safety Day
April 18 to 22	Earth Week
20th April	Earth Day
20th April	Noise Awareness Day
28th April	ILO World Day for Safety and Health at Work
May 1 to 7	Emergency Preparedness Week
5th June	World Environmental Day
12th June	World Day against Child Labors
9th July	Occupational Health Day
17th October	World Trauma Day
1st December	World AIDS Day

**K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED GENERAL
INSTRUCTION: K-RIDE/SHE/CEO/009**

MINIMUM REQUIREMENTS OF SHE COMMUNICATION POSTERS / SIGNAGE'S / VIDEO

1. For the purpose of Minimum requirements of SHE Communication Posters / Signage's / Video the contracts are categorized into the following groups:

Contract Value (Initial awarded value of contract)	Group
Up to 25 Cr	A
Up to 100 Cr	B
Up to 250 Cr	C
More than 250 Cr	D

2. Every contractor falling into the above groups shall prepare a SHE Communication Plan as a part of site specific SHE Plan and shall include the following minimum requirement of Posters / Signage's / Video as applicable. In case readymade posters are available in any of the category from National Safety Council, Loss Prevention Association of India or any other safety related organizations they may procure the same and display it. In case the same is not available then the contractors shall make necessary arrangements to get the posters designed and printed on their own.

All the above are to be detailed in the Site SHE Plan and get an approval from the Employer before displaying the posters.

TABLE NO 1 - MINIMUM NO. OF POSTERS

Sl. No	SHE Poster Title	Minimum No. of concepts in each title	No. of Posters / Signage / Video			
			Group A Contract	Group B Contract	Group C Contract	Group D Contract
1.	Safety Culture	5	Each 10	Each 50	Each 75	Each 100
2.	Daily Safety Oath	1 English & 1 Hindi	Each 100	Each 200	Each 500	Each 1000
3.	Mandatory PPE Usage					
a)	Signage's to display the messages like PPE ZONE, NO PPE ZONE, HARD HAT AREA etc.	2 types of sizes made up of metal sheet to be mounted at different locations	Each 25	Each 50	Each 75	Each 200
b)	Helmet	5	Each 25	Each 50	Each 75	Each 200
c)	Shoe	5	Each 25	Each 50	Each 75	Each 200
d)	Goggles & Ear Protection	5	Each 25	Each 50	Each 75	Each 200
e)	Full Body Harness	5	Each 25	Each 50	Each 75	Each 200
f)	Hi-V/ Jacket	5	Each 25	Each 50	Each 75	Each 200

Sl. No	SHE Poster Title	Minimum No. of concepts in each title	No. of Posters / Signage / Video			
			Group A Contract	Group B Contract	Group C Contract	Group D Contract
4.	Emergency Management Plan	5	Each 25	Each 50	Each 75	Each 200
5.	Working at Heights	10	Each 25	Each 50	Each 75	Each 200
a)	Ladder, Stairway, Scaffold - Signage's to display the	5 types of sizes	Each 25	Each 50	Each 75	Each 200
	messages like SAFE, UNSAFE, FIT FOR USE, AVOID USE etc.	made up of metal sheet to be mounted at different locations				
6.	Site Electricity	5	Each 25	Each 50	Each 75	Each 200
7.	Fire and Explosion	5	Each 25	Each 50	Each 75	Each 200
8.	Crane Safety	5	Each 25	Each 50	Each 75	Each 200
9.	Slings	5	Each 25	Each 50	Each 75	Each 200
10.	Rigging Procedures	5	Each 25	Each 50	Each 75	Each 200
11.	Excavation	5	Each 25	Each 50	Each 75	Each 200
12.	Occupational Health (Mosquito Control, HIV/AIDS awareness, Dust Control, Noise Control, No Smoking/Spitting, etc.)	10	Each 25	Each 50	Each 75	Each 200
13.	First – Aid	3	Each 25	Each 50	Each 75	Each 200
14.	Labor Welfare Measures (Payment of Minimum Wages, Avoidance of Child labor, Signing in the Muster Roll, In case of accidents- what to do? etc.	5	Each 25	Each 50	Each 75	Each 200
15.	Importance of "Safety Handbook"	1	25	50	75	200
16.	Traffic Safety (Speed limit, safe crossing and working within barricaded area etc.)	5	Each 25	Each 50	Each 75	Each 200
17.	Environmental Monitoring (Spillage of Muck, hazardous material, Improper drainage, water spray for dust containment etc.)	5	Each 25	Each 50	Each 75	Each 200
18.	Video in Hind/ on PPE usage – 15 minutes duration	1	-	-	-	1

Note 1: Items mentioned under 17 is video. Items under 3 (a) and 5 (a) are metal signage boards and all other items are posters.

Table No.: 2 – Size of Posters / Signage's

Sl. No	Item	Size
1.	Posters – Standard	17"x22" –135 GSM 4 Color Printing
2.	Posters – Special (Wherever required)	17"x22" card laminated FA Poster
3.	Posters - Mega size (Wherever required)	32"x40" Flex FA Poster
4.	First-Aid Booklet	6"x4"
5.	Safety Handbook	6"x4"
6.	Signage's	Small: 12"x6" Big : 24"x12"
7.	Road Traffic Sign Boards	Strictly as per Indian Road Congress (IRC) specifications

Table No.: 3 – Safety Signage Colour (as per IS 9457)

Sl. No	Type of signage	Color
1	Mandatory	Blue
2	Danger	Yellow
3	Prohibit	Red
4	Safe conditions	Green

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED GENERAL**INSTRUCTION: K-RIDE/SHE/CEO/010****EXPERTS / AGENCIES FOR SHE SERVICES**

Sl. No.	Organization	Services
1.	Bureau Veritas Industrial Services (India) Pvt. Ltd., B-21 & 22, First Floor, Sector-16, NOIDA-201 301 (U.P.) Phone: 0120 - 2515055 Fax: 0120 - 2515248 E-mail: enp.delhi@in.bureauveritas.com	<ul style="list-style-type: none"> • External SHE Audit • SHE Management / Technical Training
2.	Central Labor Institute Post box no: 17851, N.S. Moniker Marg Sion, Mumbai- 400 022 Tel: 022- 4092203 Fax: 022 - 4071986 E-mail: cli@dgfasli.nic.in	<ul style="list-style-type: none"> • SHE Management / Technical Training
3.	Construction Industry Development Council 801, 8th Floor, Hemkunt Chambers, 89, Nehru Place, New Delhi - 110 019 E-mail: cidc@vsnl.com	<ul style="list-style-type: none"> • SHE Management / Technical Training
4.	Delhi Productivity Council 1E/10, Swam/ Ramtirath Nagar New Delhi - 110 055 Tel.: 23522835	<ul style="list-style-type: none"> • SHE Management / Technical Training
5.	Det Norske Veritas AS, 203, Savitr/ Sadan 1, 11 Preet Vihar Community Centre, New Delhi-110 092 Phone: 011-22531502/2253/1503, 22427688/22531278 Fax: 011-2253 0247 Website: www.dnv.com	<ul style="list-style-type: none"> • External SHE Audit • SHE Management / Technical Training
6.	Dr. A. V. Baliga Memorial trust Link House, Bagadur Shah Zafar Marg Press Area New Delhi - 110 002 Phone: 011 - 23311119	<ul style="list-style-type: none"> • HIV / AIDS awareness
7.	Dr. Cris Research Centre for Occupational Health & Safety 306, Guru Arjuna Dev Bhawan Ranjit Nagar Complex, New Delhi - 110 008 Phone: 9810040406 Fax: 011 - 25702929 E-mail: team@drcri.com Website: www.drcri.com	<ul style="list-style-type: none"> • Ambulance Room & Van • Communication Materials • First-aid box • First-aid Training • HIV / AIDS awareness • ID Card • Medical Facilities • SHE Orientation Training
8.	DuPont Safety Resources, E.I. DuPont India Private Limited, Arihant Nitco Park 6th Floor,	<ul style="list-style-type: none"> • SHE Management Training

Sl. No.	Organization	Services
	90, Dr. Radhakrishnan Salai, Mylapore, Chennai-600 004 Phone: 044-2847 2800, 2847 3752 Fax: 044-2847 3800 Mobile: 9381201040 Website: in.dupont.com	
9.	EQMS INDIA PVT. LTD. 304 & 305, 3rd Floor, Rishabh Towers, Plot No. 16, Community Centre, Karkardooma, Delhi - 110092. Phone: 011 - 22374729 / 22374775 Fax: 011- 22374662 E-mail: eqms@eqmsindia.org Website: www.eqmsindia.com	<ul style="list-style-type: none"> • ISO Certification • SHE Management / Technical Training
10.	Green Cross Consultants 59, 7th Cross, 1st Floor, Ja/ Bharath Nagar, Bangalore-560 033 Phone: 080-2549 6782 E-mail: etgrangan@yahoo.com	<ul style="list-style-type: none"> • SHE Management / Technical Training
11.	HSRTC, PENTASAFE 201, 2nd Floor, Town Centre, Andheri Kurla Road, Marol, Andheri (East), Mumbai-400 059 Phone: 022-2850 2210/20/50 Fax: 022-2850 2260 E-mail: training@penta-safe.com	<ul style="list-style-type: none"> • SHE Practical Field • Training for Height Safety
12.	Institute of Driving Training & Research, Wazirabad Road, Adjoining Lon/ Road flyover. New Delhi - 110 094 Phone: 011 - 22813474, 22815833 Fax: 011 - 22811131	<ul style="list-style-type: none"> • SHE Technical Training for • Vehicle Drivers
13.	Institute for Research, Development & Training of Construction Trades & Management An Educational Institute, Society and Trust, 1st Floor, UVCE Alumni Association Building, K.R. Circle, Bangalore-560 001 Phone: 080-22294291/22243257 Fax: 080-22243257 E-mail: ubrco@vsnl.com Website: www.instructindia.org	<ul style="list-style-type: none"> • SHE Technical /Field • Training
14.	International Engineering Company K - 10, South Extension, Part - 2, New Delhi - 110 049 Phone: 011 - 26254761, 26258130 Mobile: 9312260130 E-mail: ashok@intenco.net	<ul style="list-style-type: none"> • Crane and Lifting appliances and Gears Certification • SHE Practical Field • Training for Crane Safety
15.	L & T Eutectic 32, Sivaji Marg, New Delhi - 110 015	<ul style="list-style-type: none"> • SHE Practical Field • Training for Welding Safety

Sl. No.	Organization	Services
	Phone: 011 - 51419538, 51419539 Fax: 011 - 51419600 Website: www.Inteutecticwelding.com	
16.	Loss Prevention Association of India Ltd. Warden House, Sir P.M. Road, Mumba/ - 400 001 Website: www.lpaindia.org	• SHE Management / Technical Training
17.	MFA Crucial Moments Healthcare Pvt. Ltd., 42, Okhla Industrial Estate, Phase - I/ New Delhi - 110 020 Phone: 011 - 55624000 Fax: 011 - 55624010 E-mail: contact@crucialmoments.net	• First-aid Training
18.	Modicare Foundation 4 Community Centre, New Friends Colony, New Delhi - 110 065 Phone: 011 - 5167235059 Fax: 011 - 26915469 E-mail: nivedita@modi.com nivedita@gmavil.com Website: www.modicarefoundation.org	• HIV / AIDS awareness
19.	National Safety Council HQ and Institute Building 98A, Sector 15, industrial Area C.B.D Belapur, Navi Mumba/ - 400614 Phone: 27579924	• SHE Management / Technical Training
20.	NICMAR (National Institute of Construction Management and Research) 910,9th Floor, Hemkunt Chambers, 89, Nehru Place, New Delhi - 110 019 Phone: 011 - 51618415, 51618417, 51618418 Fax: 011 - 51618416	• SHE Management / Technical Training
21.	Quality Growth Services Pvt. Ltd. H-13, Kirti Nagar, New Delhi - 110 015 Fax: 011 - 25431737 / 25438598 / 25918332 E-mail: qgs@qgspl.com Website: www.qgspl.com	• ISO Certification
22.	Safety Engineers Association / Safety Educational Trust - India 2/257, First Floor, Dr. Ambedkar Nagar, Manapakkam, Chennai - 600 116 Phone: 044 - 22523461 E-mail: safetrustindia@rediffmail.com	• SHE Management / Technical Training
23.	SHE Management Consultancy & Support Services, 145 A, Pocket-VI, (DDA Flats), Kondli Gharoli, Mayur Vihar-II, Delhi-110 096 Fax: 011-2262 5015	• SHE Management / Technical Training

Sl. No.	Organization	Services
	Mobile: 9811153873 E-mail: r_k_p@vsnl.net	
24.	St. Johns' Ambulance Red Cross Road New Delhi - 110 001	<ul style="list-style-type: none"> • First-aid Training
25.	Vexil Business Process Services Pvt. Ltd. 208, A/4, Savitr/ Nagar, New Delhi - 110 017 Mobile: 9350232714, 98102832201, 9350232716 E-mail: info@vexilbps.com Website: www.vexilbps.com	<ul style="list-style-type: none"> • Emergency Preparedness Mock drill • SHE Management / Technical Training
26.	Welding Research Institute Bharat Heavy Electricals Ltd. (BHEL) Trichirappalli, Tamil Nadu - 620 014 Phone: 0431 - 2577029, 2577283 Fax: 0431 - 2520770 E-mail: wri@bheltry.co.in	<ul style="list-style-type: none"> • SHE Practical Field Training for Welding Safety

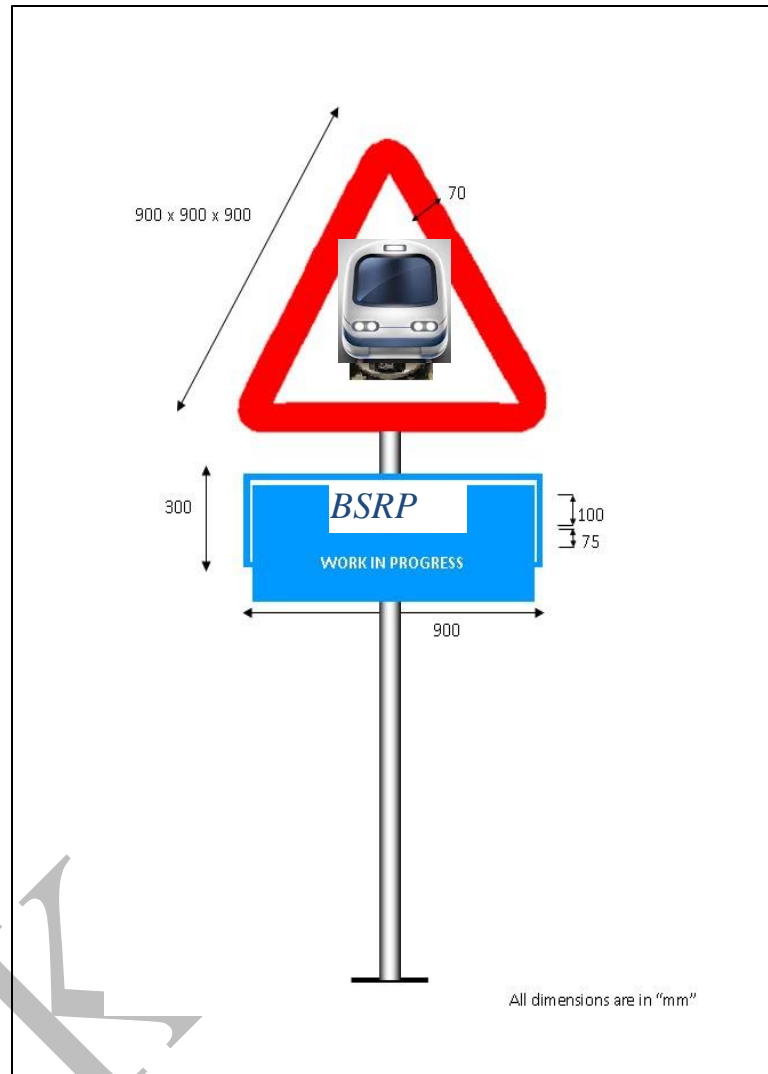
K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED GENERAL**INSTRUCTION: K-RIDE/SHE/CEO/011****MINIMUM LIGHTING REQUIREMENTS**

Sl. No.	Facility or Function	Luminance - lx (lm/ft²)
1.	Administrative areas (offices, drafting and meeting rooms, etc.)	540 (50)
2.	Construction areas i. general indoor ii. general outdoor iii. tunnel and general underground work areas (minimum 110 lux required at tunnel and shaft heading during drilling, mucking and scaling)	55 (5) 33 (3) 55 (5)
3.	Access ways i. exit ways, walkways, ladders, stairs	110 (10)
4.	Maintenance / Operating areas / Shops i. vehicle maintenance shop ii. carpentry shop iii. outdoors field maintenance area iv. refueling area, outdoors v. shops, fine details work vi. shops, medium detail work vii. welding shop	325 (30) 110 (10) 55 (5) 55 (5) 540 (50) 325 (30) 325 (30)
5.	Mechanical/electrical equipment rooms	110 (10)
6.	Hoists, Elevators, freight and passenger	215 (20)
7.	Warehouses and storage rooms/area i. indoor stockroom, active/bulk storage ii. indoor rack storage iii. outdoor storage	110 (10) 270 (25) 33 (3)
8.	Health Centers and First aid stations and infirmaries	325 (30)
9.	Toilets, wash and dressing rooms	110 (10)
10.	Work areas - general (not listed above)	325 (30)
11.	Parking areas	33 (3)
12.	Visitor areas	215 (20)
13.	Laboratories	540 (50)

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED GENERAL

INSTRUCTION: K-RIDE/SHE/CEO/012

WARNING TRAFFIC SIGN



K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED**FORM NO: SF/001**

FORMATION OF SITE SHE COMMITTEE	
Contract No	
Contractor Name	
Contract Title	

<u>CIRCULAR</u> <u>Committee</u> The following SHE Committee is constituted with immediate effect: Chairman: Members: 1) 2) 3) Secretary:	
<u>Periodicity</u> The committee will meet at least once in a month on the day (specify date)	
<u>Agenda</u> Secretary will circulate agenda of the meeting at least two days in advance of the schedule date of the meeting.	
<u>Circulation</u> Gist of the meeting will be in minutes in the standard format and circulated to the following under the signature of the secretary 1. Chairman 2. Members	
Date:	Signed By: _____ CHAIRMAN

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED**FORM NO: SF/002**

MINUTES OF SHE COMMITTEE MEETING	
Contract No.	
Contractor Name	
Contract Title	
Meeting No.	<i>Date of Meeting</i>
Location of Meeting	

MEMBERS PRESENT	INVITEES	MEMBERS ABSENT

REPORT SENT TO					
No. of Copies	Name / Dept.	No. of Copies	Name / Dept.	No. of Copies	Name / Dept.

Prepared by:	Location:	Date:
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MINUTES OF SHE MEETING				
Item No.	Description of Discussion	Action By	Target	Remarks
1	Complaints received from Clients and corrective and preventive action			
2	Review of MOM of previous meeting			
3	NCR's / Observation from third party			
4	First - Aid cases / Reportable accident cases			
5	Future jobs and specific requirement			
6	Status of implementation of Safety plan			
7	Sub-contractor performance			
8	Analysis of first-aid cases			
9	Need for any specific system / training / PPE's / resources			
10	Observation of SHE committee during last walk down			

Next SHE Meeting is scheduled on:

Date:	Chief SHE Manager (Signature & Name)
Date:	Project Manager (Signature & Name)

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED**FORM NO: SF/003****K-RIDE****COLD WORK PERMIT**

(to be used for works other than Hot, Confined Space Entry or Electrical)

S.No. ____

Work clearance from _____ hrs. of date _____ To _____ hrs. of date _____ (Valid for the shift unless renewed)

Issued to (Department / Section / Contractor) Exact Location of work (Area / Unit / Equipment No. etc.)

Description of work _____

THE FOLLOWING ITEMS SHALL BE CHECKED BEFORE ISSUING THE PERMIT

(Tick mark in the appropriate box. Checklist items marked with asterisk (*) shall be complied by receiver)

SI No	Item	Done	Not Req.	S. No.	Item	Done	Not Req.
1	Equipment / Work			1	Equipment water		
2	Surrounding area checked, cleaned and coved			2	Equipment properly steamed / purged		
3	Equipment blinded disconnected / closed isolated / wedge, opened			3	Proper ventilation and lighting provided		
4	Equipment drained and depressurized			4	Area cordoned off & caution boards / tags provided.		
5	Equipment electrically isolated and tagged vide Permit No. -----			5	Gas test: HCs / Toxic etc. HCs = % LEL Toxic gas= ppm		

Remarks:

- The activity has the following expected residual hazards (Tick the relevant items):
Lack of Oxygen / H₂S, Toxic Gases / Combustible gases / Pyrophoric Iron / Corrosive Chemicals / Steam – Condensate / Others _
- Following additional PPE to be used in addition to standards PPE (Helmet, Safety Shoes, Hand gloves, Boiler suit) Face Shield/ Apron/ Goggles/ Dust Respirator/ Fresh Air Mask/ Lifeline/ Safety Belt/ Airline/ Earmuff etc.

3. Additional precaution if any _____

Issuer Name & Designation	Issuer Signature	Receiver Name & Designation	Signature

Clearance renewal:

Date	Time		Additional precautions if any, otherwise mention "NIL"	Issuer's Name, Designation & Signature	Receiver's Name, Designation and Signature
	From	To			

Closing of the work permit:

Receiver: Certified that the subject work has been completed / stopped and area cleared			Issuer: Verified that the job has been completed and area cleared and is safe from any hazard.		
Date & Time	Name & Designation	Signature	Date & Time	Name & Designation	Signature

General Instructions:

1. The work permit shall be filled up carefully and accurately in clear handwriting ensuring that complete information is provided in all the sections / subsections. Sketches should be provided wherever possible to avoid miscommunication.
2. Appropriate safe guards and required personnel protective equipment (PPEs) shall be determined by a careful analysis of the potential hazards and the operations to be performed prior to starting the work.
3. Requirement of standby personnel from Contractor / SHE team if any shall be mentioned in the additional requirement.
4. In case of fire alarm / siren, all work must immediately be stopped.
5. For renewal of work clearance, the issuer shall ensure that the conditions are satisfactory for the work to continue. If the conditions have changed, it may be necessary to issue a new permit or amend the existing permit.
6. This clearance on the same permit can be renewed / extended up to a maximum of seven calendar days.

7. This permit must be available at work site at all times.
8. This permit shall remain valid for 12 hours of the day of issue / renewal
9. On completion of the work, the permit shall be closed.

K-RIDE

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED**FORM NO: SF/004**

**K-RIDE
HOT WORK PERMIT
(HOT WORK / ENTRY TO CONFINED SPACE)**

S. No. _____

Work clearance from _____ hrs. of date _____ To _____ hrs. of date (Valid for the shift unless renewed)

Issued to (Department / Section / Contractor)

Exact Location of work (Area / Unit / Equipment No. etc.) _____

Description of work _____

THE FOLLOWING ITEMS SHALL BE CHECKED BEFORE ISSUING THE PERMIT

(Tick mark in the appropriate box. Checklist items marked with asterisk (*) shall be complied by receiver)

Sl. No.	Item	Done	Not Req.	S. No.	Item	Done	Not Req.
A	General points			B	For Hot work / Entry to confined Space		
1	Equipment / Work Area inspected			1	Proper ventilation and Lighting provided		
2	Surrounding area checked, cleaned and covered			2	Proper means of exit / escape provided		
3	Sewers, manholes, CBD etc. and hot surfaces nearby covered			3	Standby personnel provided from Process / Main / Contractor / Fire / Safety dept.		
4	Considered hazard from other operations and concerned persons Alerted.			4	Checked for oil and Gas trapped behind the lining in Equipment		
5	Equipment blinded disconnected / closed / isolated / wedge opened			5*	Shield provided against spark		
6	Equipment properly drained and depressurized			6*	Portable equipment / Nozzles properly grounded		
7	Equipment properly steamed / purged			7*	Standby persons provided for entry to confined space		
8	Equipment water flushed						
9	Iron sulfide removed / kept wet			C	For Vehicle Entry		
10	Equipment electrically isolated and tagged vide Permit No.			1*	Spark Arrestor on the mobile equipment / vehicle provided.		

Sl. No.	Item	Done	Not Reqd.	S. No.	Item	Done	Not Reqd.
11	Gas test: HCs = %LEL Toxic gas = ppm, O ₂						
12*	Running water hose / Fire extinguisher provided. Fire water system available.			D	For Excavation works		
13*	Area cordoned off and 1 Precautionary tags / Boards provided.				Clearance obtained for excavation / road cutting / Dyke cutting from concerned dept.		

REMARKS:

- The activity has the following expected residual hazards (Tick the relevant items): Lack of Oxygen / H₂S, Toxic Gases / Combustible gases / Pyrophoric Iron / Corrosive Chemicals / Steam – Condensate / Others
- Following PPEs to be used in addition to standards PPEs (Helmet, Safety Shoes, Hand gloves, Boiler suit): Face Shield / Apron / Goggles / Dust Respirator / Fresh Air Mask / Lifeline / Safety Belt / Airline / Earmuff etc.
- Additional precautions if any: _____

Issuer Name & Designation	Issuer Signature	Receiver Name and Designation	Receiver Signature

CLEARANCE RENEWAL:

Date	Time		Additional precautions if any, Otherwise mention "NIL"	Issuer's Name, Designation & Signature	Receiver's Name, Designation and Signature	Receiver's Name, Designation and Signature
	From	To				

CLOSING OF THE WORK PERMIT:

Receiver: Certified that the subject work has been completed / stopped, and area cleared			Issuer: Verified that the jobs has been completed and area cleared and is safe from any hazard.		
Date & Time	Name & Designation	Signature	Date & Time	Name & Designation	Signature

GENERAL INSTRUCTIONS

1. The work permit shall be filled up carefully and accurately in clear handwriting ensuring that complete information is provided in all sections / subsections and none of column is left blank. Sketches should be provided wherever possible to avoid miscommunication.
2. Appropriate safe guards and required personnel protective equipment shall be determined by a careful analysis of the potential hazards and the operations to be performed prior to starting the work.
3. In case of fire alarm / siren, all work must immediately be stopped.
4. Only certified vehicle / engines and permitted type of electrical equipment and tools are allowed in operating areas.
5. Welding machines should be located in non-hazardous and ventilated areas.
6. No hot work should be permitted unless the explosive meter reading is Zero.
7. When a person is entering confined space, the receiver must keep minimum two standby-designated persons at the manhole or entry point.
8. Before box up of any vessel manhole cover, ensure that no men / materials are inside the vessel.
9. For renewal of work clearance, the issuer shall ensure that the conditions are satisfactory for the work to continue. If the conditions have changed, it may be necessary to issue anew permit or amend the existing permit.
10. This clearance shall remain valid for 12 hours on the date of issue renewal.
11. This permit must be available at work site at all times.
12. On completion of the work, the permit must be closed and kept as record.

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED**FORM NO: SF/005****K-RIDE****ELECTRICAL ISOLATION / ENERGISATION PERMIT**

Section-A: Isolation Permit.

S.No. _____ Request for Isolation:

Date: _____ Time: _____

Department / Section / Area issuing the permit _____

Equipment number to be isolated: _____

Name of the equipment / circuit to be isolated: _____

The above-mentioned equipment / circuit shall be de-energized and isolated from all live conductors to carry out the maintenance work by Section for operational requirement.

Issuer Name_____
Designation_____
Signature-----
Certificate of Isolation: _____ Date: _____ Time: _____

Circuit no. _____ Of _____

Certified that equipment / plant has been electrically isolated by switches / isolators / links / fuses (tick as applicable) and the danger tag is put on the supply panel.

Actions in respect of electrical isolation have been recorded in the electrical shift logbook.

Name of Authorized Person_____
Designation_____
Signature-----
Section-B: Energisation Permit.

S.No. _____

Request for Energisation:

Date: _____ Time: _____

Department / Section / Area issuing the Permit _____

Equipment number to be energized: _____

Name of the equipment / circuit to be energized: _____

Work on the above mention equipment / circuit has been completed and all the applicable permits closed.
This equipment / circuit may be energized.

Issuer Name_____
Designation_____
Signature

Certificate of Energization:

Date: _____ Time: _____

Certified that Equipment / circuit No. _____ of _____ plant
has been electrically energized and the danger tag removed from the supply panel. This is also recorded in
the electrical shift logbook.

Name of Authorized Person_____
Designation_____
Signature

K-RIDE: RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED**FORM NO: SF/006****COMPETENCY CERTIFICATE**

"Certified that Shri _____ P. Way supervisor of M/s. _____ has been examined regarding P. Way working on _____ work. His knowledge has been found satisfactory and he is capable of supervising the work safely.

Employer/Authorized Representative /K-RIDE

K-RIDE

Annexure – I**SILICA EXPOSURE REDUCTION STRATEGIES
PART 1 – GENERAL APPLICATION****1.1 DESCRIPTION**

- A. This addendum specifies minimum environmental health and safety equipment, practices and procedures to minimize exposures to airborne silica dust during quarry operations, stone crushing, transport, and site construction. The scope of this section is limited to dust controls and employee protection in these environments.
- B. This addendum shall take precedence over overlapping requirements in the technical Specification unless otherwise stated.
- C. This document is an integral part of the contract and the contractor has the responsibility to fully implement it. Any request to deviate from any specified requirement shall be made in writing to the project sponsor.
- D. This addendum supplements all local, regional and national laws and regulations concerning the location, environmental emissions, and occupational safety in these operations. If regulatory requirements are more stringent, or require more frequent verification than outlined in this standard, then the regulatory provisions shall take precedence and become the de facto requirement in that jurisdiction.
- E. Contractor(s) shall provide a copy of the licensing documentation (NOC/ Consent to Establish) for each facility from where they purchase crushed stone including each quarry, stone crusher mill, and hot mix plant indicating they meet all applicable requirements.

1.2 GENERAL SITE REQUIREMENTS QUARRIES

- i) Operator must establish a reliable source of water with adequate capacity and pressure to run all dust suppression systems at the quarry site;
- ii) Operator must establish a reliable source of power for all mechanical equipment at the stone quarry site;
- iii) Residential areas and temporary employee housing must be located a minimum of 100 meters from any quarrying operations;
- iv) Stone drilling, cutting and conveying operations shall be equipped with either continuous wet suppression system or dry dust collectors designed and operated per minimum requirements below.
- v) Dust controls in quarries must include water fed compressed air drilling equipment, enclosed screens; enclosed transfer points, covered conveyors, and chutes.
- vi) Wet the surface of rock materials with a hose before blasting operations.

1.3 GENERAL SITE REQUIREMENTS STONE CRUSHER MILLS AND HOT MIX PLANTS

- A. Contractor shall submit a detailed plan for any temporary stone crusher or hot mix plant sites intended to be utilized for this project. The plan shall show adjacent areas within 100 meters and depict all structures and roadways. All temporary sites must meet all requirements, specified in this addendum and must obtain a Consent to Establish/ (NOC) from the applicable authorities.
- B. Temporary or permanent stone crusher sites or hot mix plants must meet all of the following requirements
 - 1. Site must be at least 250 meters from National and State Highways and 500 meters from schools, educational institutions and religious places.
 - 2. Establish green belt zone as required by applicable local requirements;
 - 3. Residential areas and temporary employee housing must be located a minimum of 200 meters from any stone crushing equipment or operations;
 - 4. Operator must establish a reliable source of water with adequate capacity and pressure to run all dust suppression systems installed at the stone crusher site;
 - 5. Operator must establish a reliable source of electricity for powering all mechanical equipment and pollution controls installed at the stone crusher site;
 - 6. Crushing, screening, and conveying operations shall be equipped with either continuous wet suppression system or dry dust collectors designed and operated per minimum requirements below.
 - 8. Crushing, screening, and conveying operations must be enclosed with sheet metal or other rigid material. Do not use cloth or plastic enclosures.
 - 9. Roadways inside the crusher mill shall be metaled, paved or otherwise treated with chemical suppressants for dust suppression.
 - 10. Waste dust materials from stone crushing operations shall be stored in close containers or closed structures.
 - 11. Lorries exiting the site must be cleaned with shovel and broom to minimize dust being tracked off site.
 - 12. Minimize drop heights to storage piles;
 - 13. Windbreak walls that are at least six times longer than its height shall be in place.
 - 14. Regularly remove and safely dispose of waste materials (rock dust) from the plant site in covered lorries;
 - 15. Fugitive emissions including emissions from stockpiles, conveyors and other areas shall be minimized as far as practicable.
 - 16. Emissions from these sources shall be substantially free from visible dust emission.

1.4 GENERAL SITE REQUIREMENTS CONSTRUCTION SITES

The following requirements shall be implemented during the following operations:

- a) Stockpiling;
- b) Earth moving/ earth works, grading, and leveling;
- c) Transfer from stock pile to work site;
- d) Final placement; and
- e) Laying the track.
 - i) Operator must establish a reliable source of water with adequate capacity and for all dust suppression required at the construction site;
 - ii) Regularly remove and safely disposing of waste materials (rock dust) from the site in covered lorries;

- iii) Waste dust materials from stone crushing operations if used for fill shall be covered within 4 hours;
- iv) Minimize spillage of raw materials. Promptly clean up all spillage and accumulations of dust.
- v) Fugitive emissions including emissions from stockpiles and other areas shall be minimized as far as practicable. Emissions from these sources shall be substantially free from visible dust emission.

1.5 GENERAL ENVIRONMENTAL PROTECTION

The Contractor shall take steps to protect the environment and surrounding populations from silica dust hazards. Ensure that the water required for dust suppression operations is sourced from a supply that will not impact the quality or availability of water in the surrounding environment. Follow all State requirements for siting criteria and obtain consent from applicable state pollution control board. Ensure that emissions, surface discharges and site closure practices shall comply with all applicable laws including but not limited to:

- i. The water (prevention and control of pollution) act 1974; no. 6 of 1974.
- ii. The air (prevention and control of pollution) act, 1981; no. 14 of 1981.

PART 2 - TECHNICAL REQUIREMENTS TO MINIMIZE AIRBORNE DUST EMISSIONS

2.1 GENERAL

The handling of raw materials, products, wastes or by-products should be carried out as to minimize the release of airborne dust. Use Table 1 below for guidance in employing dust suppression methods.

Table 1: Feasible Control Measures for Open Dust Sources Fugitive Emission Control Measure

Source	Enclosures	Wet suppression	Chemical stabilization	Green Belt	Surface Cleaning	Wind Break Walls
Unpaved roadways and staging areas		x	x			
Storage piles	x	x	x			x
Stone crushing operations	x	x		x	x	x
Paved roadways and staging areas					x	
Exposed areas	x	x	x	x	x	x
Batch drop operations	x	x				x
Continuous drop operations	x	x				x

2.2 Wet Methods: Water spray Dust Suppression Systems for Stone Crushing Mills

Details of system components for all stone crusher facilities:

A. Minimum number and locations of pressure spray nozzles:

- i) 1 nozzle on the top of the crusher
- ii) 2 nozzles at the delivery point of crushing material
- iii) 1 nozzle on the bottom of the vibrator screen or rotary screen
- iv) 2 nozzles within the storage hopper
- v) 1 nozzle at the delivery point of raw materials
- vi) 1 nozzle at the bottom of the dust hopper

B. A water pump with adequate motor horsepower and discharge pressure as required for optimal performance of spray nozzles.

C. Minimum number and locations of pressure spray nozzles:

- i) 1 nozzle on the top of the crusher
- ii) 2 nozzles at the delivery point of crushing material
- iii) 1 nozzle on the bottom of the vibrator screen or rotary screen
- iv) 2 nozzles within the storage hopper
- v) 1 nozzle at the delivery point of raw materials
- vi) 1 nozzle at the bottom of the dust hope

D. A water pump with adequate motor horsepower and discharge pressure as required for optimal performance of spray nozzles.

E. Covered water storage tank, with a manhole type maintenance provision. The cover should prevent atmospheric dust from entering the tank. The tank can be located at the ground level. Water from a bore well or other source could be pumped to fill the tank periodically.

F. Centrifugal Monoblock type self-priming pump capable of delivering 3 to 5 kg/cm² pressure and 72 liters per minute.

G. 100 stainless steel mesh online water filter with two parallel cells. Parallel cells should be set up in order for to allow connections to be reversed such that one cell undergoes backwash cleaning while the other cell is in operation. Only filtered water should be supplied to the spray nozzles.

H. Chemical surfactants or wetting agents may be added to water used in the spraying systems.

I. All spraying systems used for dust suppression shall be maintained in good condition. The flow rate and operating pressure of the spraying liquid/solution shall be sufficient to suppress dust emissions from the corresponding sources. The spraying system shall be able to cover the areas of emission points concerned.

J. All water spray equipment shall be operational during all stone crushing operations at the site.

K. No domestic showers, sprinklers, or other general water spray devices may be substituted for pressure misting nozzles. Nozzles may be hollow cone, solid cone or fan type.

2.3 Dry Methods: Dust Extraction Systems for Stone Crusher Mills/ Hot Mix Plants Details of system components:

A. Minimum requirements for dry dust capture and collection systems:

- i. Hood or enclosure to capture emissions;
- ii. Dust collector that separates particulates (e.g. centrifugal dust collectors); And

- iii. Duct to transport particulates in air stream from dust collector to air pollution Control device (e.g. baghouse).
 - B. Capture hoods shall be installed over all crusher units and screens. Enclosures shall surround all sources for dust to the extent possible.
 - C. Dust collector shall be connected in-line via an enclosed duct to a cyclone and bag house for dust removal.
 - D. Air handling system shall be a suitable size to prevent the escape of untreated airborne dust. Maintain minimum airflow as per design. A minimum draft velocity of 1 meter/ second shall be maintained through all open hoods.
 - E. Inspect bag filters routinely and at least once per month for damage and clean, repair or replace as needed
- 2.4 Dust Containment Enclosures for Stone Crusher Mills and Hot Mix Plants: Particulate emissions shall be controlled by installing dust containment enclosures at the following locations:
- A. Primary crusher discharge area
Enclosure shall cover discharge areas to all conveyor belts or secondary crusher
 - B. Vibratory Screen
All vibratory screens shall be totally enclosed. Screen houses shall be rigid and reasonably dust tight with self-closing doors or close-fitted entrances and exits for access. Where conveyors pass through the screen house, flexible covers should be installed at entries and exits of the conveyors to the housing
 - C. Conveyor belts (optional) The enclosures should be complete from all the four sides and roof. There should not be any open windows/openings etc. Any opening should be kept closed during operation. The gaps should be sealed using gaskets or wool type packing etc. Crusher enclosures shall be rigid and be fitted with self-closing doors and close-fitting entrances and exits. Where conveyors pass through the crusher enclosures, flexible covers should be installed at entries and exits of the conveyors to the enclosure.
 - D. Inlet Hopper - The inlet hopper shall be enclosed on three sides
 - E. Rotary Dryer: The plant rotary dryer in a hot mix plant.
Malfunctioning or breakdown of equipment leading to abnormal emissions shall be dealt with promptly. In any case, the abnormal emission due to equipment failure shall be stopped as soon as practicable. The dust collection system shall be routinely inspected and maintained in good condition and shall be used as required. The owner shall conduct an inspection of the dust control system at least once per month.

2.5 Minimize Fugitive Dust from Roadways and Stock Piles.

Minimize fugitive dust emissions from all sites where crushed rock is stored. Particulate emissions from unpaved roads and stock piles shall be controlled with the application of suitable compounds to minimize the control of dust. Petroleum-based products, waste oils or other waste products shall never be used for this purpose. Acceptable compounds for this purpose include:

- ii) Acrylic polymers;
- iii) Solid recycled asphalt;
- iv) Chloride compounds (calcium chloride and magnesium chloride);
- v) Lignin compounds (lignin sulfate and lignin sulfonate powders);
- vi) Natural oil resins (soybean oil); and
- vii) Organic resin emulsions.

Contractor shall provide a product information sheet prepared by the manufacturer or distributor indicating the chemical composition, application instructions, and other environmental, safety and health considerations 30 days in advance of its intended application to Engineer's Representative. The product information shall be reviewed and approved in writing before the contractor proceeds to apply it on the project site.

2.6 Minimize Fugitive Dust from Heavy Equipment and Road Transport Vehicles Minimize fugitive dust emissions from all vehicles when loading, unloading and operating vehicles on project sites, staging area or stone crusher mills. Settled dust and particulate emissions from lorries used to transport stone or waste products generated in stone crushing operations and other heavy construction vehicles, shall be minimized in accordance with the following practices:

- a. Lorries shall be filled with the material using wet methods. Load waste fine materials and powders onto tankers or closed trucks through a lengthy sleeve attached to the spout to minimize drop height and dust release.
- b. Lorries once filled with stone or other waste materials shall be covered before leaving the site. A single layer impermeable tarp shall be placed over the entire load and secured with rope or other tension bar.
- c. Designate a decontamination area that is required to be used by all vehicles before exiting the site. This area shall be covered with an impervious tarp. Use wet methods to wipe all accessible exterior surfaces of vehicles and tires.
- d. Impose strict speed limits for all vehicles operating on service roads, loading areas, or staging areas.

2.7 Minimize Fugitive Dust During Rock Quarry Operations

Particulate emissions shall be controlled during drilling, blasting, loading, and hauling with wet methods using surfactants applied in either water or foam spray.

Dust controls for stone drilling shall use water fed into the compressed air to suppress the dust.

2.8 Work Practices for Reducing Employee Exposures

This section pertains to all activities with potential for dust exposure to workers employed in quarries, stone crusher units, hot mix plants, and construction sites.

Use wet methods where feasible to reduce dust emissions from working surface or equipment.

Use a gentle spray or mist to moisten settled dust particles. When washing large quantities of dust from a surface, increase the water force only after pre-wetting all the dust with a gentle spray.

Use only the minimum amount of water needed to get the job done without creating runoff. Rewet surfaces as necessary to control dust.

PART 3 - TECHNICAL REQUIREMENTS FOR WORKER MEDICAL SURVEILLANCE

3.1 GENERAL

This section pertains to workers employed in quarries, stone crusher units, and hot mix plants.

3.2 MEDICAL MONITORING

Medical monitoring shall be conducted for each worker before the start of work and at least at annually thereafter. Examination shall as a minimum meet requirement as set forth below

Examination

1. The employer shall ensure that all medical examinations and procedures are performed by a licensed physician, and are provided at no cost to the employee and at a reasonable time and place.
2. Persons employed under the licensed physicians may administer the pulmonary function testing, chest x-ray or other testing procedures required by this section if adequately trained by an appropriate academic or professional institution.
3. A physical examination directed to the pulmonary system, including a chest x-ray to be administered and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV (1)). Interpretation and classification of chest roentgenograms shall be conducted in accordance with ILO classification system. Interpretation of the chest x-ray shall be conducted under the ILO Classification of Radiographs of Pneumoconiosis by a reader trained under this protocol. Evaluate chest x- ray for possible tuberculosis because people exposed to silica have increased susceptibility.

Report from Medical Examination: A report must be submitted from all medical examinations conducted within the last 12 months to document compliance with this medical surveillance requirement for each worker employed in quarries and stone crusher units. Submit, at a minimum, for each worker the following:

4. Name and Employee Identification Number

Physician's Written Opinion from examining physician including at a minimum the following:

2.4.2 Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to silica.

2.4.3 A statement that the worker may wear a negative pressure respirator or any recommended limitations on the worker or on the use of personal protective equipment such as respirators.

2.4.4 Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from dust exposure.

3.3 Record Keeping

1. The employer shall establish and maintain accurate records of medical surveillance to include the physician's written opinion on each employee's health status.
2. Records shall be maintained for at least the duration of the contract period.
3. A copy of each employee's records must be provided to the affected employee who has undergone the medical surveillance stipulated above within 30 days of the date of the examination.

PART 4 - REQUIREMENTS FOR EMPLOYEE TRAINING

4.1 GENERAL

- A. This section pertains to all workers employed in quarries, stone crusher units, hot mix plants, and any construction workers using powered tools or equipment to cut, grind, core, or drill concrete or masonry materials. The training provided under this section shall be provided to workers at no cost to these employees and in a language understood by workers at each training program. The course shall be taught by an environmental health and safety specialist with adequate education, experience and training.
- B. Incorporate general information about silica dust hazards in all orientation and site training sessions covering health or safety aspects.

4.2 TRAINING TOPICS

The employer shall provide training on the following topics to all employees prior to their assignment to jobs where the employer will be conducting these operations during this project

- A. The potential health hazards of exposure to airborne silica dust including silicosis, tuberculosis, lung cancer, chronic obstructive lung disease (COPD) and decreased lung function.
- B. Methods used by the employer to control employee exposures to airborne silica dust including wet or dry methods for stone crushing, drilling, cutting, local exhaust ventilation systems, and isolation of the process from employees by means of distance, enclosure, or other means, as applicable.
- C. Proper use and maintenance of dust reduction systems, including the safe handling and disposal of waste materials.
- D. The importance of good personal hygiene and housekeeping practices when working in proximity to silica dust including:
 - i) Not smoking tobacco products; appropriate methods of cleaning up before eating, and appropriate methods of cleaning clothes.
 - ii) Avoiding, to the extent practical, activities that would contribute significantly to exposure to airborne dusts.

PART 5 – WORKER PROTECTION

5.1 GENERAL

Contractors shall supply respirators and other specified safety equipment to all workers employed in quarries, stone crusher units, hot mix plants, and any construction workers using powered tools or equipment to cut, grind, core, or drill concrete or masonry materials as described below,

- A. Do not eat, drink, smoke, chew gum or smoke tobacco in the work area. To eat, drink, chew, or smoke, workers shall follow the procedures described below and leave the work area.
- B. Provide workers with a clean source of water for a facility to wash hands and face with soap and water. This should be done before eating, smoking or drinking and at the end of the day before going home. Hand washing facilities shall be set up adjacent to the work area.
- C. Engineering and work practice controls must be used whenever the possibility exists that employees may be exposed to silica including during stone crushing and construction operations.
- D. The use of compressed air, dry sweeping, or any cleaning method that would cause elevated silica dust air concentrations are prohibited.

5.2 RESPIRATORY PROTECTION

Minimum Respiratory Protection: Require that the minimum level of respiratory protection used be Respirator Class FFP3 under European standard EN 143 or N99 under the U.S. National Institute for Occupational Safety and Health (NIOSH) classification. Respirators shall be single use disposal respirators for dusts or reusable half-face air-purifying respirators with high efficiency particulate air filters.

Require that a respirator be worn by anyone in a Work Area at all times during any operation. Do not allow the use of surgical masks or other types of disposable respirators not specified above for any purpose.

Fit testing shall be conducted on any reusable air-purifying respirator assigned to the worker. Only assign respirators to workers medically approved to wear negative pressure respirators as per the physicians written opinion following an annual medical examination as per the requirements in Part 3 of this addendum.

5.3 PROTECTIVE EQUIPMENT

Do not allow workers to leave the work place wearing any clothing or equipment worn during the work shift. Provide the following

- A. Eye Protection: Provide eye protection as needed for the type of work being performed.
- B. Shoes: Provide shoes to all workers and require that they be worn at all times in the Work Area.
- C. Hearing protection: Provide all workers at all quarries, stone crushing sites, and hot mix plants and all other workers exposed to loud noise with ear plugs or other suitable hearing protection.

PART 6 - EMISSION AND AMBIENT AIR LIMITS

6.1 GENERAL

Contractors shall conduct all required emissions monitoring as required to prove compliance with all applicable State Pollution Control Board Regulations and the limits specified within this section. This section applies to all permanent and temporary stone crushing mills and hot mix plants.

6.2 SUSPENDED PARTICULATE MATTER (SPM)

The Suspended Particulate Matter (SPM) at a distance of 40 meters from a stone crusher unit in a cluster should be less than 600 micro-grams per cubic meter (up/Nm³).

The concentration of total particulate matter in any contained emissions to air, for example the bag filter exhaust air outlet, shall not exceed 150 micro-grams per cubic meter (150 ug/Nm³). The introduction of dilution air to achieve the emission concentration limits shall not be permitted.

Monitoring of the 24-hour average concentration of the total suspended particulate and/or respirable suspended particulate in ambient air shall be conducted at the site boundary and/or any other locations to be agreed by the Authority. SPM sampling shall conform to the United State Environmental Protection Agency's Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-volume Method) and shall be conducted at a frequency of not less than once every 6 months.

PART 7 – CHAIN OF CUSTODY FOR CRUSHED STONE

7.1 GENERAL

Contractor shall maintain records of suppliers for each load of crushed stone brought to the construction site with the procedures as outlined below. Such records shall be collected at a central location at least monthly during the duration of the project and be available for inspection by Engineer's Representative.

7.2 SUPPLIER VALIDATION

Contractor shall maintain records of all suppliers and all internally sourced supplies of crushed stone brought to the construction site to include:

- i) Name of supplier;
- ii) Location of stone crusher operation;
- viii) Location and name of the quarry;
- ix) Proof of registration and consent from the applicable Mining Department;
- x) Proof of registration and consent for operation from applicable Pollution Control Board;
- xi) The supplied material size and quantity (by weight or volume);
- xii) Date and specific location material was brought to site.

PART 8 - RESTORATION OF TEMPORARY STONE CRUSHER SITES

8.1 GENERAL

This section applies to the removal of any temporary stone crusher sites established and used during the duration of the project. During operation all temporary operations shall meet the requirements specified in Parts 1 and 2 above.

8.2 Equipment removal

8.3 Temporary equipment shall be cleaned before being taken down and prepared for off- site transport. Clear off all temporary structures and garbage.

8.4 Site restoration

8.5 Remove all debris and visible accumulations of dust from ground surfaces. Cover all bare soil surfaces with vegetation or pavement to reduce exposure to residual silica dust.

PART 9 – ANNEXURE - II

9.1 National Safety Day (4th March) – History & Background

The Labour Ministers' Conference in its 22nd Session held in 1962 recommended:

"A conference on 'Safety in Factories' should be convened and the question of setting up a National Safety Council for conducting a campaign on accident prevention should be considered".

The President's first conference on Industrial Safety organized in Delhi from 11th to 13th December, 1965 by the Ministry of Labour and Employment, Government of India in cooperation with the State Governments, Employers' Organizations, Trade Unions and Institutions concerned had affirmed "There is a consensus of opinion in favour of setting up National and State Safety Councils".

The 24th Session of the Standing Labour Committee accepted the proposal concerning the constitution of the National Safety Council (NSC) in February, 1966. Accordingly, National Safety Council (NSC) was set up by the Ministry of Labour, Government of India on 4th March, 1966 to generate, develop and sustain a voluntary movement on Safety, Health and Environment (S, H & E) at the National level.

It was registered as a society under Societies Registration Act, 1860 and subsequently as a Public Trust under Bombay Public Trust Act 1950. It is an apex non-profit making, tripartite body, registered under the Societies Registration Act 1860 and the Bombay Public Trust Act 1950.

The foundation day of the National Safety Council of India is observed as National Safety Day since 1972. Focus of the Day to have accident & incident free industrial activities and spread Safety & Occupational Health awareness among all citizens & workers across the country.

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SECTION – 9

PRICE SCHEDULES (FINANCIAL BID)

PRICE SCHEDULES (FINANCIAL BID)

NAME OF WORK: “RELOCATION, SHIFTING, AND DIVERSION OF BWSSB WATER AND SEWER LINES AT MOHAN KUMAR ROAD, JAYARAM COLONY SLUM, AND OTHER LOCATIONS ALONG CORRIDOR-2 (BENNIGANAHALLI TO CHIKKABANAVARA) OF BENGALURU SUBURBAN RAILWAY PROJECT INCLUDING COORDINATION WITH UTILITY STAKEHOLDERS FOR NECESSARY PERMISSIONS AND APPROVALS”..

PREAMBLE

1. The Price Schedule shall be read in conjunction with the Instructions to Tenderers, Conditions of Contract, Notice Inviting Tender, Employer’s requirement PART-1, Scope of work, KPWD Specifications, Schedule, Annexures and Addendums.
2. The tenderer shall quote in terms of Percentage on Common SOR of KPWD 2023-24 Above/ At Par/ Below on Karnataka E-procurement portal (Latest KPWD SOR) shall be considered for Materials and labour charges

3. **Price shall be quoted in terms of Percentage on the Schedule as per Common Schedule of Rate of KPWD 2023-24 and fixed throughout the contract period**

The quoted amount is for completed and finished items of work and complete in all respects. It will be deemed to have included all constructional plant, tools, machinery, labour, supervision, materials, fuel, oil, consumables, electric power, water, transportation, all leads and lifts, dewatering, all temporary works and false works, construction of temporary stores and buildings, fencing, watering, lighting, erection maintenance, night working, inspection facilities, safety measures at work sites/casting yard for workmen and road users, design and drawings, casting yard, staging, shuttering, form work, stacking yard, etc. establishment and overhead charges, labour camps, insurance costs for labour and works, contractor’s profit, all taxes, royalties, duties, cess, octroi and other levies and other charges excluding GST together with all general risks, liabilities and obligations set out or implied in the contract and including remedy of any defects during the Defect Liability Period, unless otherwise provided in Price Schedule.

4. Providing concrete for all works deemed to be inclusive of the cost towards production of concrete including all machinery, transportation of concrete with all leads and lifts, form work, shuttering including staging as required, pouring of concrete by pump/tower crane to all heights /depths, tremie or other approved means, compaction by vibrators, curing by approved means such as water, steam or curing compound and all labour, tools, plants, machinery required for execution of work complete in all respects including de-shuttering after completion of work.
5. Deleted.
6. The whole cost of complying with the provisions of the Contract shall be deemed to have been included in the quoted offer.
7. All columns in the “Summary of Price Schedule”- shall be filled in ink or typewritten and the total tender amount shown in the bottom. The person authorized to sign on behalf of the Tenderer shall sign in full at bottom of all pages and at the end of schedule.
8. General directions and description of works and materials are not necessarily repeated or summarized in the Price Schedule.

9. Deleted.
10. Deleted.
11. In the defined grade of concrete mix, the first figure defines the strength of concrete and second figure defines the maximum size of coarse aggregates to be used for production of particular concrete mix, E.g., M 35/20 means "M-35" is the grade of concrete and "20" is the maximum size of coarse aggregate in mm to be used.
12. Tenderer may please note that to perform this contract, nothing extra shall be payable on account of field constraints, availability of front, preparation of detailed scheme for taking necessary clearance and approval from the concerned authority and other local bodies etc.
13. Deleted.
14. Deleted.
15. Deleted.
16. Deleted.
17. Deleted.
18. The Tenderer's offer shall be inclusive of all taxes and duties payable by them excluding GST. Income Tax and any other statutory taxes to be deducted at source, if any, will be deducted by the Employer in accordance with the Income Tax Act and any other acts in force and in accordance with instructions issued by the Authorities on this behalf, from time to time.
19. The Tenderer is required to furnish the PAN for all members of Group.
20. Deleted.

Important Notice:

- **The Tenderer should quote his percentage against Schedule A of Price Schedule in e Procurement Portal.**

Sl. No.	Particulars	Approx. Contract Value (INR)	To be quoted in Percentage above or below or at par on Common SOR of KPWD 2023-24
			%
1	Schedule Relocation, shifting, and diversion of BWSSB water and sewer lines and its miscellaneous works	15 Crores	
		Amount in words:	

- Note: 1) The % above/below or at par quoted on Common SOR of KPWD 2023-24 shall be used as reference for payment. (Example for quoting price bid - +2%, Plus two percent, -2%, minus two percent).
- 2) Above amount will be executed based on the requirement of the work at site. Employer do not guarantee execution of complete amount mentioned above.

Note:

1. Deleted.
2. Deleted.
3. Payment will be made on the submission of the IPC with quantity schedule versus progress achieved for review and certification and recommendation of the Engineer to the Employer for various items.
4. Deleted.
5. Deleted.
6. Deleted.

SECTION-10

**FORMAT OF BANK GUARANTEE FOR
SECURITY DEPOSIT ETC.,**

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NOTE:

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

All italicized text is for guidance how to prepare the various forms and shall be deleted from the final documents.

FORMAT OF BANK GUARANTEE FOR SECURITY DEPOSIT

To,.....(Name of the Employer)
.....(Address of the Employer).

Whereas(Name and Address of the contractor) (herein after called the Contractor) has undertaken, in pursuance of contract no.....
Dated:.....(Name of the contract and brief description of the work) (herein after called the Contract)

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of ₹. _____ [amount of guarantee]
Rupees _____ [in words], and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____

FORM OF BANK GUARANTEE FOR PERFORMANCE SECURITY

(On non-judicial stamp paper of the appropriate value in accordance with stamp Act. The stamp paper to be in the name of Executing Bank).

From:

Name and Address of the Bank.....

.....

To:

The Managing Director,
Rail Infrastructure Development Company (Karnataka) Limited,
"Samparka Soudha" , 1st Floor,
B.E.P Premises (Opp. Orion Mall),
Dr. Rajkumar Road,
Rajajinagar 1st Block,
Bangalore - 560 010

WHEREAS, Rail Infrastructure Development Company (Karnataka) Limited, hereinafter called the **Employer**, acting through [Insert Designation and address of the Employer's Representative], has accepted the bid of [Insert Name and address of the Contractor], hereinafter called the **Contractor**, for the work of [Insert Name of Work], vide Notification of Award No [Insert Notification of Award No...]
AND

WHEREAS, the contractor is required to furnish Performance Security for the sum of [Insert Value of Performance Security required], in the form of bank guarantee, being a condition precedent to the signing of the contract agreement.

WHEREAS, [Insert Name of the Bank], with its Branch [Address] having its Headquarters office at [Address], hereinafter called the **Bank**, acting through [Designation(s) of the authorised person of the Bank], have, at the request of the [Insert name of the Contractor], a contractor, agreed to give guarantee for performance security and additional performance security as hereinafter contained:

- 1 KNOW ALL MEN by these present that I/We the undersigned [Insert name(s) of authorized representatives of the Bank], being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay the Employer the full amount in the sum of [Insert Value of Performance Security required] as above stated.
- 2 The Bank undertakes to immediately pay on presentation of demand by the Employer any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Employer on the Bank shall be final, conclusive and binding, absolute and unequivocal notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Employer of Bank.
- 3 On payment of any amount less than aforementioned full amount, as per demand of the Employer, the guarantee shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Employer.
- 4 The Bank shall pay the amount as demanded immediately on presentation of the demand by Employer without any reference to the contractor and without the Employer being required to show grounds or give reasons for its demand or the amount demanded.
- 5 The Bank Guarantee shall be unconditional and irrevocable.

- 6 The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Contractor.
- 7 The Bank agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Employer and the Contractor, will in any way release us from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification to the Bank.
- 8 This guarantee is valid and effective from the date of its issue, which is ***[insert date of issue]***. The guarantee and our obligations under it will expire on ***[Insert the date twenty-eight days after the expected end of defect liability period]***. All demands for payment under the guarantee must be received by us on or before that date.
- 9 The Bank agrees that the Employers right to demand payment of aforementioned full amount in one instance or demand payments in parts totaling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Employer or the guarantee is released by Employer before the Expiry date.
- 10 The Bank agrees that its obligation to pay any amount demanded by the Employer before the expiry of this guarantee will continue until the amount demanded has been paid in full.
- 11 The expressions Bank and Employer herein before used shall include their respective successors and assigns.
- 12 The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the employer. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.
- 13 The Guarantee shall be in addition to and without prejudice to any other security Guarantee (s) of the contractor in favour of the Employer available with the Employer. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Employer.
- 14 This guarantee shall be valid for 28days from the date of expiry of defect liability period.

Date

Place.....

.....
[Signature of Authorized person of Bank/Guarantor].....
[Name in Block letters].....
[Designation].....
[P/Attorney] No......
Bank's Name and Seal

[P/Attorney] No.....

Witness:

1. *Signature*
Name & Address & Seal
2. *Signature*
Name & address & Seal

Note:

1. *All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.*
2. *In case the guarantee is issued by a foreign Bank, which does not have operations in India, the said bank shall have to provide a counter-guarantee by State Bank of India.*

K-RIDE

FORM OF BANK GUARANTEE FOR ADDITIONAL PERFORMANCE SECURITY

(On non-judicial stamp paper of the appropriate value in accordance with stamp Act. The stamp paper to be in the name of Executing Bank)

From:

Name and Address of the Bank.....

.....

To:

The Managing Director,
Rail Infrastructure Development Company (Karnataka) Limited,
"Samparka Soudha" , 1st Floor,
B.E.P Premises (Opp. Orion Mall),
Dr. Rajkumar Road,
Rajajinagar 1st Block,
Bangalore - 560 010

WHEREAS, Rail Infrastructure Development Company (Karnataka) Limited, hereinafter called the **Employer**, acting through **[Insert Designation and address of the Employer's Representative]**, has accepted the bid of **[Insert Name and address of the Contractor]**, hereinafter called the **Contractor**, for the work of **[Insert Name of Work]**, vide Notification of Award No. **[Insert Notification of Award No.]**.
AND

WHEREAS, the contractor is required to furnish Performance Security for the sum of **[Insert Value of Performance Security required]**, in the form of bank guarantee, being a condition precedent to the signing of the contract agreement.

WHEREAS, **[Insert Name of the Bank]**, with its Branch **[Address]** having its Headquarters office at **[Address]**, hereinafter called the **Bank**, acting through **[Designation(s) of the authorised person of the Bank]**, have, at the request of the **[Insert name of the Contractor]**, a contractor, agreed to give guarantee for performance security and additional performance security as hereinafter contained:

1. KNOW ALL MEN by these present that I/We the undersigned **[Insert name(s) of authorized representatives of the Bank]**, being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay the Employer the full amount in the sum of **[Insert Value of Performance Security required]** as above stated.
2. The Bank undertakes to immediately pay on presentation of demand by the Employer any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Employer on the Bank shall be final, conclusive and binding, absolute and unequivocal notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Employer of Bank.
3. On payment of any amount less than aforementioned full amount, as per demand of the Employer, the guarantee shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Employer.

4. The Bank shall pay the amount as demanded immediately on presentation of the demand by Employer without any reference to the contractor and without the Employer being required to show grounds or give reasons for its demand or the amount demanded.
5. The Bank Guarantee shall be unconditional and irrevocable.
6. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Contractor.
7. The Bank agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Employer and the Contractor, will in any way release us from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification to the Bank.
8. His guarantee is valid and effective from the date of its issue, which is **[insert date of issue]**. The guarantee and our obligations under it will expire on **[Insert the date twenty-eight days after the expected end of defect liability period]**. All demands for payment under the guarantee must be received by us on or before that date.
9. The Bank agrees that the Employers right to demand payment of aforementioned full amount in one instance or demand payments in parts totaling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Employer or the guarantee is released by Employer before the Expiry date.
10. The Bank agrees that its obligation to pay any amount demanded by the Employer before the expiry of this guarantee will continue until the amount demanded has been paid in full.
11. The expressions Bank and Employer herein before used shall include their respective successors and assigns.
12. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the employer. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.
13. The Guarantee shall be in addition to and without prejudice to any other security Guarantee (s) of the contractor in favour of the Employer available with the Employer. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Employer.

Date

Place.....

.....
[Signature of Authorised person of Bank].....
[Name in Block letters].....
[Designation].....
[P/Attorney] No.

.....
Bank's Seal

[P/Attorney] No.....
Witness:

3. *Signature*
Name & Address & Seal
4. *Signature*
Name & address & Seal

Note:

- 1 *All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.*
- 2 *In case the guarantee is issued by a foreign Bank, which does not have operations in India, the said bank shall have to provide a counter-guarantee by State Bank of India.*

ADVANCE PAYMENT SECURITY

(On non-judicial stamp paper of appropriate value in accordance with stamp Act. The stamp paper to be in the name of Executing Bank)

From

[Name and Address of the Bank]

To

The Managing Director,
Rail Infrastructure Development Company (Karnataka) Limited,
"Samparka Soudha", 1st Floor,
B.E.P Premises (Opp. Orion Mall),
Dr. Rajkumar Road,
Rajajinagar 1st Block,
Bangalore - 560 010

Beneficiary/Employer: Rail Infrastructure Development Company (Karnataka) Limited.

Guarantee No.: *[.... reference number of the guarantee....]* **Dated:** *[.....]*

WHEREAS, Rail Infrastructure Development Company (Karnataka) Limited (**hereinafter called the Employer**) has entered into Contract No. *[.... reference number of the Contract....]* dated *[.....]* for the execution of *[name of the contract]* (**hereinafter called the Contract**) with *[....name of the Contractor....]* (**hereinafter called the Contractor**).

WHEREAS, according to the Conditions of the Contract, an advance payment is admissible to the contractor against submission of bank guarantee(s).

At the request of the Contractor, we *[....name of the Bank....]* with our branch at *[....address....]*, having our Head Office at *[....address....]* (**hereinafter called the Bank**) have, at the request of *[.....Insert name of the Contractor]*, a Contractor, agreed to give the said guarantee as hereinafter contained:

1. KNOW ALL MEN by these present that I/We the undersigned *[Insert name(s) of authorized representative(s) of the Bank....]*, being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantees to pay the Employer the sum of ₹. *[....value in figure....]* (Rupees *[....value in words....]* only (**hereinafter called the Full Amount**)).
2. The Bank undertakes to immediately pay to the Employer, without any demur, reservation or recourse, any amount up to and including aforementioned full amount upon first written demand/demands from the Employer.
3. On payment of any amount less than aforementioned full amount, as per demand of the Employer, the guarantee shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Employer.

4. The Bank shall pay the amount so demanded without any reference to the contractor and without the Employer being required to show grounds or give reasons for its demand or the amount demanded.
5. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank, the Contractor or the Employer.
6. The Bank agrees that no change, addition, modification to the terms of the Contract Agreement or to any document, which have been or may be made between the Employer and the Contractor, will in any way release us from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification to the Bank.
7. This guarantee is valid and effective from the date of it's issue, which is [....date of issue....]. The guarantee and our obligations under it will expire on dated[....Please refer note 4 & 5....]. All demands for payment under the guarantee must be received by us on or before that date.
8. The Bank agrees that the Employer's right to demand payment of aforementioned full amount in one instance or demand payments in parts totaling up to the aforementioned full amount in several instances will continue until either the aforementioned full amount is paid to the Employer or the guarantee validity period expires.
9. The Bank agrees that it's obligation to pay any amount demanded by the Employer before the expiry of this guarantee will continue until the amount demanded has been paid in full.
10. The expressions Bank and Employer herein before used shall include their respective successors and assigns.
11. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the employer. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 758.

Dated[.....]

Place[.....]

.....
(Signature of the Authorized Person of the Bank)

.....
(Name in Block Letters)

.....
(Designation)

.....
(Bank's Seal)

.....
(Authorization No.)

Witness:

1.
Signature, Name & Address
2.
Signature, Name & Address

Note:

1. *All italicized text in brackets [...text...] is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.*
2. *In case the guarantee is issued by a foreign Bank, the said bank shall have operations in India and should be issued by Indian operations branch of the said bank.*

3. **Mobilization Advance**

(a) For Single Entity

For each Installment of Advance, two Bank Guarantees of equal amounts (each equal to half of the first installment of advance plus 10%) shall be furnished. Each Bank Guarantee shall be valid for the stipulated completion period of the contract.

Advance against Plant and Machinery**(a) For Single Entity**

For each Installment of Advance, a Bank Guarantee equal to the installment of advance plus 10% shall be furnished. The Bank Guarantee shall be valid for the stipulated completion period of the contract.

INDEMNITY BOND FOR THE SAFE CUSTODY OF THE
MATERIALS SUPPLIED BY THE CONTRACTOR

(To be executed on Non-Judicial Stamp Paper of Appropriate Value and notarized)

THIS INDEMNITY BOND made on this _____ day of _____ 20__ by _____ (*insert the name of the Contractor and its registered address*) (hereinafter called "the Contractor") which expression shall where the context do admits or implies be deemed to include its executors, administrators and assigns, in favour of the Rail Infrastructure Development Company (Karnataka) Limited, Samparka Soudha", 1st Floor, B.E.P Premises (Opp. Orion Mall), Dr. Rajkumar Road, Rajajinagar 1st Block, Bangalore - 560 010 (hereinafter called "K RIDE") on the other part.

WHEREAS by an Agreement/Letter of Acceptance No. _____ dated _____ (hereinafter called "the said agreement"), the Contractor has agreed to execute the _____ (*Name of Work*) (hereinafter called "the Works") .

AND WHEREAS the Contractor has submitted to K RIDE/ the Engineer for payment on materials procured by him and brought to the site of the Works or his workshop for use in the Works.

AND WHEREAS K RIDE/ the Engineer has agreed to make advance/stage payment to the Contractor the total sum of ₹. _____ (*in Figures*) [Rupees _____ (*in Words*) in Interim Payment Certificate (IPC) No. _____, the quantities and other particulars of which are detailed in this IPC for the said works signed by the Contractor on _____ for the Materials brought by the Contractor to site of the works. Brief details are also mentioned in schedule 1 appended hereto.

NOW THIS INDEMNITY BOND WITNESS that in pursuance of the said agreement and in consideration of the sum of ₹. _____ (*in Figures*) _____ (*in Words*) on or before the execution of these presents to be paid to the Contractor by K RIDE so aforesaid, the Contractor doth hereby covenant and agree with K RIDE and declare as follows: -

1. That the said sum of ₹.. _____ (*In Figures*) _____ (*in Words*) to be paid by K RIDE to the Contractor as aforesaid shall be utilized by the Contractor in or towards the execution of the said works and for no other purpose whatsoever.
2. That the Materials detailed in the said IPC which have been offered to and accepted by K RIDE/ the Engineer, are absolutely the Contractor's own property and free from encumbrances of any kind and the Contractor will not make any application for or receive any further payment on the Materials which are not absolutely his own property and free from encumbrances of any kind, the Contractor indemnifies the K RIDE against all claims on any Materials in respect of which payment is to be made to him as aforesaid.
3. That the Contractor undertakes that the Materials shall be used exclusively for the performance / execution of the Contract strictly in accordance with the terms and conditions of the Contract and no part of the Materials shall be utilized for any other work or purpose whatsoever.
4. That the Contractor is obliged and shall remain absolutely responsible for the safe transit / protection and custody of the Materials against all risks whatsoever including acts of the God till the Materials are duly incorporated in the works, commissioned and are taken over by K RIDE/Railway (including surplus Materials, if required as instructed by K RIDE/ the Engineer) in accordance with the terms of the Contract. The Contractor undertakes to keep K RIDE harmless against any loss or damage that may

be caused to the Materials.

5. That the said Materials shall not on any account be removed from the site of the works except with the written permission of K RIDE/ the Engineer. Further, K RIDE/ the Engineer shall always be free at all times to take possession of the materials in whatever form the materials may be in, if in its opinion, the Materials are likely to be endangered, mis-utilized or converted to uses other than those specified in the Contract, by any acts or omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds himself and undertakes to comply with the directions of demand of K RIDE to return the Materials without any demur or reservation.
6. That the said materials shall, at all times, be open to inspection by K RIDE/ the Engineer or any authorized representative. In the event of the said material or any part thereof at any time being found to be in lesser quantity than for which payment has been released or the same has been stolen, destroyed or damaged or becoming deteriorated, the Contractor will forthwith replace the same or repair and make good the same as required by K RIDE/ the Engineer.
7. That making payment does not mean that Materials are of required specifications and quality or that whole of the quantity brought to site by Contractor will be used in the work. The Contractor is fully responsible for the materials to conform to required quality and specification and if at any time K RIDE/ the Engineer do not find the material satisfactory, the Contractor at his own cost would replace these. K RIDE/ the Engineer would be at liberty to recover cost of these from any dues of the Contractor. Also any Materials which are in excess of what is finally required under the contract would be the Contractor's property without any liability on K RIDE/ the Engineer who would recover the cost of this from the Contractor.
8. That this INDEMNITY BOND is irrevocable. If at any time, any loss or damage occurs to the Materials or the same or any part thereof is mis-utilized in any manner whatsoever, then the Contractor hereby agrees that the decision of K RIDE/ the Engineer as to assessment of loss or damage to the Materials shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged Materials at its own cost and/or shall pay the amount of loss to K RIDE without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to K RIDE/ the Engineer against the Contractor under the Contract or under this Indemnity Bond
9. That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of those presents, the total amount of the payment shall immediately on the happening of such default be recovered by K RIDE/ the Engineer from any dues of Contractor. It is also clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purpose including legal / penal consequences.
10. IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorized representative, the day, month and year first above mentioned.

11. SCHEDULE 1

Particulars of the Materials	Quantity	Value of the Materials

Signed, Sealed and Delivered by the said Contractor

(Contractor's Name)

Dated:

(AUTHORISED SIGNATORY)

Place:

SEAL OF COMPANY

IN THE PRESENCE OF:

WITNESS: SIGNATURE _____

NAME: _____

ADDRESS : _____

Note:

*The contractor has the option to submit the **INDEMNITY BOND** to cover all the items and quantities of Materials of stage payment or to submit **INDEMNITY BOND** each time the stage payment is to be taken or Materials advance is to be taken.*

Office of the.....

No.

Date:.....

--00--00--00--

Annexure IX-B**Arbitration & Conciliation Procedure****1. No Legal action till Dispute Settlement Procedure is exhausted.**

Any and all Disputes shall be settled in accordance with the provisions of Dispute Resolution Clause. No action at law concerning or arising out of any Dispute shall be commenced unless and until all applicable Dispute Resolution Procedures shall have been finally exhausted in relation to that Dispute or any Dispute out of which that Dispute shall have arisen with which it may be or may have been connected.

2. Notice of Dispute

For the purpose of this Sub-Clause, a Dispute shall be deemed to arise when one party serves on the other party a notice in writing (hereinafter called a "Notice of Dispute") stating the nature of the Dispute provided that no such notice shall be served later than 30 days after the date of completion of Contract.

3. Two Stages for Dispute Resolution

Disputes shall be settled through two stages:

- a) Conciliation procedures as established by "The Arbitration and Conciliation Act-1996" & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof and in accordance with this clause. In the event this procedure fails to resolve the Dispute then;
- b) Arbitration procedures undertaken as provided by "The Arbitration and Conciliation Act-1996" & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof and in accordance with this clause.

4. Conciliation

Within 60 days of receipt of Notice of Dispute, either party shall refer the matter in dispute to conciliation. Conciliation proceedings shall be initiated within 30 days of one party inviting the other in writing to Conciliation. Conciliation shall commence when the other party accepts in writing this invitation. If the invitation is not accepted, then Conciliation shall not take place. If the party initiating conciliation does not receive a reply within 30 days from the date on which he sends the invitation, he may elect to treat this as a rejection of the invitation to conciliate and inform the other party accordingly.

The Conciliation shall be undertaken by one Conciliator selected from a panel of Conciliators maintained by the Employer. The Conciliator shall assist the parties to reach an amicable settlement in an independent and impartial manner.

5. Conciliation procedure

The Employer shall maintain a panel of Conciliators, who shall be from serving or retired Engineers of Government Departments, or of Public Sector Undertakings. Out of this panel, a list of three Conciliators shall be sent to the Contractor who shall choose one of them to act as Conciliator and conduct conciliation proceedings in accordance with "The Arbitration and Conciliation Act, 1996" of India & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof. There will be no objection if conciliator so nominated is a serving employee of the Employer who would be Deputy HOD level officer and above. The Employer and the Contractor shall in good faith co-operate with the Conciliator and, in particular, shall endeavour to comply with requests by the Conciliator to submit written materials, provide evidence and attend meetings. Each party may, on his own initiative or at the invitation of the Conciliator, submit to the Conciliator suggestions for the settlement of the dispute. When it appears to the Conciliator that there exist elements of a settlement which may be acceptable to the

parties, he shall formulate the terms of possible settlement and submit them to the parties for their observations. After receiving the observations of the parties, the Conciliator may reformulate the terms of a possible settlement in the light of such observations.

If the parties reach agreement on a settlement of the dispute, then may draw up and sign a written settlement agreement. If requested by the parties, the Conciliator may draw up, or assist the parties in drawing up, the settlement agreement. When the parties sign the settlement agreement, it shall be final and binding on the parties and persons claiming under them respectively. The Conciliator shall authenticate the settlement agreement and furnish a copy thereof to each of the parties. As far as possible, the conciliation proceedings should be completed within 60 days of the receipts of notice by the Conciliator.

The parties shall not initiate, during the conciliator proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.

6. **Termination of Conciliation proceedings**

The conciliation proceedings shall be terminated:

- a) By the signing of the settlement agreement by the parties on the date of agreement; or
- b) By written declaration of the conciliator, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of such declaration; or
- c) By a written declaration of the parties to the conciliator to the effect that the conciliation proceedings are terminated, on the date of declaration; or
- d) By a written declaration of a party to the other party and the conciliator, if appointed, to the effect that the conciliation proceedings are terminated, on the date of declaration.

Upon termination of the conciliation proceedings, the conciliator shall fix the costs of the conciliation and give written notice thereof to the parties. The costs shall be borne equally by the parties unless settlement agreement provides for a different apportionment. All other expenses incurred by a party shall be borne by that party.

7. **Arbitration**

If the efforts to resolve all or any of the disputes through conciliation fails, then such disputes or differences, whatsoever arising between the parties, arising out of or relating to construction/ manufacture, measuring operation or effect of the License Agreement or the breach thereof shall be referred to Arbitration in accordance with the following provisions:

- a) Only such dispute(s) or difference(s) in respect of which notice has been made but could not be settled through Conciliation, together with counter claims or set off, given by the employer, shall be referred to arbitration. Other matters shall not be included in the reference.
- b) The Arbitration proceedings shall be assumed to have commenced from the day, a written and valid demand for arbitration is received by Managing Director, Rail Infrastructure Development Company (Karnataka) Limited, Bangalore (MD/KRIDE).
- c) The disputes so referred to arbitration shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996 & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof.

Further, it is agreed between the parties as under:

8. **Number of Arbitrations: The Arbitral Tribunal shall consist of:**

- i) Sole Arbitrator in cases where the total value of all claims in question added together does not exceed ` 3.00 crores;
- ii) 3 (Three) Arbitrators in all other cases.

9. **Procedure for Appointment of Arbitrators: The Arbitrators shall be appointed as per following procedure:**

- i) In case of Sole Arbitrator: Within 60 days from the day when a written and valid demand for arbitration is received by MD/ KRIDE, the Employer will forward a panel of 03 names to the Contractor. The Contractor shall have to choose one Arbitrator from the panel of three, to be appointed as Sole Arbitrator within 30 days of dispatch of the request by the Employer. In case the Contractor fails to choose one Arbitrator within 30 days of dispatch of panel of arbitrators by KRIDE then MD/KRIDE shall appoint anyone Arbitrator from the panel of 03 Arbitrator as Sole Arbitrator.
- ii) In case of 03 Arbitrators:
 - a) Within 60 days from the day when a written and valid demand for Arbitration is received by MD/KRIDE, the Employer will forward a panel of 5 names to the Contractor. The Contractor will then give his consent for any name out of the panel to be appointed as one of the Arbitrators within 30 days of dispatch of the request by the Employer.
 - b) Employer will decide the second Arbitrator. MD/KRIDE shall appoint the two Arbitrators, including the name of one Arbitrator for whom consent was given by the Contractor, within 30 days from the receipt of the consent for one name of the Arbitrator from the Contractor. In case the Contractor fails to give his consent within 30 days of dispatch of the request of the Employer then MD/KRIDE shall nominate both the Arbitrators from the panel.
 - c) The third Arbitrator shall be chosen by the two Arbitrators so appointed by the parties out of the panel of 05 Arbitrators provided to Contractor or from the larger panel of Arbitrators to be provided to them by Employer at the request of two appointed Arbitrators (if so desired by them) and who shall act as Presiding Arbitrator. In case of failure of the two appointed Arbitrators to reach upon consensus within a period of 30 days from their appointment, then upon the request of either or both parties, the Presiding Arbitrator shall be appointed by the Managing Director/KRIDE, Bangalore.
 - d) If one or more of the Arbitrators appointed as above refuses to act as Arbitrator, withdraws from his office as Arbitrator, or vacates his / their office/ offices or is / are unable or unwilling to perform his functions as Arbitrator for any reason whatsoever or dies or in the opinion of the MD/KRIDE fails to act without undue delay, the MD/KRIDE shall appoint new Arbitrator/ Arbitrators to act in his/ their place except in case of new Presiding Arbitrator who shall be chosen following the same procedure as mentioned in para (ii) (c) above. Such re-constituted Tribunal may, at its discretion, proceed with the reference from the stage at which it was left by the previous Arbitrator(s).
 - e) The Employer at the time of offering the panel of Arbitrator (s) to be appointed as Arbitrator shall also supply the information with regard to the qualifications of the said Arbitrators nominated in the panel along with their professional experience, phone nos. and addresses to the Contractor.

Qualification and Experience of Arbitrators (to be appointed as per sub-clause above): The Arbitrators to be appointed shall have minimum qualification and experience as under:

Arbitrator shall be; a Working/ Retired Officer (not below E-7 grade in a PSU with which the Employer has no business relationship) of any discipline of Engineering or Accounts/ Finance Department, having experience in Contract Management;

Or

A Retired Officer (retired not below the SAG level in Railways) of any Engineering Services of Indian Railways or Indian Railway Accounts Service, having experience in Contract Management; or a Retired Officer who should have retired more than 3 years previously from the date of appointment as Arbitrator (retired not below E-8 grade in KRIDE or a PSU with which the Employer has a business relationship) of any Engineering discipline or Accounts/ Finance Department, having experience in Contract Management or Retired Judge of any High Court or Supreme Court of India or reputed Chartered Accountant & should be member of ICAI, New Delhi. No person other than the persons appointed as per above procedure and having above qualification and experience shall act as Arbitrator.

No new claim shall be added during proceedings by either party. However, a party may amend or supplement the original claim or defence thereof during the course of arbitration proceedings subject to acceptance by Tribunal having due regard to the delay in making it.

Neither party shall be limited in the proceedings before such arbitrator(s) to the evidence or arguments put before the Conciliator for the purpose of obtaining his decision. No decision given by the Conciliator in accordance with the foregoing provisions shall disqualify him from being called as a witness and giving evidence before the arbitrator(s) on any matter, whatsoever, relevant to dispute or difference referred to arbitrator/s. Neither party shall be limited in the proceedings before such arbitrators to the evidence.

It is agreed by both the Parties that in the cases where Arbitral Tribunal is consist of sole Arbitrator, their disputes shall be resolved by fast track procedure specified in sub-section (3) of 29B of the Arbitration and Conciliation (Amendment) Act, 2015 or as amended up to date.

If the Contractor (s) does/do not prefer his/their specific and final claims in writing, within a period of 90 days of receiving the intimation from the Employer/ Conciliator that the final demand is ready, he / they will be deemed to have waived his/their claim(s) and the Employer shall be discharged and released of all liabilities under the License Agreement in respect of these claims.

Arbitration proceedings shall be held at Bangalore, India and the language of the arbitration proceedings and that of all documents and communications between the parties shall be in English.

The Arbitral Tribunal should record day to day proceedings. The proceedings shall normally be conducted on the basis of documents and written statements. All Arbitration awards shall be in writing and shall state item wise, the sum and detailed reasons upon which it is based. A model time scheduled for conduct of Arbitration proceedings in a period of 180 days/365 days will be made available to Arbitral Tribunal for their guidance (180 days is for fast track Arbitration and 365 days for other Arbitrations). Both the parties should endeavor to adhere to time scheduled for early finalization of Award.

The Award of the sole Arbitrator or the award by majority of three Arbitrators as the case may be shall be binding on all parties. Any ruling on award shall be made by a majority of members of Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.

A party may apply for correction of any computational errors, any typographical or clerical errors or any other error of similar nature occurring in the award of a tribunal and interpretation of specific point of award to tribunal within 60 days of the receipt of award party may apply to tribunal within 60 days of receipt of

award to make an additional award as to claims presented in the arbitral proceedings but omitted from the arbitral award.

10. **Interest on Arbitration Award**

Where the arbitral award is for the payment of money, interest @ 15% per annum (as per latest guidelines/amendments) shall be payable on whole or any part of the money for the period it is accrued, till the date on which the award is made.

11. **Cost of Conciliation/ Arbitration**

The fees and other charges of the Conciliator/ Arbitrators shall be as per the scales fixed by the Employer from time to time irrespective of the fact whether the Arbitrator(s) is / are appointed by the Employer or by the Court of law unless specifically directed by Hon'ble Court otherwise on the matter, and shall be shared equally by the Employer and the Contractor. However, the expenses incurred by each party in connection with the preparation, presentation will be borne by itself. The latest scale of fee & other charges shall be fixed by KRIDE.

12. **Jurisdiction of Courts**

Where recourse to a Court is to be made in respect of any matter, the Court at Bangalore shall have the exclusive jurisdiction to try all disputes between the parties.