

**MAHARASHTRA METRO RAIL CORPORATION LIMITED
(NAGPUR METRO RAIL PROJECT)**

BID DOCUMENTS

FOR

Construction Of Subway as RCC Box 1x7x3 Mt. by Pushing Method at Railway's Ch.830 /09-11 Between Khapri-Ajni Station In Lieu Of Existing Level Crossing No.120 at Manish Nagar Crossing under Nagpur-Division Of Central Railway (Re-Tender).

**TENDER NO.
N1CRF-04/2022**

**PART III:
CONDITIONS OF CONTRACT AND CONTRACT FORMS**



**Maharashtra Metro Rail Corporation Limited
(Nagpur Metro Rail Project)**

**Metro Bhawan, East High Court Road (VIP Road),
Infront of Dr. Babasaheb Ambedkar Collage,
Near Dikshabhoomi, Nagpur-440010, Maharashtra, INDIA
Website: www.metrotrainnagpur.com**

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**PART 3: CONDITIONS OF CONTRACT AND CONTRACT FORMS
SECTION VIII: GENERAL CONDITIONS (GC)**



Maharashtra Metro Rail Corporation Limited

(Nagpur Metro Rail Project)

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Section VIII. General Conditions (GC)

Maharashtra Metro Rail Corporation Limited

[Name of Employer]

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[Name of Contract]

The General Conditions that follow are the Agency Harmonized Edition of the Conditions of Contract for Construction prepared and copyrighted by the International Federation of Consulting Engineers (*Fédération Internationale des Ingénieurs-Conseils*, or FIDIC), FIDIC 2010-All rights reserved. This publication is exclusive for the use of Agency's Beneficiaries and their project implementing agencies as provided under the License Agreement dated September 21st, 2009, between the AFD and FIDIC, and, consequently, no part of this publication may be reproduced, translated, adapted, stored in a retrieval system or communicated, in any form or by any means, whether mechanical, electronic, magnetic, photocopying, recording or otherwise, without prior permission in writing from FIDIC, except by the Employer identified above and only for the exclusive purpose of preparing these Standard Bidding Documents for the Contract also identified above.

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.

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 “FIDIC” means the Fédération Internationale des Ingénieurs-

Conseils, the international federation of consulting engineers.

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.

1.3. Communications Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

- (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 Specification,
- (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:

- (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 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:

- (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
- (b) 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
- (c) 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, consortium or other unincorporated 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, Licences 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, licences 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.

2.3 Employer's Personnel

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

- (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

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.

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.

2.5 Employer's Claims

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.

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.

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].

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.

3. The Engineer

3.1 Engineer's Duties and Authority

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.

The Engineer shall have no authority to amend the Contract.

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.

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.

Except as otherwise stated in these Conditions:

- (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 endeavor 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 e.

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

The Contractor shall be deemed to:

- Contract Amount**
- (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.

4.18 Protection of the Environment

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.

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.

4.19 Electricity, Water and Gas

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.

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.

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.

4.20 Employer's Equipment and Free-Issue Materials

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:

- (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.

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.

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.

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.

4.21 Progress Reports

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in three 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.

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.

Each report shall include:

- (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:
 - (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.

**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.
- 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

**7.1 Manner of
Execution**

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

- (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

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:

- (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.

Each sample shall be labelled as to origin and intended use in the Works.

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 subparagraph (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:

- (a) when it is incorporated in the Works;
- (b) 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:

- (a) natural Materials obtained from outside the Site, and
- (b) 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:

- (a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;
- (b) delivery to the Contractor of reasonable evidence of the Employer's financial arrangements (under Sub-Clause 2.4 [Employer's Financial Arrangements]);
- (c) 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
- (d) 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:

- (a) achieving the passing of the Tests on Completion, and
- (b) 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:

- (a) 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,

- (b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) 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 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.

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.

8.7 Delay Damages

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.

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.

8.8 Suspension of Work

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.

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.

8.9 Consequences of Suspension

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:

- (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.

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].

8.10 Payment for Plant and Materials in Event of Suspension

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:

- (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

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].

8.12 Resumption of Work

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].

9. Tests on Completion

9.1 Contractor's Obligations

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].

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:

- (a) order further repetition of Tests on Completion under Sub-Clause 9.3;
- (b) 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
- (c) 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:

- (a) 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
- (b) 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.

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.

10.2 Taking Over of Parts of the Works

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
Work and
Remedying
Defects**

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 relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

- (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).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

**11.2 Cost of
Remedying
Defects**

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:

- (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.

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.

11.3 Extension of Defects Notification Period

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.

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.

11.4 Failure to Remedy Defects

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.

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):

- (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

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.

11.6 Further Tests

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.

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.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

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.

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

13.6 Daywork

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:

$P_n = a + b L_n / L_o + c E_n / E_o + d M_n / M_o + \dots$ 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

“ L_o ”, “ E_o ”, “ M_o ”, ... 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 (quoted in the fourth and fifth columns respectively of the table) 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 mobilization 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 two 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 Payment Certificates

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 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.

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.

An Interim Payment Certificate shall not be withheld for any other reason, although:

- (a) 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
- (b) 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.

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.

14.7 Payment

The Employer shall pay to the Contractor:

- (a) 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;
- (b) 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
- (c) 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].

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.

14.8 Delayed Payment

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 sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

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.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

14.9 Payment of Retention Money

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.

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 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 two 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, two 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 subparagraph (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
Termination for
Convenience**

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 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].

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].

**15.6 Corrupt or
Fraudulent
Practices**

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].

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].

For the purposes of this Sub-Clause:

- (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;¹
- (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;²
- (iii) "collusive practice" is an arrangement between two

¹ "Another party" refers to a public official acting in relation to the procurement process or contract execution]. In this context, "public official" includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

² "Party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;³

- (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;⁴
- (v) “obstructive practice” is
 - (aa) 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
 - (bb) 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. Suspension and Termination by Contractor

16.1 Contractor’s Entitlement to Suspend Work

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.

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.

³ “Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

⁴ “Party” refers to a participant in the procurement process or contract execution.

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].

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.

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:

- (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.

16.2 Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

- (a) 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],
- (b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
- (c) 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]),
- (d) 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,
- (e) the Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment],

- (f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
- (g) 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.
- (h) 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:

- (a) 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,
- (b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
- (c) 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:

- (a) return the Performance Security to the Contractor,
- (b) 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, willful 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 sub-paragraphs (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 with 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.

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.

18.2 Insurance for Works and Contractor's Equipment

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.

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.

Unless otherwise stated in the Particular Conditions, the insurances specified in 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,

- (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:
 - (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

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.

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.

19. Force Majeure

19.1 Definition of Force Majeure

In this Clause, "Force Majeure" means an exceptional event or circumstance:

- (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.

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:

- (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

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.

The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

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.

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

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:

- (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].

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

**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**

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].

Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:

- (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

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:

- (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** [Refer Section IX-PCC sl.no].

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,
 - (i) for contracts financed by all participating Banks except under sub-paragraph (a) (2) below: 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;
- (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).

5. General Obligations of the Employer and the Contractor

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;
- (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.

7. Termination

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 co-ordinated 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;
- (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.

Annexure VIII -A**Contract Data**

SN	Conditions	Sub-Clause	Data
1	Employer's name and address	1.1.2.2 & 1.3	Maharashtra Metro Rail Corporation Limited, "Metro Bhavan", East High Court Road (VIP Road), Infront of Dr. Babasaheb Ambedkar Collage, Near Dikshabhoomi, Nagpur-440010, Maharashtra, INDIA
2	Engineer's name and address	1.1.2.4 & 1.3	Employer will nominate
3	Bank's name	1.1.2.11	Deposit Work of NHAI
4	Borrower's name	1.1.2.12	Maha-Metro (Deposit Work of NHAI)
5	Time for Completion	1.1.3.3& 8.2	09 (Nine) Months from the date of issue of LOA
6	Defects Notification Period (Defect Liability Period)	1.1.3.7	12 months from the date of Commissioning of structure for public uses. During the Defects Liability Period the Contractor shall rectify/ replace the defective works without claiming any cost for the defective works fulfill his obligations during the Defects Liability Period as laid down in GC and Works Requirements.
7	Sections	1.1.5.6	Railway's Ch.830/09-11 Between Khapri-Ajni Station Level Crossing No.120 At Manish Nagar of Nagpur division.
8	Country	1.1.6.2	India
9	Site	1.1.6.7	Nagpur, Maharashtra
10	Adverse Climatic Conditions (Additional information)	1.1.6.11	"Climatic Conditions" is defined as follows: <i>Rainfall – Moderate</i> <i>Winter – Moderate</i> <i>Summer – Extreme</i> <i>Not prone to earthquake historically (Seismic Zone II)</i>
11	Electronic transmission systems	1.3	Electronic transmission shall be in the form of scanned copy of original documents uploaded appropriately at Technical Envelope of E-Tender portal of Maha-Metro. In case of Price Bid, only the format provided in Part-4 (Financial Bid & BoQ) of the bid document in to be filled physically & scanned

SN	Conditions	Sub-Clause	Data
			copy shall be uploaded to Commercial Envelope Section of E-Tender Portal of Maha-Metro. https://mahametrorail.etenders.in
12	Governing Law	1.4	Acts and Laws of India & Maharashtra State
13	Ruling language	1.4	English
14	Language for communications	1.4	English
15	Time for access to the Site	2.1	Site will be made available progressively as per requirement and subjected to the clearances from authorities concerned.
16	Engineer's Duties and Authority	3.1	The Engineer shall obtain the specific approval of the Employer before issuing a Variation for substantial technical modifications, increase of the Accepted Contract Amount, quantity of work, NS items or extension of time,
17	Performance Security	4.2	The performance security will be in the form of a Bank guarantee in the amount(s) of 3% (three percent) of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount, issued from scheduled commercial bank (except cooperative bank) of Indian or Foreign origin having business office in India In the event of variations during the execution of the contract, which results in payments to the Contractor over and above the contract price, the Performance Security shall be adjusted in accordance with clause 4.2 of GC.
18	Contractor's Representative	4.3	Prior consent and approval of the Employer is required for deployment/replacing the Contractor's representative.
19	Subcontractors	4.4	Prior consent and approval of the Employer is required for other proposed Subcontractors.
20	Progress reports	4.21	In addition to Monthly progress report, employer may ask weekly progress report.
21	Normal working hours	6.5	Normal working hours are 8.00 Hrs. to 17 Hrs. The Contractor, if required, shall carry out work during night hours or in shifts. The Contractor shall not be entitled to any claim in addition to the Accepted Contract Amount on account of night/shift working.
22	Testing	7.4	The Engineer shall give the Contractor not less than one (1) working day notice of the Engineer's intention to attend the tests.

SN	Conditions	Sub-Clause	Data
23	Commencement of Works	8.1	The Commencement Date shall be: Date given in LOA or Employer's Notice to Proceed
24	Extension of time	8.4	Granting any extension of time is subject to the Engineer's determination in accordance with sub-clause 3.5 – Determinations.
25	Delay damages for the Works	8.7 & 14.15(b)	Delay damages is applicable @ 1% cost of Awarded Cost work per week of delay beyond the assigned time period of completion, subjected to maximum 10% of awarded cost of the work.
26	Maximum amount of delay damages	8.7	10 % of the final Contract Price.
27	Measurement and Evaluation	12	Shall be done and certified by Engineers.
28	Right to Vary	13.1	Additional work, plant, material or services related to enabling work & not a part of Permanent Works shall not be considered as a Variation to the assigned work.
29	Variation Procedure	13.3	Prior consent of the Employer is required on any proposed Variation issued for substantial technical modifications, additional cost or extension of time. Such Variation shall be consolidated in a signed Amendment to Contract. Payment for works in quantities or amount which exceed the initial quantity or amount for a Bill of the Bill of Quantities or for a Schedule of the lump sum price shall require a signed Amendment to Contract in the form of letter of variation, unless using Contract provisions for Contract Contingencies, Provisional Sums or Day work. The procedure of variation, limit of variations & payments of varied quantity shall be done as per clause no. 13.3.2 in Part-B (Specific Provision) of PCC
30	Provisional Sums	13.5.(b)(ii)	As per CPWD standard practices
31	Base Date	13.7	28 th Days prior to last date of submission of bid
32	Adjustments for Changes in Cost	13.8	Refer Particular condition of contract

SN	Conditions	Sub- Clause	Data
33	Total advance payment	14.2	<p>The Employer shall make an advance payment, as an interest-free loan for mobilization 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 detailed as under.</p> <p>(a) Mobilization Advance :</p> <p>Interest free Mobilization advance shall be 10% of original contract value payable in two equal instalments of 5% (Five Percent) each. in the currencies and proportions in which the Accepted Contract Amount is payable.</p> <p>Mobilization advance shall be paid against acceptable Bank Guarantee issued from a Scheduled Commercial Indian Bank or Schedule Commercial Foreign Bank (Except Cooperative Bank) having business offices in India. The value of Bank Guarantee taken towards security of “Advance Payment” / “Mobilization Advance” shall be 110% of the advance amount requested by the Contractor and valid for 60 Days beyond scheduled completion time. The validity of Advance Bank Guarantee shall be extended as per extended time of contract plus 60 days, if the Advance Amount is not recovered completely.</p> <p>The first installment shall be paid after award of Letter of Acceptance by employer and submission of Performance Guarantee / Security and Advance Bank Guarantee by Contractor.</p> <p>The second installment shall be paid on production of effective and proper utilization of the first installment duly accepted and certified (with or without modification) by the Engineer. The Contractor shall be required to submit the ‘Utilization Certificate’ of 1st installment along with Bank Guarantee @ 110% of 2nd installment, with his letter of request.</p> <p>The Contractor, once the 50% of mobilization advance has been recovered, shall have a onetime option to reduce the Bank Guarantee for the mobilization advance by the proportion to the amount recovered.</p>

SN	Conditions	Sub-Clause	Data
34	Repayment amortization rate of advance payment	14.2(b)	<u>Amortization / Repayment of Advance Payment:</u> The recovery of the Advance Payment shall be done in respective currencies and shall commence when 20% of the original contract value of the work has been paid in respective currencies (in addition to the Mobilization Advance) and shall be recovered by deduction of 25% of the amount of each Interim Payment, until the total of the Mobilization Advance is recovered before payment of 60% of Contract Price.
35	Percentage of Retention	14.3 (c)	0% (Zero percentage) (No retention from bill is applicable in this contract)
36	Limit of Retention Money	14.3 (c)	No retention from bill is applicable in this contract, if performance bank guarantees has been submitted by contractor
37	Plant and Materials	14.5(b)(i)	As directed by Engineers
38		14.5(c)(i)	As directed by Engineers
39	Minimum Amount of Interim Payment Certificates	14.6	No Limit
40	Payment	14.7	The Employer shall pay to the Contractor the amount certified in each Interim Payment Certificate. Each interim payment certificate will have two components; (a) Value of the work/goods/services (without taxes/ duties levies/ cess etc.). (b) Taxes/ duties levies/cess/GST etc.
41	Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	As provided in Particular Condition of Contract.
42	Currencies of Payment	14.15	The Contract Price shall be paid in the currency(ies) named in the Contract i.e., INR (Indian Rupees)
43	Limit of Liability	17.6	100% of the Total Contract Price
44	General Requirement Insurance	18	100% of the Total Contract Price (Contractor's All Risk and other requirements is to be obtained by contractor)

SN	Conditions	Sub-Clause	Data
45	Periods for submission of insurance:	18.1	
	a. evidence of insurance.		14 days from Commencement Date
	b. relevant policies		28 days from Commencement Date
46	Insurance cover for one occurrence.	18.2 (d)	INR 50 Lakhs for each occurrence
47	Minimum amount of third party insurance	18.3	INR 10 Lakhs for any one incident, with no. of incidents unlimited
48	Termination, Payment and Release	19.6	Determination by the Engineer shall be done in accordance with sub-clause 3.5 Determination.
49	Date by which the Dispute Board shall be appointed	20.2	Not applicable in this contract
50	The Dispute Board shall be comprised of	20.2	Constitution of dispute board is not applicable in this contract. The disputes may be resolved as per ADR methods i.e., mutual settlement/ negotiations etc.
51	List of potential DB sole members	20.2	Not applicable
52	Appointment (if not agreed) to be made by	20.3	After failure of negotiation/ conciliations of mutual settlements the issues may be referred for arbitration.
53	Rules of arbitration	20.6(a)	Rules of Arbitration in accordance with the Arbitration and Conciliation Act 1996 and its amendments further.
		20.6(b)	Place of Arbitration: Nagpur
54	Failure to Comply with Dispute Board's Decision	20.7	Not Applicable.
55	Contractor's Claims	20.1	The dispute board is not applicable in this contract. The disputes may be resolved as per ADR methods i.e., mutual settlement/ negotiations/ conciliations etc.

**MAHARASHTRA METRO RAIL CORPORATION LIMITED
(NAGPUR METRO RAIL PROJECT)****BID DOCUMENTS****FOR**

Construction Of Subway as RCC Box 1x7x3 Mt. by Pushing Method at Railway's Ch.830 /09-11 Between Khapri-Ajni Station In Lieu Of Existing Level Crossing No.120 at Manish Nagar Crossing under Nagpur-Division Of Central Railway

**Tender No.
N1CRF-03/2022**

**PART 3: CONDITIONS OF CONTRACT AND
CONTRACT FORMS**

SECTION IX: PARTICULAR CONDITIONS (PC)

**Maharashtra Metro Rail Corporation Limited**

(Nagpur Metro Rail Project)

**Metro Bhawan, East High Court Road (VIP Road),
Infront of Dr. Babasaheb Ambedkar Collage,
Near Dikshabhoomi, Nagpur-440010, Maharashtra, INDIA**
Website: www.metro railnagpur.com

Section IX. Particular Conditions (PC)

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

1	Sub-Clause 1.5 Priority of Documents	<p>Replace the GC Sub-Clause 1.5 with the provisions as under:</p> <p>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:</p> <ul style="list-style-type: none"> (a) the Contract Agreement (The Entire Contract Agreement Booklet), (b) the Letter of Acceptance (LOA) (c) Bill of quantities & Financial Bid (d) the Contract Data (e) the Particular Conditions (PC) (f) the General Conditions (GC) (g) the Specification, (h) the Drawings, (i) and any other reference documents forming part of the Contract. <p>If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.</p>
2	Sub-Clause 1.9 Delayed Drawings or Instructions	<p>Replace the GC Sub-Clause 1.9 with the provisions as under:</p> <p>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.</p> <p>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].</p> <p>After receiving this further notice, the Engineer shall proceed in</p>

SECTION IX: Particular Condition of Contract

		<p>accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p> <p>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.</p>
3	Sub-Clause 2.1 Rights of Access to the Site	<p>Replace the GC Sub-Clause 2.1 with the provisions as under:</p> <p>The Engineer shall grant the Contractor right of access to, and/or possession of, the Site progressively for the completion of Works. Such right and possession may not be exclusive to the Contractor. The Contractor will draw/modify the schedule for completion of Works according to progressive possession/right of such sites.</p> <p>If the Contractor suffers delay from failure on the part of the Employer to grant right of access to, or possession of the Site, the Contractor shall give notice to the Engineer in a period of 28 days of such occurrence. After receipt of such notice the Engineer shall proceed to determine any extension of time to which the Contractor is entitled and shall notify the Contractor accordingly.</p> <p>For any such delay in handing over of site, Contractors will be entitled to only reasonable extension of time and no monetary claims whatsoever shall be paid or entertained on this account.</p> <p>The Access Dates shown in the Works Requirements are for planning purposes only.</p> <p>The Engineer reserves the right to make each site available to the Contractor any time before or after the Access Dates. The Engineer will notify the Contractor of the actual Access Dates in advance for each part of the works. This Notice will specify the area to which it refers is accessible and in a sufficient state of completion to permit the Contractor to begin installation and testing therein. It shall not imply that the Contractor will enjoy exclusive use of the area or that the work of other Contractor's therein is complete. The Contractor shall begin installation in each area by the actual Access Date, and shall complete all installation and testing in each area by the relevant Key Date (If Any)</p> <p>Notwithstanding the actual Access Date, whether before or after the stipulated Access Dates, the Employer shall not accept any increase in cost to the Employer.</p> <p>The Engineer shall grant the Contractor right of access to or possession of Sites progressively after award of the work.</p>
4	Sub-Clause 4.1 (d)	<p>The following is added to the existing clause:</p> <p>The Contractor shall prepare, and keep up-to-date, a complete set of "as-</p>

SECTION IX: Particular Condition of Contract

		<p>"as-built" records of the execution of the Works, showing the exact "as-built" locations, sizes and details of the Works as executed, with cross references to relevant specifications and data sheets. These records shall be kept on the Site and shall be used exclusively for the purposes of this Sub-Clause. Six copies shall be submitted to the Engineer prior to the commencement of the Tests on Completion.</p> <p>In addition, the Contractor shall prepare and submit to the Engineer "as-built drawings" of the Works, showing all Works as executed. The drawings shall be prepared as the Works proceed, and shall be submitted to the Engineer for his inspection. The Contractor shall obtain the consent of the Engineer as to their size, the referencing system, and other pertinent details.</p> <p>Prior to the issue of any Taking Over Certificate, the Contractor shall submit to the Engineer one microfilm copy, one full-size original copy and six printed copies of the relevant "as-built drawings", and any further Construction and/or Manufacture Documents specified in the Works Requirements. The Works shall not be considered to be completed for the purposes of Taking Over under Clause 10 until such documents have been submitted to the Engineer.</p> <p>Prior to commencement of the Tests on Completion, the Contractor shall prepare, and submit to the Engineer, Operation and Maintenance Manuals in accordance with the Works Requirements and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair the Works. The Works shall not be considered to be completed for the purposes of Taking Over under Clause 10 until such Operation and Maintenance Manuals have been submitted to the Engineer and received his consent.</p> <p>The Operation and Maintenance Manuals and drawings submitted by the Contractor shall be updated by him during the Defects Liability Period and the Contractor shall re-submit the updated manuals at the end of the DLP for review and acceptance by the Engineer.</p> <p>The Operation and Maintenance Manuals and drawings of structure shall be submitted by the Contractor, if required, be updated by him during the Defects Notification Period and re-submitted for review and acceptance by the Engineer.</p>
5	<p>GC Sub-Clause 4.2</p> <p>Performance Security</p>	<p>Replace the GC Sub-Clause 4.2 with the provisions as under:</p> <p>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.</p>

		<p>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 scheduled commercial bank of Indian/Foreign origin having office in India, acceptable to the Employer, and shall be in the form annexed to Contract Forms In Section X, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.</p> <p>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 during DLP. 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.</p> <p>The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.</p> <p>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.</p> <p>The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate. (i.e. successful completion of Defect Liability Period (DLP))</p> <p>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.</p>
6	<p>Sub-clause 4.2A (Additional sub-clause)</p> <p>Not applicable in this tender.</p>	<p>Guarantees, Warranties and Undertakings</p> <p>Within 30 days of the date of Letter of Acceptance of the Bid, the Contractor shall submit to the Employer:</p> <p>(a) An Undertaking in the approved format from a parent company, the identity of which shall have been submitted in writing to the Employer prior to acceptance of the Bid and against which the Employer shall have raised no-objection.</p> <p>(b) A written Guarantee in the approved format from a parent company, the identity of which shall have been submitted in</p>

		<p>writing to the Employer prior to acceptance of the Bid and against which the Employer shall have raised no objection.</p> <p>(c) A warrantee in the approved format from the Contractor.</p> <p>In the event that the Contractor shall comprise two or more members, corporations acting in partnership, joint venture, consortium or otherwise each such member or corporation shall submit a parent company Undertaking and Guarantee.</p> <p>Notwithstanding any other provision of the Contract:</p> <p>(a) submission by the Contractor of the requisite Performance security, parent company Undertakings and written Guarantees shall be condition precedent to the Contractor's entitlement to any payment, under the Contract; and</p> <p>(b) failure by the Contractor to provide a Performance security or parent company Undertakings or parent company Guarantees shall entitle the Employer either to suspend the Works or to terminate the Contract forthwith by notice in writing to that effect, notwithstanding that the Contractor may have been to proceed with the Works, and the Contractor shall not be compensation whatsoever as a consequence of such suspension or termination</p> <p>The forms of Contractor warranty shall be in the format given in the Section X: Contract Forms.</p>
7	<p>Sub-Clause 4.4 Subcontractors</p>	<p>Replace the GC Sub-Clause 4.4 with the provisions as under:</p> <p>a) Sub-contracting of works shall be limited to 50% of the awarded cost of the work. The terms and conditions of subcontracts and the payments that have to be made to the Subcontractors shall be the sole responsibility of the Contractor. However, the Subcontractor / Vendor shall fully comply with the technical specifications included in the Works Requirements and other contractual obligations with the main contractor.</p> <p>b) The Contractor shall not be required to provide to the Engineer the details of the pricing of their Sub-contracts.</p> <p>c) For sub-contracts exceeding Rs 5 million each, it will be obligatory for the Contractor to obtain a “Notice of No-Objection” from the Engineer, for selection of the Sub-contractor and Vendor. The contractor shall submit the full detail of sub-contractor and tasks proposed to be assigned, along with application of NOC. The Contractor shall certify that the cumulative value of the subcontracts (including those up to Rs 5 million each) awarded is within the aforesaid 50% limit. Any proposals by the Bidders in their offer shall not be construed as an approval of the vendor.</p>

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		<p>d) The Contractor shall provide sufficient superintendence, whether on the site or elsewhere, to ensure that the work to be carried out by a Subcontractor complies with the requirements of the Contract.</p> <p>e) Notwithstanding any consent to sub-contract given by the Engineer, if in his opinion it is consider necessary, the Engineer shall have full authority to order the removal of any sub-contractor from the Site or off-Site, place of construction/fabrication or storage.</p> <p>f) The Contractor shall ensure that their sub-contractors, material / equipment suppliers and other agencies deployed by them in connection with execution of the Contract do not make any claim or raise any dispute before Employer. For this, necessary provision is to be made in the agreement between Contractor and their Sub contractors / other agencies. Similarly the agreement should also incorporate the provision of dispute resolution. An undertaking in the following format shall be submitted by Contractor in respect of each such agency:</p> <p>g)</p> <p style="text-align: center;">Undertaking</p> <p>Contract no./Tender No.</p> <p>Name of work</p> <p>In connection with above work, M/s , Contractor has/is engaging M/s, as sub-contractor (material / equipment supplier or service provider). For this, the terms and conditions of agreement include necessary provisions for resolution of dispute if any arising between Contractor and subcontractor. It is confirmed by the subcontractor that any claim/dispute arising out of the above work shall be resolved in terms of agreement and shall not be raised before Employer and also shall not make any claim against Employer before any forum/court.</p>
<p>8</p>	<p>Sub-Clause 4.6 Co-operation</p>	<p>Replace the GC Sub-Clause 4.6 with the provisions as under:</p> <p>The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:</p> <p>(a) the Employer’s Personnel,</p> <p>(b) any other contractors employed by the Employer, and</p> <p>(c) the personnel of any legally constituted public authorities,</p> <p>who may be employed in the execution on or near the Site of any work not included in the Contract.</p> <p>If, under the Contract, the Employer is required to give to the Contractor</p>

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		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
9	Sub-Clause 4.7 Setting Out	<p>Replace the GC Sub-Clause 4.7 with the provisions as under:</p> <p>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.</p> <p>The Engineer 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 and corrective measures shall be taken by contractor accordingly.</p> <p>If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and 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 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</p> <p>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 above.</p>
10	Sub-clause 4.8 Safety and Sub-clause 6.7, Health and Safety	<p><u>In addition to existing GC clause following is added:</u></p> <p>Within 8 weeks of the date of Notice to Proceed, the Contractor shall submit a detailed and comprehensive contract-specific Site Safety Plan based on the Employer's Safety, Health and Environment Manual (SHE Manual). The Contractor is required to make himself aware of all the requirements of the Employer's Safety, Health and Environment Manual in this regard and comply with them. The Site Safety Plan shall include detailed policies, procedures and regulations which, when implemented, will ensure compliance with Sub-Clauses 4.8 and 6.7 of General Conditions of Contract.</p> <p>The Contractor shall, from time to time and as necessary or required by the Engineer, produce supplements to the Site Safety Plan such that it is at all times a detailed, comprehensive and contemporaneous statement by the Contractor of his site safety and industrial health obligations, responsibilities, policies and procedures (under the laws of India) or as stated in the Contract or elsewhere relating to work on Site.</p>

		<p>If at any time the Site Safety Plan is, in the opinion of the Engineer, 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 Engineer may instruct the Contractor to revise the Site Safety Plan. The Contractor shall, within 14 days, submit the revised plan to the Engineer for review.</p> <p>Any omission, inconsistency or error in the Site Safety Plan or the Engineer concurrence or rejection of the Site Safety Plan and/or supplements thereto shall be without prejudice to the Contractor's obligations with respect to site safety and industrial health and shall not excuse any failure by the Contractor to adopt proper and recognized safety practices throughout the execution of the Works.</p> <p>The Contractor shall adhere to the Site Safety Plan and shall ensure, that all sub-contractors of all tiers have a copy of the Site Safety Plan and comply with its provisions.</p> <p>The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer and the Employer to carry out surveillance to verify that the Site Safety Plan is being properly and fully implemented.</p> <p>The Contractor shall notify the Engineer immediately of any occurrence or incident that results in death or serious injury as defined in the Indian Penal Code. Such initial notification may be verbal and confirmed in writing thereafter and shall be followed by a comprehensive written report within 24 hours of the occurrence/incident. The Contractor shall duly complete standard forms as required by the Engineer and Statutory Authorities.</p> <p>The Contractor shall provide and maintain all necessary temporary fire protection and firefighting facilities on the Site during the construction of the Works in accordance with the statutory regulations and as required by the Engineer. The Contractor shall ensure that all gases, fuels and other dangerous Materials and goods are stored and handled in a safe manner and in accordance with the statutory regulations and as required by the Engineer.</p> <p>The obligations and requirements for safety and industrial health under this Contract are entirely without prejudice to, and do not derogate from, the Contractor's statutory obligations, with respect to safety and industrial health.</p>
11	Sub-Clause 4.10 Site Data	<p><u>Replace the GC Sub-Clause 4.10 with the provisions as under:</u></p> <p>The Employer shall have made available to the Contractor with the Bidding documents such relevant data in Employer's possession on Geo-Technical report. The accuracy or reliability of the</p>

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		<p>data/studies/reports and of any other information supplied at the time of bidding by the Employer or Engineer is not warranted with respect to the viability of his execution of Works and the Contractor shall be responsible for interpreting all such data. The Contractor shall conduct further investigations considered necessary by him at his own cost and any error, discrepancies if found in Employer's data at any stage will not constitute ground for any claim for extra time and costs.</p> <p>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.</p> <p>The Contractor shall also be deemed to have inspected and examined the Site, its surroundings, the above data and other available information with respect to the viability of his design and execution of Works and to have satisfied himself before submitting the Tender, as to all the relevant matters including without limitation:</p> <ul style="list-style-type: none"> (a) the climatic conditions; (b) the extent and nature of the work, Plant, and Materials necessary for the execution and completion of the Works and the remedying of any defects; (c) the applicable laws, procedures and labour practices (d) The Contractor's requirement for access, accommodation, facilities, personnel, power, transport and other services. (e) the risk of injury or damage to property adjacent to the Site and to the occupiers of such property or any other risk.
12	<p>Sub-Clause 4.12, Unforeseeable Physical Conditions</p>	<p>Replace the GC Sub-Clause 4.12 with the provisions as under:</p> <p>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.</p> <p>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.</p> <p>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</p>

		<p>Adjustments] shall apply.</p> <p>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 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].</p> <p>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 above related to this extent.</p> <p>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.</p> <p>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.</p>
13	Sub-clause 4.15 – Access Route	<p>All operations for the execution of the Works shall be carried out so as not to interfere unnecessarily with the convenience of the public or the access to public or private roads or footpaths or properties owned by the Employer or by any other person. The Contractor shall select routes, choose and use such vehicles so that movement of Contractor's Equipment, Plant and Materials from and to the Site is so limited that traffic is not delayed and damage to highways and bridges is prevented. If there is any delay or damage or injury, the cost of rectification or reconstruction of highways or bridges shall be borne by the Contractor. The Contractor shall indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters.</p> <p>If during the execution of the Works the Contractor shall receive any</p>

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		claim arising out of the execution of the Works in respect of damage to highways or bridges, he shall immediately report the facts to the Engineer. The Contractor shall negotiate a settlement in respect of such claims and indemnify the Employer in respect of all claims, proceedings, damages, costs, charges and expenses in relation thereto.
14	Sub-clause 4.18 – Protection of the Environment	<p>Add the following at the end of this sub-clause:</p> <p>Outline Environmental Plan shall be in accordance with the provisions of Employer’s Safety, Health & Environment (SHE) Manual and shall include in summary form, the Contractor’s proposed means of complying with his obligations in relation to:</p> <ul style="list-style-type: none"> • the Site Environment ; and • System Environment as described in Works Requirements. <p>Within 60 days of the date of the Notice to Proceed, the Contractor shall submit a detailed and comprehensive Environmental Plan based on the Outline Environmental Plan. The Environmental Plan shall include detailed policies, procedures and applicable regulations.</p> <p>The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer and the Employer to monitor and conduct tests at site to verify that the Environmental Plan is being properly and fully implemented.</p>
15	Sub-clause 4.19 Electricity, Water and Gas	<p>The following is added to the existing clause:</p> <p>The Contractor shall make his own arrangement of electricity, Water and gas or any other source of energy required at his own cost and arrangement/sources. MAHA-METRO shall not make available such facilities for the contractor.</p>
16	Sub-clause 4.20, Employer’s Equipment	<p>The Employer will not provide any tools, plant, equipment and machinery or materials under the Contract. The contractor shall arrange the required tools, plants, equipment at his own cost without any additional cost to Maha-Metro.</p>
17	Sub-clause 4.22 – Security of Site and Safety of Works	<p>In addition to the existing clause the following is added.</p> <p>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:</p> <ol style="list-style-type: none"> a. take full responsibility for the adequacy, stability, safety and security of the Works, Plant, Contractor’s Equipment, Temporary Works, operations on Site and methods of manufacture, installation, construction and transportation; b. have full regard for the safety of all persons on or in the vicinity of the Site (including without limitation persons to whom access to the

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		<p>Site has been allowed by the Contractor), comply with all relevant safety regulations, including provision of safety gear, and insofar as the Contractor is in occupation or otherwise is using areas of the Site, keep the Site and the Works (so far as the same are not completed and occupied by the Employer) in an orderly state appropriate to the avoidance of injury to all persons and shall keep the Employer indemnified against all injuries to such persons.</p> <p>c. 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</p> <p>d. where any work would otherwise be carried out in darkness, ensure that all parts of the Site where work is being carried out are so lighted as to ensure the safety of all persons on or in the vicinity of the Site and of such work.</p> <p>Contractor is required to take note of all the necessary provisions in Employer's Safety, Health and Environment Manual (SHE Manual) and the Contractor's price shall be inclusive of all the necessary costs to meet the prescribed safety standards. In the case, the Contractor fails in the above; the Employer may provide the necessary arrangements and recover the costs from the Contractor.</p> <p>The Contractor shall submit a detailed and comprehensive contract-specific Site Safety Plan and System Safety Assurance Plan in accordance with the provisions in Employer's Safety, Health & Environment (SHE) Manual and Employer's Requirements.</p> <p>The Contractor shall, from time to time and as necessary or required by the Engineer, produce supplements to the Site Safety and System Safety Assurance Plans such that they are at all times detailed, comprehensive and contemporaneous statements by the Contractor of his site safety measures, policies and procedures (under the laws of India) or as stated in the Contract or elsewhere.</p> <p>If at any time the Site Safety Plan and/or System Safety Assurance Plan is, in the Engineer's opinion, insufficient or requires revision or modification, the Engineer may instruct the Contractor to revise the appropriate Plan. The Contractor shall, within fourteen days, submit the revised plan to the Engineer for review.</p> <p>Any omission, inconsistency or error in the Safety Plans or the Engineer's consent or rejection of the Safety Plans and/or supplements thereto shall be without prejudice to the Contractor's obligations with respect to safety measures and shall not excuse any failure by the Contractor to adopt proper and recognized safety practices throughout</p>
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		<p>the execution of the Works.</p> <p>The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer and the Employer to carry out surveillance to verify that the Safety Plans are being properly and fully implemented.</p>
18	Sub-Clause 4.24, Fossils	<p>Replace the GC Sub-Clause 4.24 with the provisions as under:</p> <p>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.</p> <p>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 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].</p> <p>After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p>
19	Sub-Clause 5.3 Payment to nominated Subcontractors	<p>Any payments due to subcontractor is the responsibility of the contractor and MAHA-METRO neither liable to pay any subcontractor directly nor shall resolve any dispute arising between contractor and subcontractor.</p>
	Sub-Clause 6.2 Rates of Wages and Conditions of Labour	<p>Replace the GC Sub-Clause 6.2 with the provisions as under:</p> <p>(a) The Contractor shall make himself aware of all labour regulations and their impact on the cost and build up the same in the Contract Price. During the Contract Period no extra amount in this regard shall be payable to the Contractor, for whatsoever reason including any revision of rates payable to the labour due to revision of rates payable in Minimum Wages Act.</p> <p>(b) The contractor shall pay wages to the workers and staff engaged in this work as per minimum wages act of Government of India, as per the applicable latest amendment</p> <p>(c) 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</p>

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		<p>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.</p> <p>(d) The Contractor shall, if required by the Employer, deliver to the Engineer or to his office, a return in detail, in such form and at such intervals as the Employer may prescribe, showing the number of labour employed in different categories by the Contractor on the Site.</p> <p>(e) Labour provided by the Contractor, either directly or through sub-contractors, for the exclusive use of the Employer or the Engineer, shall, for the purpose of this Sub-Clause, be deemed to be employed by the Contractor.</p> <p>(a) In the event of default being made in the payment of any money in respect of wages of any person employed by the Contractor or any of its sub-contractors of any tier in and for carrying out of this Contract and if a claim therefore is filed in the office of the Labour Authorities and proof thereof is furnished to the satisfaction of the Labour Authorities, the Employer may, failing payment of the said money by the Contractor, make payment of such claim on behalf of the Contractor to the said Labour Authorities and any sums so paid shall be recoverable by the Employer from the Contractor.</p>
20	Sub-Clause 6.5 Working Hours	<p>In addition to the existing clause refer the following also:</p> <p>The work is to be carried out as per the normal working hours as provided in contract data. However, the contractor has to work, under running condition of railway traffic, and road traffic, during night shift and limited hours, as well as in the limited traffic and power block period during day/night time provided by Railways Authority. Necessary arrangement as per the relevant labour laws shall be made by contractor at his own cost without charging anything extra to MAHA-Metro.</p>
21	Clause 7, Workmanship and Quality Control	<p>Within 28 days of the issue of the Notice to Proceed, the Contractor shall submit to the Engineer, for his consent, his proposed Site Quality Plan based on the Outline Quality Plan and the Employer's Requirements. The quality manual should address the quality system as required by ISO 9001 or equivalent standard. Any supplement to the Site Quality Plan shall be submitted at least 14 days before commencement of the relevant work.</p> <p>Upon the Engineer notifying his consent to the Site Quality Plan, or any</p>

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		<p>supplement thereto, the Contractor shall, adhere to the principles and procedures contained in such document, except where the Engineer gives his consent to any amended or varied version thereof. The Contractor shall cause any sub-contractors to adhere to this Plan.</p> <p>The Contractor shall appoint a suitably qualified and experienced person, not otherwise engaged in the performance of the Contract, to act as manager of the quality assurance system and shall provide such other personnel and resources as required to ensure effective operation of the quality assurance system. The said manager shall carry out audits of the application of the quality assurance system, and ensure effective quality control and delivery of quality assurance.</p> <p>The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer to carry out surveillance visits both on and off the Site to verify that the quality assurance system is being properly and fully implemented. No extra payment shall be made in this regard and the cost of the Work under this element shall be deemed to be included in the Contract Price.</p>
22	Sub-Clause 7.1, Manner of Execution	<p>Add following at the end of GC Sub-Clause 7.1:</p> <p>The Contractor shall execute the work as per design, drawings and specifications provided for the Works in accordance with the site plans and Work's Requirements. Any design detail, plan, drawing, specifications, notes, annotations, and information required shall be provided in such sufficient format, details, extent, size and scale and within such time as may be required to ensure effective execution of Works and/or as otherwise required by the Engineer.</p> <p>The Contractor shall be fully responsible for the Plants, Materials, goods, workmanship, preparing, developing and coordinating all execution Works to enable that part of the Works to be constructed and/or to be fully operational in accordance with the Contract's requirements.</p>
23	Sub-Clause 7.4 Testing	<p>Replace the GC Sub-Clause 7.4 with the provisions as under:</p> <p>This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).</p> <p>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.</p> <p>The Engineer may, under Clause 13 [Variations and Adjustments], vary</p>

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		<p>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.</p> <p>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.</p> <p>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 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].</p> <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 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.</p>
24	Sub-Clause 7.6 Remedial Works	<p>Add the following at the end of this sub-clause:</p> <p>The Contractor shall not be released from any liability or obligation under the Contract by reason of any such inspection or testing or witnessing of testing, or by the submission of reports of inspection or testing to the Engineer.</p>
25	Sub-Clause 7.7 Ownership of Plant and Materials	<p>Replace the GC Sub-Clause 7.7 with provisions as under:</p> <p>The plant, goods and material not finally taken over as per GC Clause 10 but payment against which have been made in part or full against Indemnity Bond / Safety Custody Bank Guarantee will remain under the Contractor's custody. The Contractor shall be responsible for its safety and will bear all the risks till taken over by the Employer.</p>
26	Sub-clause 7.8 & 17.5, Intellectual Property Rights and Royalties	<p>In addition to the existing clause refer the following for clarification:</p> <p>The Contractor shall indemnify the Employer and the Engineer from and against all claims and proceedings on account of infringement (or alleged infringement) of any patent rights, registered designs, copyright, design, trademark, trade name, know-how or other intellectual property</p>

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	<p>rights in respect of the Works, Contractor's Equipment, machines, work method, or Plant, or Materials, or anything whatsoever required for the Works and from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. The Contractor shall pay all traffic surcharges and other royalties, licence fees, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials, machine, process, systems, work methods, or Contractor's Equipment required for the Works. The Contractor shall, in the event of infringement of Intellectual Property Rights, rectify, modify or replace at his own cost the Works, Plant or materials or anything whatsoever required for the Works so that infringement no more exist or in the alternative shall procure necessary rights/license so that there is no infringement of Intellectual Property Rights.</p> <p>The Contractor shall be promptly notified of any claim under this Sub-Clause made against the Employer. The Contractor shall, at his cost, conduct negotiations for the settlement of such claim, and any litigation or arbitration that may arise from it. The Employer or the Engineer shall not make any admission, which might be prejudicial to the Contractor, unless the Contractor has failed to take over the conduct of the negotiations, litigation or arbitration within a reasonable time after having been so requested. In the event of Contractor failing to act at Engineer's notice, the Employer shall be at full liberty to deduct any such amount of pending claim from any amount due to the Contractor under this Contract or any other Contract.</p> <p>Insofar as the patent, copyright or other intellectual property rights in any Plant, Design Data, plans, calculations, drawings, documents, Materials, know-how and information relating to the Works shall be vested in the Contractor, the Contractor shall grant to the Employer, his successors and assignees a royalty-free, non-exclusive and irrevocable licence (carrying the right to grant sub-licences) to use and reproduce any of the works, designs or inventions incorporated and referred to in such Plant, documents or Materials and any such know-how and information for all purposes relating to the Works (including without limitation the design, manufacture, installation, reconstruction, Testing, commissioning, completion, reinstatement, extension, repair and operation of the Works).</p> <p>If any patent, registered design or software is developed by the Contractor specifically for the Works, the title thereto shall vest in the Employer and the Contractor shall grant to the Employer a non-exclusive irrevocable and royalty-free licence (carrying the right to grant sub-license) to use, repair, copy, modify, enhance, adapt and translate in any form such Software for his own use.</p>
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27	Sub-Clause 8.1, Commencement of Works	<p>Replace the GC Sub-Clause 8.1 with the provisions as under:</p> <p>Except as otherwise provided in the Particular Conditions of Contract, the Commencement Date shall be the date indicated in the Letter of Acceptance issued after obtaining NOC from funding agency.(if funded by KfW/ AFD)</p> <p>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.</p>
28	Sub-clause 8.3, Programme	<p>The Contractor shall prepare and submit his detailed Programme of Work so as to achieve key dates of various activities. The Contractor shall complete the work in a phased manner fixing priorities to the</p>

	<p>different stages of the work as per the requirement of project from time to time.</p> <p>Consent by the Engineer to a Works Programme shall not relieve the Contractor of any of his duties or responsibilities under the Contract, nor in the event that a Works Programme indicates that a Key Date has not or will not be met, constitute any form of acknowledgement that the Contractor is or may be entitled to an extension of time in relation to such Key Date or a Mile Stone.</p> <p>Manufacture, Installation and Construction Methods</p> <p>The Contractor shall submit complete documents and information pertaining to the methods of manufacture, installation and construction which the Contractor proposes to adopt or use, (and if applicable such calculations of stresses, strains and deflections and the like that will or may arise in the Works or to the other works comprising the Project or any parts thereof during installation from the use of such methods). The Engineer will then check to see whether, if such methods are adhered to, the Works can be executed in accordance with the Contract and without detriment to the Works (when completed) and to other works comprising the Project and in a manner, which minimises disruption to road and pedestrian traffic.</p> <p>The Engineer shall inform the Contractor in writing within 21 days after receipt of the above information;</p> <p>(a) that the Contractor's proposed methods of manufacture, installation and construction have the consent of the Engineer; or</p> <p>(b) in what respects, in the opinion of the Engineer the Contractor's proposed methods of manufacture, installation and construction:</p> <ol style="list-style-type: none"> a. fail to comply with the Employer's Requirements and/or the Definitive Design and/or the Final Design; b. would be detrimental to the Works and/or to the other works comprising the Project; c. do not comply with the other requirements of the Contract; or <p>(c) as to the further documents or information which are required to enable the Engineer to properly assess the proposed methods of manufacture, installation and construction.</p> <p>In the event that the Engineer does not give his consent, the Contractor shall take such steps or make such changes in the said methods or supply such further documents or information as may be necessary to meet the Engineer's requirements and to obtain his consent. The Contractor shall not change the methods of manufacture, installation and construction which have received the Engineer's consent without further</p>
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		<p>review and consent in writing of the Engineer.</p> <p>Notwithstanding the foregoing provisions of this Clause, or that certain of the Contractor's proposed methods of manufacture, installation and construction may be the subject of the consent of the Engineer, the Contractor shall not be relieved of any liability or obligation under the Contract.</p>
29	<p>Sub-Clause 8.4, Extension of Time for Completion</p>	<p>Replace the GC Sub-Clause 8.4 with the provisions as under:</p> <p>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:</p> <ul style="list-style-type: none"> (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 Contract, (b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions, or (c) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors. <p>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.</p>
30	<p>Sub-clause 8.7, Delay Damages</p>	<p>The 'total contract value' used in the GCC sub clause 8.5 for the purpose of levy of liquidated damages on failure to achieve key dates shall mean the 'Awarded cost of the work'.</p>
31	<p>Sub-Clause 8.9 Consequences of Suspension</p>	<p>Replace the GC Sub-Clause 8.9 with the provisions as under:</p> <p>The Contractor shall not be entitled to extra cost (if any), incurred by him, during the period of suspension of Work, if such suspension is</p> <ul style="list-style-type: none"> a. provided for in the Contract, or b. necessary for proper execution of Works or by reasons of weather condition or by some default on the part of the Contractor, or c. necessary for the safety of Works or any part thereof or d. necessary for the safety of adjoining public or other property or safety of the public or workmen or those who have to be at the site or

		<p>e. to ensure safety and to avoid disruption of traffic and utilities, as also to permit fast repairs and restoration of any damaged utilities, or</p> <p>f. on account of work carried out by the Contractor not in accordance with the directions of the Engineer; or</p> <p>g. on account of any other reason which is not attributable to the Employer</p>
32	Sub-Clause 9.4, Failure to Pass Tests on Completion	<p>Replace the GC Sub-Clause 9.4 with the provisions as under:</p> <p>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:</p> <p>(a) order further repetition of Tests on Completion under Sub-Clause 9.3; or</p> <p>(b) 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].</p>
33	Sub-Clause 9.5 (additional sub-clause) – Integrated Testing and Commissioning	<p>Integrated Testing</p> <p>Tests on Completion shall also include Integrated Testing where applicable as per the contract conditions. The Contractor shall, following satisfactory completion of tests on his works, equipment, sub-systems or system, perform, at the direction of the Engineer, programme of tests to verify and confirm the compatibility and complete performance of his works, equipment, sub-systems or system with the works, equipment, sub-systems or system provided by others.</p> <p>Compilation of Test Results</p> <p>The results of the Integrated Testing and Commissioning shall be compiled and evaluated by the Engineer and the Contractor.</p> <p>Re-testing</p> <p>If the Works, or a part thereof, or a Section, fail to pass the Integrated Testing and Commissioning, the Engineer shall require such failed Tests, to be repeated under the same terms and conditions. If such failure and retesting result from a default of the Contractor and cause the Employer to incur additional costs, the same shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due, or to become due, to the Contractor.</p> <p>Failure to pass Test</p> <p>If the Works, or a part thereof, or a Section, fail to pass Integrated Testing and Commissioning and the Contractor in consequence proposes</p>

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		<p>to make any adjustment or modification to the Works or a part thereof, or a section, the Engineer may, with the approval of the Employer, instruct the Contractor to carry out such adjustment or modification, at his own cost and to satisfy the requirements of Integrated Testing and Commissioning within such time as the Employer / Engineer may deem to be reasonable.</p> <p>Statutory Requirements</p> <p>The Contractor along with others shall carry out all statutory tests and trials, under the supervision of the Engineer, necessary for obtaining sanction of the competent authority for opening the system for public carriage of passengers.</p> <p>The Contractor shall, if required by the Employer, deliver to the Engineer or to his office, a return in detail, in such form and at such intervals as the Employer may prescribe, showing the number of labour employed in different categories by the Contractor on the Site.</p>
34	<p>10.2</p> <p>Taking over Part of the Works</p>	<p>The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.</p> <p>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:</p> <ul style="list-style-type: none"> (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. <p>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.</p> <p>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</p>

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		<p>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.</p>
35	Sub-Clause 10.3 Interference with Tests on Completion	<p>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.</p> <p>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.</p> <p>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:</p> <p>(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</p> <p>After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters</p>
36	Clause 11 Defect Liability	<p>During the Defects Liability Period the Contractor shall provide, free of cost, rectification/ reconstruction of faulty work. Competent and skilled personnel and maintain adequate stock of spares/ machine so as to promptly fulfil his obligations during the Defects Liability Period as laid down in GC and Works Requirements. A penalty of Rs.10000/- per day in DLP period will be imposed if Defect/ complaint/ faculty EMP is not attended within 24 hrs from the time and date of notice.</p> <p>Maintenance during Defects Liability Period</p> <p>Contractor shall establish an office for the purpose with communication facility so as to facilitate communication for reporting failures and liaison with maintenance staff manning the structure round the clock. The supervisor in-charge should be provided with mobile communication facility to ensure his presence at the site immediately after reporting. Contractor shall ensure</p>

		<p>restoration/rectification/replacement, within reasonable time, to the satisfaction of Engineer. The Engineer in case of the delay as deems fit shall be empowered to carry out the maintenance at the risk and cost of the Contractor.</p> <p>Routine Maintenance</p> <p>Submit Monthly status report to the Engineer –in – Charge.</p> <p>Repairs</p> <p>All equipment that requires repairing shall be immediately serviced and repaired.</p> <p>Complaints</p> <p>The Contractor shall receive calls for any and all problems / defect experienced in the operation of the structure, attend to these without delay. A punch list of above defect shall be maintained by contractor.</p> <p>Maintenance Log Book</p> <p>The Contractor shall maintain a Maintenance Log Book at completed site, the format for which shall be approved by Engineer – in – charge. In the Maintenance Log book the details about date of Routine Maintenance, Routine Maintenance activities performed, Details of Call – out visit / complaints and its action taken taken report shall be maintained</p>
37	<p>Sub-Clause 11.4</p> <p>Failure to Remedy Defects</p>	<p>Replace the GC Sub-Clause 11.4 with the provisions as under:</p> <p>If the Contractor fails to remedy any defect or damage within such time as the Employer / Engineer may deem to be reasonable, the Employer or the Engineer may fix a date on or by which to remedy the defect or damage, and give the Contractor reasonable notice of such date. If the Contractor fails to remedy the defect or damage by such date and the necessity for such work is due to a cause stated in Sub-Clause 11.2(a), (b) or (c), the Employer may (at his sole discretion):</p> <p>(a) Carry out the work himself for by others, in a reasonable manner and at the Contractor's risk and cost, but the Contractor shall have no responsibility for such work: the costs incurred by the Employer in remedying the defect or damage shall be recoverable from the Contractor by the Employer;</p> <p>(b) Require the Engineer to determine and certifying reasonable reduction in the Contract Price; or</p> <p>(c) If the defector damage is such that the Employer has been deprived of substantially the whole of the benefit of the Works or parts of the Works, terminate the Contract in respect of such parts of the</p>

		<p>Works as cannot be put to the intended use, the Employer shall then been titled to recover all sums paid for such parts of the Works together with the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor, and Sub-Clause 13 shall not apply.</p>
38	<p>Sub-clause 13.3 Variation Procedure</p>	<p><u>In continuation to existing GC clause following is added</u></p> <p>Employer's Variation & Variation Procedure (Additional Items/ NS Item , Extra Item of work)</p> <p>“Employer's Variation” means a change in the Works Requirements which makes necessary alteration or modification of the Design, quality or scope of Works as described by or referred to in the Works Requirements. Changes to any sequence, method or timing of manufacture, testing and Commissioning including Integrated Testing and Commissioning and changes to any part of the Site or access thereto will not constitute Employer's Variation.</p> <p>An Employer's Variation shall be requested and implemented in accordance with and subject to the following provisions:</p> <p>within 14 days (or such other period as the Engineer may allow) of the Engineer informing the Contractor in writing of the intention to request an Employer's Variation, the Contractor shall notify the Engineer in writing whether in his opinion the Employer's Variation would, if ordered:</p> <ul style="list-style-type: none"> (i) give rise to any entitlement to an extension of time; or (ii) affect the achievement of any Milestone; or (iii) give rise to any entitlement to additional payment; or (iv) affect the warranties of the Contractor set out in Conditions of Contract, <p>and shall submit his proposals as to the terms upon which he would agree to implement the Employer's Variation.</p> <p>The Engineer shall, as soon as practicable after receipt of proposals under sub-clauses 13.2 and / or 13.3, respond with approval, rejection or comments. If the Engineer instructs or approves a Variation, he shall proceed in accordance with Sub-Clause 3.5 to agree or determine adjustments to the Contract Price, Time for Completion and Schedule of Payments. After receipt of proposal, it will be the prerogative of the Employer, whether to Instruct and proceed ahead with the variation or drop the proposal in part or full. In that case, no cost of preparing And submitting the proposal will be payable to Contractor. In case, the design part of variation has been completed on submission of same to the Engineer, the Employer decides to abandon the variation, only cost for design to the extent of work done will be paid to the Contractor.</p> <p>Rate of Additional Items/ NS Item , Extra Item of work shall be as</p>

		<p>per following procedure.</p> <p><u>Part-1 (applicable for items, rates of which, are available in CPWD SOR / USSOR-Indian Railways)</u></p> <p>If Employer/ Engineer realize that any extra items / NS Item, which is not included in the BOQ of this contract is required to be executed, it may be done at current schedule rate of CPWD SOR / USSOR-Indian Railways rates with applicable guidelines and circular / amendments / correction / latest revision / latest publication at the time of execution of the work.</p> <p><u>Part-2 (applicable for Mon-Schedule / Extra items, rates of which are not available in CPWD SOR / USSOR-Indian Railways)</u></p> <p>(a) The Contractor shall furnish sufficient information in terms of rates/prices of the works, equipment /components manufactured by the contractor or sourced from the Vendors/Sub-contractors such as: estimated man-hours, man-hours rates for manufactured items, design costs, basic rate of materials, sub-assemblies, taxes, duties, overheads & profiles and inflation rate, so as to establish the reasonableness of the variation price. In assessing work covered by any sub-contract, the Engineer shall have, where he deems necessary, access to the original sub-contract conditions, rates, prices and details of the variation claimed and may direct the Contractor to provide a copy of the same, to assist in evaluating any Variations.</p> <p>(b) any agreement between the Engineer and the Contractor as to the terms upon which an Employer's Variation may be implemented shall have no contractual or other legal effect, until it is in writing and is signed by the Contractor and the Engineer. The Engineer before signing such agreement shall take prior approval of the Employer. The terms of this agreement will be binding upon the Contractor and the Employer. This agreement shall determine the amount which should be added to or deducted from the relevant Cost Centre Amount and/or the revisions (if any) which should be made to the Milestone Payment Schedules as a result of the Variation.</p> <p>(c) In the event of the Engineer and the Contractor failing to reach agreement on the revisions to be made to the Cost Centre Amounts, the Engineer shall, with the approval of the Employer, determine the amount which should be added or deducted from the relevant cost center amount which shall be binding on the contractor. In case the Contractor supplies part/ incomplete information or refuses to supply the required information, Engineer</p>
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		<p>shall determine the cost of Variation based on the information available to him from any sources which in his judgment can be used to determine the case. The Contractor shall proceed with the Work irrespective of whether an agreement between the Engineer and Contractor as to the terms and price of the variation have been reached or not but may submit his Claim if necessary, in accordance with Sub-clause 20 of GCC.</p> <p>(d) if the Engineer withdraws the request for an Employer's Variation, the Contractor shall have no claim of any kind whatsoever arising out of or in connection with any of the proposals made or any failure to reach agreement. In case the Employer's Variation involves omission of part of the Works, the agreement shall address the issue of reduction in the Contract Price.</p> <p>(e) Detail steps to arrive rates of non-schedule / extra items, rates of which are not available in CPWD SOR/ USSOR-Indian Railways, has been described in Sub-Clause No. 13.3.1 (New Sub-Clause), which shall be referred in this circumstances</p>
39	Sub-clause 13.3.1 (New sub-clause)	<p><u>Variation in the Bill of Quantities</u></p> <p>i) The quantities of items shown in the Bill of Quantities are approximate, and liable to vary during the actual execution of the work. Some items/group of items may have to be altered, added or omitted. The Contractor shall be bound to carry out and complete the stipulated work as instructed by the Engineer, irrespective of the magnitude of variations including additions, alterations or omissions in the Bill of Quantities, individual items or group of items, specified in the Bill of Quantities.</p> <p>ii) Such variations shall be paid as follows:</p> <p>a) At the accepted rates of the Contract for Positive variation in quantities to the extent of 25%,, except in the case of foundation works. Unless otherwise specifically provided for in the Bill of Quantities or elsewhere in the Contract, the variation of 25% shall be applicable to a group of items mentioned therein and not to individual items. In case of variation in quantities on minus side, contract rates will be payable for executed quantities.</p> <p>b) In case of foundation work, no variation limit applies and Contractor shall carryout the Work, at rates stipulated in the Contract irrespective of any variation.</p> <p>c) In case of earth work, the aforesaid variation limit of 25% shall apply to the gross quantity of earth work and variation in the quantity of individual classifications of soil will not be subject to this limit where any variation can take place.</p> <p>d) For items against which the quantity given in the Bills of</p>

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		<p>Quantities is “if or as required”, there shall be no increase/decrease of rates whatever be the quantity finally executed.</p> <p>e) Variation in the quantity of items individually costing upto 1% of the total contract value, shall be payable at the rates stated in the Contract notwithstanding the magnitude of variation upto 2% of the original Contract Value for each item.</p> <p>f) In case the variation in individual items or the group of items as stipulated above, is more than 25% on plus side, the rate for the varied quantity beyond 25% shall be negotiated between the Engineer and the Contractor and mutually agreed rates arrived at before actual execution of the extra quantity.</p> <p>g) In case Engineer introduces an item for which the Contract does not contain any rates or prices applicable to the varied Works, the rate of such items shall be derived, wherever possible, from rate for similar items available in the Bill of Quantities of the accepted Tender. In case this is not possible, the rate may be decided on the following basis:</p> <ol style="list-style-type: none"> i. Cost of Materials at current market price, as actually utilised in the final finished Permanent Works, including a reasonable percentage for wastage and transportation. ii. Cost of enabling works if any (unless provided for separately) worked out on the above basis but with less stringent quality. Specifications minus salvage value of serviceable material released after completion of work and cost of material released as scrap. iii. Cost of labour actually used at the site of work at rates under Payment of Minimum Wages Act for the area of work for each category of worker, further enhanced by a percentage of 10% of the aforesaid rates to account for labour not directly utilised at Site and other ancillary and incidental expenses on labour. iv. Hire charges for Plant & Machinery, scaffolding, shuttering, forms, etc., required to be used at the site of the work. The tools used by the various trades shall not be counted as Plant & Machinery for this purpose. v. An amount of 20% of items (i), (ii), (iii) and (iv) above to allow for Contractor’s overheads, profits and corporate taxes. This percentage shall also apply to estimated cost of Materials supplied free to the Contractor. vi. In all cases where extra items of work are involved, for which there are no rates in the accepted Bill of Quantities the Contractor shall give a notice to the Engineer, of at least 7 days before the need for their execution arises.
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		<p>h) In the event of disagreement in respect of items (f) and (g) above, the Engineer shall fix such rates of price as are, in his opinion appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on account payments to the Contractor. Alternatively, in the event of disagreement, the Contractor shall have no claim to execute extra quantities/new items and the Engineer shall be free to get such additional quantities beyond 25% new items executed through any other agency. However, if the Engineer or the Employer so directs the Contractor shall be bound to carry out any such additional quantities beyond the limits stated above original quantities and or new items and the disagreement or the difference regarding rates to be paid for the same shall be settled in the manner laid down under the conditions for the settlement of dispute.</p>
40	<p>Sub-clause 13.7 – Adjustments for Changes in Legislation</p>	<p>The following is added to the existing clause:</p> <p>The Contract Price shall be adjusted to take into account any new taxes or any statutory variation, on finished product/item during the contractual completion period shall be to the Employer's account for which the Contractor shall furnish documentary evidence in support of their claims. However, any increase in the cost due to new taxes or change in the existing taxes introduced during the extended contractual completion period due to the Contractor's fault shall be to the Contractor's account.</p> <p>(a) Taxes prior to Base date i.e 28 days prior to latest date of submission of Bid is deemed to be inclusive of price quoted by Bidder.</p> <p>(b) Any change in legislation of any kind of Taxes by GoI or GOM, after Base Date shall be accounted for separately and It is applicable both way (Reimbursement & Deduction)</p>
41	<p>Sub-Clause 13.8, Adjustments for Changes in Cost</p>	<p>Replace the GC Sub-Clause 13.8 with the provisions as under:</p> <p>a) The rates as per the accepted Bill of Quantities / Pricing Document shall be applicable till the completion of the Works and will be varied only to the extent of permissible price variation under this clause. However, this adjustment shall be to the extent that full compensation for any rise or fall in costs to the Contractor is not covered by the Price Variation formula, the rates in the accepted Bill of Quantities / Pricing Document shall be deemed to include amounts to cover the contingency of such rise or fall in costs. The price variation will be payable only on the Indian currency component (no adjustment for foreign currency component) of the Contract Price as per the following</p>

price variation formula.

- b) Payment as per the Contract shall be subject to adjustment in accordance with the following Price Variation formula, and other terms given herein, to provide for variation in the market rates of inputs like labour, materials and fuel / energy during the currency of the Contract:

$$V = V_L + V_S + V_C + V_F + V_M$$

Where:

V	Total adjustment on account of all components / factors
V_L	Adjustment on account of labour component $= p * R * \frac{l - l_o}{l_o}$
V_S	Adjustment on account of steel component $= q * R * \frac{W_s - W_{s_o}}{W_{s_o}}$
V_C	Adjustment on account of cement component $= r * R * \frac{W_c - W_{c_o}}{W_{c_o}}$
V_F	Adjustment on account of fuel / lubricant component $= s * R * \frac{W_f - W_{f_o}}{W_{f_o}}$
V_M	Adjustment on account of other materials, machinery and machine tools component $= t * R * \frac{W_m - W_{m_o}}{W_{m_o}}$
p	Cost coefficient of labour to the total cost = 0.20
q	Cost coefficient of Steel to the total cost = 0.25
r	Cost coefficient of Cement to the total cost = 0.17
s	Cost coefficient of Fuel & Lubricants to the total cost = 0.05
t	Cost coefficient of other Materials, machineries, tools and plants.

	= 0.18
Note: $p + q + r + s + t = 0.85$, balance 0.15 shall be the fixed component	
R	Gross value of the work done by the Contractor for the period of work under consideration, after excluding the the cost of any materials supplied free or at fixed rate to the Contractor.
l_o	Consumer Price Index for Industrial workers, published in Labour Bureau, Ministry of Labour and Employment, Government of India, as applicable to Nagpur area for the month preceeding the submission of this Bid.
l	Average of monthly Consumer Price Index for Industrial workers published in Labour Bureau, Ministry of Labour and Employment, Government of India, as applicable to Nagpur area for the period of work under consideration.
W_{so}	All India Price Index (with base 2011-12 = 100) for Reinforcement bars (TMT-500) for primary manufacturers, issued by CPWD (Central Public Works Department) for the month in which the Bid was opened
W_s	All India Price Index (with base 2011-12 = 100) for Reinforcement bars (TMT-500) for primary manufacturers, issued by CPWD (Central Public Works Department) for the period of work under consideration
W_{co}	All India Price Index (with base 2011-12 = 100) for Cement, issued by Reserve Bank Of India for the month in which the Bid was opened
W_c	All India Price Index (with base 2011-12 = 100) for Cement, issued by Reserve Bank Of India for the period of work under consideration
W_{fo}	Whole Sale Price Index (Averages) for Fuel & Power (with base 2011-12 = 100), as published in the RBI Bulletin for the month in which the Bid was opened
W_f	Whole sale Price Index (Averages) for Fuel & Power, (with base 2011-12 = 100) as published in the RBI Bulletins for the period of work under consideration

		<table border="1"> <tr> <td>W_{mo}</td> <td>Whole Sale Price Index (Averages) for Machinery and Machine Tools (with base 2011-12 = 100) as published in the RBI Bulletin, for the month in which the Bid was opened</td> </tr> <tr> <td>W_m</td> <td>Wholesale Price Index (Averages) for Machinery and Machine Tools (with base 2011-12 = 100) as published in the RBI Bulletin for the period of work under consideration</td> </tr> </table>	W_{mo}	Whole Sale Price Index (Averages) for Machinery and Machine Tools (with base 2011-12 = 100) as published in the RBI Bulletin, for the month in which the Bid was opened	W_m	Wholesale Price Index (Averages) for Machinery and Machine Tools (with base 2011-12 = 100) as published in the RBI Bulletin for the period of work under consideration	
W_{mo}	Whole Sale Price Index (Averages) for Machinery and Machine Tools (with base 2011-12 = 100) as published in the RBI Bulletin, for the month in which the Bid was opened						
W_m	Wholesale Price Index (Averages) for Machinery and Machine Tools (with base 2011-12 = 100) as published in the RBI Bulletin for the period of work under consideration						
		<p>c) Period of Work under consideration will mean as under:</p> <ol style="list-style-type: none"> i. In the case of first "On-account Bill" the period from the months in which the Bid was opened to the month of measurement of first bill. ii. In the case of second and subsequent "On-account" and Final bills, the Period from the month of measurement for previous bill to the month of measurement of that bill. iii. Responsibility of arranging the RBI Bulletins as desired by the Employer or the Engineer shall rest with the Contractor. <p>d) Procedure in case of delay in Availability of final RBI indices:</p> <p>Where the final Price Indices are not available in the Reserve Bank of India Bulletins, while making payment towards on-account bills, payment towards Price Variation will be made on provisional basis based on the indices available, to be adjusted in subsequent bills as and when the final indices figures become available.</p> <p>e) Price Variation for Varied Items i.e. extra item / new items/NS Items</p> <p>No price variation clause shall be applicable to any extra item / new items/NS Items not originally included in the accepted Bill of Quantities / Pricing Document and for which the rates are fixed separately under Clause 13 of GCC.</p> <p>f) Adjustment on account of Price Variation:</p> <p>Adjustment on account of Price Variations may be positive (in which case extra amount shall be paid to the Contractor), or negative (in which case the amount of Price Variation shall be recovered from the Contractor). Adjustment on account of Price Variation shall be calculated separately, for each period, between two successive dates of measurements for bills and paid along with each bill or separately as claimed by the Contractor.</p> <p>After verifying the bill, the Engineer shall certify the adjustment amount and advise the same to the Employer along with the 'On</p>					

		<p>Account' bill. Should any extra amount be due to Contractor, the Employer shall pay the same as far as possible within 28 days of certification by Engineer. Any amount due from Contractor on account of negative adjustment shall be recovered from his pending or other bills at the earliest.</p> <p>g) Price Variation during extended period of completion:</p> <p>The price adjustment as worked out above i.e. either increase or decrease will be applicable up to the stipulated date of completion of the work including the extended period of completion where such extension has been granted under Sub-Clause 8.4 & 8.5 of GC or it is specifically mentioned that extension is with price variation also. However, where extension has been granted under Sub-Clause 8.7 of GC, price adjustment will be due as follows:</p> <p>In case the indices increase above the indices applicable to a bill made on the last date of original completion period or the extended period under Sub-Clauses 8.4 & 8.5 of GC, the price adjustment for the period of extension under Sub-Clause 8.7 of GC will be limited to the amount payable as per the indices applicable to a bill made on the last date of the original completion period or the extended period under Sub-Clauses 8.4 & 8.5 of GC as the case may be.</p> <p>In case the indices fall below the indices applicable to a bill made on the last date of the original or extended period of completion, then the lower indices will be adopted for Price Adjustment for the period of extension under Clause 8.4 & 8.5 of GC unless the extension has been granted due to Contractor's fault.</p>
42	<p>Sub-Clause 14.1, The Contract Price</p>	<p>Replace the GC Sub-Clause 14.1 with the provisions as under:</p> <p>(a) the Contract Price shall be the item rate and /or Lump sum Accepted Contract Amount. The Contract Price, subject to any adjustment thereto in accordance with the Contract shall be all inclusive (including all taxes, duties, royalties, GST.</p> <p>(b) the Contractor shall pay GST and all taxes, levies, duties, cess, royalty, rates 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];</p> <p>(c) NO change</p> <p>(d) Applicable to Lump sum contract price.</p> <p>(e) The Bidder/Contractor is required to note the following regarding Contract prices:</p> <p>i. The Contractor shall submit the proof of registrations under</p>

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		<p>various fiscal and labour laws like Income Tax, GST, Profession Tax, Central Excise, Import Export Code, Employee State Insurance, Provident Fund, Maharashtra Labour Welfare Fund, Local Body Tax (as the case may be) and shall submit an undertaking that he will get registered with the competent authority/ies for complying with various laws that are applicable.</p> <p>ii. The Contractor shall be solely responsible to find out and ascertain whether their supplies for Maha-Metro will qualify and be eligible for the concession duty benefits under Chapter 98.01 of custom Tariff Act for project Imports & shall manage the Custom Duty and Excise duty applicability and inclusion in their quoted price accordingly. After award of the Contract, Employer at the written request of a contractor shall facilitate the contractor for obtaining sponsoring / recommendation letter from the Ministry of Urban Development (MoUD) / GOM for getting themselves registered for availing Project Import benefits. However, the responsibility to avail the concessional benefits under Project Import or otherwise as extended in accordance with the law of the land shall solely rest with the Contractor.</p> <p>iii. Should the Employer, during execution of the contract, obtain a waiver of any taxes, if applicable, in full or part thereof, the Contractor will be advised on the process to be followed to obtain exemption /refund of such taxes, duties etc., from the concerned Authorities. In case of failure by the Contractor to obtain and remit the refund within reasonable time (to be decided by the Employer & intimated to contractor) to the Employer, the same will be recovered by the Employer from the amounts due as payment to the Contractor or as debt due from the Contractor. The decision of the Employer shall be final and binding. If the Contractor fails to take the required action to obtain refund or exemption, the Employer may take action in accordance with condition of Contract.</p> <p>iv. The Contractor shall maintain meticulous record of all the taxes and duties paid to various department in connection to this work and the same required to be submitted as and when required by the Employer.</p> <p>v. The Contractor also will have to submit 'No Dues Certificate' for the year / period as and when required by MAHA-METRO.</p> <p>vi. The full and final payment to Contractor will be made only after documents as required above are furnished by him and checked by MAHA-METRO.</p> <p>vii. <u>Customs and Excise:</u></p>
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		<p>a. Certificate from Chartered Accountant with regards to payment of Customs / Excise Duty with respect to imports / manufacture of materials for MAHA-METRO.</p> <p>b. Copy of challans in regard to deposit of tax and Import Documents to be furnished along with the bills.</p> <p>c. Any duty drawback, export / import incentive, concession / exemption available to the Contractor to be passed on to MAHA-METRO.</p> <p>viii. Labour Welfare Fund, ESI, PF and other labour related payments:</p> <p>a. Primary responsibility for payment statutory dues or other dues within stipulated time shall be primary responsibility of the Contractor.</p> <p>b. MAHA-METRO at no point of time shall be responsible for the same.</p> <p>c. Contractors shall certify on annual basis that there are no unpaid dues relating to persons working in MAHA-METRO project.</p> <p>d. MAHA-METRO has a right to recover any unpaid dues from the Contractor in the event of default at his part.</p> <p>ix. <u>Income tax</u></p> <p>a. All payments shall be subject to TDS provisions in force from time to time.</p> <p>b. The Bidders are expected to submit certificates from competent authorities for lesser / non-deduction of TDS.</p> <p>x. <u>Local Body Tax</u></p> <p>The Contractor shall certify on periodical basis that Local Body tax has been paid on all supplies to MAHA-METRO.</p>
43	Sub-Clause 14.2, Advance Payment	<p>Replace the GC Sub-Clause 14.2 with the provisions as under:</p> <p>The Employer shall make an advance payment, as an interest-free loan for mobilization 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.</p>
44	Sub-clause 14.2.1 Interest balance advance on	<p>Interest in case of delay in repayment of Advances</p> <p>a) Should there be delay in the progress and completion of work due to reasons attributable to the Contractor, as a result of which it is not possible to recover the advance amount within the assigned time</p>

	<p>payment (Additional clause)</p>	<p>period of completion, then the interest @ MCLR (One Year Rate) +2%, (Marginal Cost of Funds Based Lending Rate) of SBI, shall be recovered from the Contractor on balance advance amount for extended period of work till the re-payments of entire amount completes.</p> <p>b) MCLR shall be applicable at the prevailing rate on the date of payment of advance amount in Contractor's account.</p> <p>c) If the contract is terminated due to default of the Contractor, the 'Mobilization Advance' would be deemed as interest bearing advance @ MCLR +2%. The interest will be calculated from the first day of the month in which an advance is paid to the Contractor and it will be calculated up to the last day of the month in which the recovery is made.</p> <p><u>Failure of contractor to repay the Advance amount:</u></p> <ol style="list-style-type: none"> 1. If the Contractor fails to repay the advance amount within the stipulated period of repayment as described above in Sub-Clause no. 14.2 (b) or its further extension by Employer, in such events Employer is empowered to encash the Bank Guarantee submitted by Contractor against the Advance Payment. 2. Employer is also empowered to encash the Advance Bank Guarantee, if the Contract is terminated or foreclosed or whatever the reasons and Advance Amount is not repaid by Contractor
45	<p>Sub-Clause 14.7, Payment</p>	<p>Add following at the end of the Sub-Clause GC 14.7:</p> <ol style="list-style-type: none"> a) The Employer may, at its sole discretion, authorise the Engineer to perform the functions of Employer specified in the GC Clause 14.7. The Employer may advise arrangements for direct payment by the Bank. The procedure to be followed for such direct payment by the Bank shall be advised to the Contractor by the Engineer. b) If and to the extent that the Pricing Document expressly specifies in relation to a Cost Centre that the Contractor is entitled to payment in a currency other than Indian Rupees, or the Engineer makes a determination of Cost in a currency other than Indian Rupees, all such payments shall be made in the relevant foreign currency. c) In calculating the amount payable to the Contractor for the Rupee portion, for each item, sums of less than Fifty Paise shall be omitted and sums of Fifty Paise and more, up to one Rupee, shall be reckoned as one Rupee. The net payments in foreign currencies, if applicable, shall also be rounded off to 'zero' decimal places.

		<p>d) All payments to the Contractor for the Rupee portion shall be made by crossed cheque / RTGS/NEFT or appropriate on line payment method, but no cheque will be issued for an amount of less than Rs. 1000/-. This shall not apply to the final payment.</p> <p>e) All payments to the contractor for the foreign currency portion shall be through a Letter of Credit. All bank charges of Employer's Banker shall be borne by the Employer and that of Contractor's Banker shall be borne by the Contractor. The charges towards confirmation (if required by the Contractor) shall be borne by the contractor. Extension of validity of L/C need is not envisaged. However, should be validity of L/C need to be extended, for reasons solely attributable to Employer, the charges for such extension will be borne by the Employer. In all other cases, L/C charges for extension or otherwise shall be borne by the Contractor.</p> <p>f) Payment procedure shall be as under:</p> <p>i. The Contractor shall submit preferably the monthly bill for payment to the Engineer.</p> <p>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.</p> <p>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.</p> <p>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.</p>
46	<p>Sub-Clause 14.8 – Delayed Payment</p>	<p>Replace the GC Sub-Clause 14.8 with the provisions as under:</p> <p>(a) If the Contractor does not receive payment / certificate for acceptance of payment in accordance with GC and PC Clause 14.7 above, the Contractor shall be entitled to receive interest on the amount unpaid during the period of delay. This period of delay shall be deemed to commence from the first working day after 56 calendar days from the date of issue of the Interim Payment Certificate.</p> <p>(b) The interest shall be calculated at an interest @ MCLR (One Year Rate) (Marginal Cost of Funds Based Lending Rate) of SBI.</p> <p>(c) Rate of MCLR (One Year Rate) shall be applicable of first</p>

		<p>working day after 56 calendar days from the date of issue of the Interim Payment Certificate.</p> <p>(d) The Contractor shall submit their claim for the interest for the above period of delay along with detailed reasons for the said delays to the Engineer within 14 days of the expiry of the 56 days period. The claimed interest shall be payable to the Contractor only if it is determined by the Engineer that the delays are solely attributable to the Employer.</p>
47	Sub-Clause 14.9	<p>Replace the GC Sub-Clause 14.9 with the provisions as under:</p> <p>(a) Release of Retention Money (Not applicable in this tender)</p> <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. 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 proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.</p> <p>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.</p> <p>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].</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 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 scheduled Indian/Foreign bank in India acceptable to the Employer, 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</p>

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		<p>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.</p> <p>(b) Release of Performance Security / Performance Bank Guarantee</p> <p>The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate. (i.e. successful completion of Defect Liability Period (DLP))</p>
48	Sub-Clause 14.15 Currencies of Payment	In item no. (e) of Sub-Clause 14.15 the “Central Bank of the country” would mean the Reserve Bank of India and the base date will be the date of submission of the bill.
49	Sub-Clause 14.16 (Additional sub-clause)	<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, liquidated damages) 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> <p>When the Contractor has assigned to a third party the right to receive monies due, or, to become due, under the Contract to the Contractor or charged such monies in favour of a third party, the Employer's right to deduct damages (including without limitation liquidated damages), costs, charges, expenses, debts or sums for which the Contractor is liable to the Employer from monies due to the Contractor under the Contract shall be limited to the right expressed above.</p>
50	Sub-Clause 15.2 Termination By Employer	<p>Add the following at the end of this sub-clause:</p> <p>(g) On termination of contract due to Contractor's default the performance security shall be forfeited by encashing the bank guarantee/FDR/TDR/Cash retention or Performance security in any other form (as the case may be) and the balance work shall be got done independently without risk and cost of the failed Contractor. The failed Contractor shall be debarred from</p>

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		<p>participating in the tender for executing the balance work. If the failed contractor is a JV or a partnership firm, then every member/partner of such JV or partnership firm shall be debarred from participating in the tender for the balance work either in his/her individual capacity or as a partner of any other JV/partnership firm.</p> <p>(h) 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 or by calling quotations. In such case, the addition financial implications (if any) shall be debited/ recovered from the any monies due to contractor and/or performance security.</p> <p>(i) If contractor submits fake/ forged/ fabricated documents/ false, incorrect, misleading information / data/ design, either during the bidding or thereafter during execution of the work or after completion but before the final bill, the contract can be terminated and appropriate action in terms of forfeiture of performance guarantee/ security deposit retention money/ EMD/ bid security shall be done and blacklisting of contractor may be done by employer.</p>
51	<p>Sub-Clause 16.1, Contractor's Entitlement to Suspend Work</p>	<p>Replace the GC Sub-Clause 16.1 with the provisions as under:</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 14.7 [Payment], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of progress 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>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>

		<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:</p> <p>(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</p> <p>(b) payment of any such Cost plus profit, which shall be included in the Contract Price.</p> <p>After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p>
52	<p>Sub-Clause 16.2, Termination by Contractor</p>	<p>Replace the GC Sub-Clause 16.2 with the provisions as under:</p> <p>The Contractor shall be entitled to terminate the Contract if:</p> <p>(a) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,</p> <p>(b) 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]),</p> <p>(c) 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,</p> <p>(d) the Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment],</p> <p>(e) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or</p> <p>(f) 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.</p> <p>(g) 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].</p>

		<p>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 (e) or (f), the Contractor may by notice terminate the Contract immediately.</p> <p>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.</p> <p>The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.</p>
53	<p>Sub-clause 17.1 – Indemnities</p>	<p>Replace the GC Sub-Clause 17.1 with the provisions as under:</p> <p>“The Contractor shall indemnify and hold harmless the Employer (MAHA-METRO), the Engineer, the Designated Contractors, representatives and employees from and against all actions, suits, proceedings, claims, damages, losses, expenses and demands of every nature and description, by reasons of any act or omissions of the Contractor, his representative or his employees in the execution of the Works, including professional services provided by the Contractor or in the guarding the same.</p> <p>These indemnification obligations shall include but not be limited to claims, damages, losses, damage proceedings, charges and expenses which are attributable to:</p> <ul style="list-style-type: none"> a) sickness, or disease, or death of, or injury to any person; and b) loss of, or damage to, or destruction of any property (other than the Works) including consequential loss of use; and c) loss, damage or costs arising from the carriage of Plant, Rolling Stock and Materials and/or ownership or chartering of marine vessels by the Contractor, or any sub-contractor of any tier. <p>The Contractor shall also indemnify and save harmless the Employer from and against all claims and proceedings on account of infringements of patents rights, design, trademark name etc as detailed out in the GC.</p> <p>All sums payable by way of compensation under these conditions shall be considered reasonable compensation payable to the Employer,</p>

		<p>without reference to the actual loss or damage sustained, and whether or not any damage shall have been sustained.</p> <p>The decision of the Engineer as to compensation claimed shall be final and binding.”</p>
54	Sub-Clause 17.3,Employer’s Risks	<p>Replace the GC Sub-Clause 17.3 with the provisions as under:</p> <p>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:</p> <ul style="list-style-type: none"> (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies, (b) rebellion, terrorism, sabotage/ lockdown/ lockup by persons other than the Contractor’s Personnel, revolution, insurrection, military or usurped power, or civil war, (c) riot, commotion, disorder, strike or lockout/ lockdown 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) use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract, (f) design of any part of the Works by the Employer’s Personnel or by others for whom the Employer is responsible, and (g) 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 like epidemic/ pandemic, unprecedented and unpredictable adverse natural conditions.
55	Sub-Clause 17.4, Consequences of Employer’s Risks	<p>Replace the GC Sub-Clause 17.4 with the provisions as under:</p> <p>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.</p> <p>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:</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

		<p>Completion], and</p> <p>(b) payment of any such Cost, which shall be included in the Contract Price.</p> <p>After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p>
56	Sub-Clause 17.7 Use of Employer's Accommodation /Facilities	No accommodation/ facilities shall be provided by employer.
57	Sub-Clause 18.1 General Requirement for Insurances	<p>Add the following at the end of this sub-clause:</p> <p>The Contractor shall obtain all insurances required in the Contract from Insurance companies operating in India in the name of Maharashtra Metro Rail Corporation Limited as a prime beneficiary.</p> <p>Insurances to cover risks within India as well as Marine and Transit Insurances shall invariably be effected with an Indian Insurance Company.</p>
58	Sub-Clause 18.2 Insurance for Works and Contractor's Equipment	<p>Replace the following:</p> <p>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 excluding the risks listed in Sub-Clause 17.3 [Employer's Risks] and also 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</p> <p>Add the following at the end of this sub-clause:</p> <p>f) The insurance shall be obtained by contractor as an insuring party but the prime beneficiary shall be employer (Maharashtra Metro Rail Corporation Limited).</p> <p>g) The Contractor shall take Comprehensive All Risk (CAR) insurance policies duly covering Marine/Transit, Erection cum Storage insurance of cars for value equivalent to the contract value with deductibles not exceeding one (01) percent value. Insurance policy shall be valid till three months after expiry of DLP. The policy shall include insurance for the complete contract value.</p>
59	Sub-Clause 19.1, Definition of Force Majeure	<p>Replace the GC Sub-Clause 19.1 with the provisions as under:</p> <p>In this Clause, "Force Majeure" means an exceptional event or circumstance:</p>

		<p>(a) which is beyond a Party's control,</p> <p>(b) which such Party could not reasonably have provided against before entering into the Contract,</p> <p>(c) which, having arisen, such Party could not reasonably have avoided or overcome, and</p> <p>(d) which is not substantially attributable to the other Party.</p> <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> <ol 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/ lockdown 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. vi. 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 like epidemic/ pandemic, unprecedented and unpredictable adverse natural conditions.
60	<p>Sub-Clause 19.4,</p> <p>Consequences of Force Majeure</p>	<p>Replace the GC Sub-Clause 19.4 with the provisions as under:</p> <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> <ol 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-Clause

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		<p>19.1 [Definition of Force Majeure] 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> <p>After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p>
61	Sub-clause 19.6: Optional Termination, Payment and Release	<p>Replace "84 days" and "140 days" mentioned in the sub-clause with "184 days" and "340 days" respectively.</p>
62	Sub-Clause 20.1 Procedure of claim	<p>Replace the GC Sub-Clause 20.1 with the provisions as under</p> <p>If the Contractor intends to claim any additional payment under any clause of these Conditions or otherwise, the contractor shall give notice to the Engineer as soon as possible and in any event within 28 days of the start of the event giving raise to the claim.</p> <p>The Contractor shall keep such contemporary records to substantiate any claim, either on the Site or at any other location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer shall, on receipt of such notice, inspect such records and may instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all such records, and shall (if instructed) submit copies to the Engineer.</p> <p>Within 28 days of such notice, or such other time as may be agreed by the Engineer, the Contractor shall send to the Engineer an account, giving detailed particulars of the amount and basis of the claim. Where the event giving rise to the claim has a continuing effect, such amount shall be considered as interim. The Contractor shall then, at such intervals as the Engineer may reasonably require, send further interim accounts giving the accumulated amount of the claim and any further particulars. Where interim accounts are sent to the Engineer, the Contractor shall send a final account within 28 days of the end of the effects resulting from the event.</p> <p>If the Contractor fails to comply with this Sub-Clause, he shall not be entitled to claim any additional payment.</p> <p>Payment for claims: The Contractor shall be entitled to have included in any Interim Payment Certificate such amount for any claim as the Engineer considers due, after taking approval from the Employer. If the particulars supplied are insufficient to substantiate the whole of the</p>

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		claim, the Contractor shall be entitled to payment for such part of the claim as has been substantiated.
63	Sub-Clause 20.2 Appointment of Dispute Board	Provision of dispute board is not applicable in this tender.
64	Sub-Clause 20.3 No legal action till Dispute Settlement Procedure is exhausted	Any and all Disputes shall be settled in accordance with the provisions of Clause 20. No action at law concerning or arising out of any Dispute shall be commenced unless and until all applicable Dispute resolution procedures set out in Clause 20 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.
65	Sub-Clause 20.4 Notice of Dispute	For the purpose of Sub-Clause 20.5, 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 28 days after the date of issue of Performance Certificate by the Engineer.
66	Sub-Clause 20.5 Two stages for Dispute Resolution	Disputes shall be settled through two stages: <ul style="list-style-type: none"> a. 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; b. Arbitration procedures undertaken as provided by "The Arbitration and Conciliation Act -1996" (as amended from time to time) and in accordance with this Clause.
67	Sub-Clause 20.6 Conciliation	<p>Within 60 days of receipt of Notice of Dispute, either party shall refer the matter in dispute to conciliation.</p> <p>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.</p> <p>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.</p>
68	Sub-Clause 20.7 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

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		<p>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.</p> <p>There will be no objection if conciliator so nominated is a serving employee of MAHA-METRO who would be Deputy level officer and above.</p> <p>The Employer and the Contractor shall in good faith co-operate with the Conciliator and, in particular, shall endeavor 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.</p> <p>When it appears to the Conciliator that there exist elements of a settle which may be acceptable to the parties, he shall formulate the terms possible settlement and submit them to the parties for their observations, receiving the observations of the parties, the Conciliator may reformulate the terms of a possible settlement in the light of such observations.</p> <p>If the parties reach agreement on a settlement of the dispute, they 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.</p> <p>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 receipt of notice by the Conciliator.</p>
69	Sub-Clause 20.8 Termination of Conciliation Proceedings	<p>The parties shall not initiate, during the conciliation proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.</p> <p>The conciliation proceedings shall be terminated:</p> <ol style="list-style-type: none"> 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 further efforts at conciliation are no longer justified, on the date of 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.

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		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.
70	Sub-Clause 20.9 Arbitration	<p>If the efforts to resolve all or any of the disputes through conciliation fails, then such dispute or differences, whatsoever arising between the parties, arising out of touching or relating to construction/ manufacture, measuring operation or effect of the Contract or the breach thereof shall be referred to Arbitration in accordance with the following provisions:</p> <p>a. Matters to be arbitrated upon shall be referred to a sole Arbitrator if the total value of the claim is up to Rs.5 million and to a panel of three Arbitrators if total value of claims is more than Rs.5 million. The Employer shall provide a panel of three arbitrators which may also include MAHA-METRO officers for the claims up to Rs.5 million and a panel of five Arbitrators which may also include MAHA-METRO officers for claims of more than Rs.5 million. The Contractor shall have to choose the sole Arbitrator from the panel of three and/or one Arbitrator from the panel of five in case three Arbitrators are to be appointed. The Employer shall also choose one Arbitrator from this panel of five and the two so chosen will choose the third arbitrator from the panel only. The Arbitrator(s) shall be appointed within a period of 30 days from the date of receipt of written notice/ demand of appointment of Arbitrator from either party. Neither party shall be limited in the proceedings before such arbitrator(s) to the evidence nor did arguments put before the Engineer for the purpose of obtaining his decision. No decision given by the Engineer 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. The arbitration proceedings shall be held in Nagpur only. The language of proceedings that of documents and communication shall be English.</p> <p>b. 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 Arbitrator nominated in the panel along with their professional experience, phone nos. and addresses to the contractor.</p> <p>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. The award shall be made claim wise and will be a speaking award.</p>
71	Sub-Clause	Where the arbitral award is for the payment of money, no interest shall

SECTION IX: Particular Condition of Contract

	20.10: Interest on Arbitration Award	be payable on whole or any part of the money for any period, till the date on which the award is made.
72	Sub-Clause 20.11: Arbitration from Time to Time	The cost of arbitration shall be borne by the respective parties. The cost shall, inter alia, include the fees of the Arbitrator(s) as per rates fixed by the Employer
73	Sub-Clause 20.12: Jurisdiction of courts	Where recourse to a Court is to be made in respect of any matter, the jurisdiction of court shall be: High Court of Judicature at Bombay – Nagpur Bench, Nagpur.
74	Sub-Clause 20.13: Suspension of Work on Account of Arbitration	The reference to Conciliation / Arbitration shall proceed not withstanding 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.
75	Sub-Clause 20.14: Notice of Contractor	<p>a. All notices to the Contractor, shall be served by post or telex or telefax or by hand to the Contractor or his authorized representatives. In case of notices delivered by post, they will be deemed to have been delivered after 7 days of dispatch.</p> <p>b. The Contractor shall, on award of the Contract, furnish to the Engineer, the name, designation, address and telephone, telex and telefax numbers and e-mail address of his representative referred above.</p>
76	Sub-Clause 20.15: Notice to Employer & Engineer	All notices to the Employer or Engineer shall be served by post or telex or telefax, or by delivering by hand to the address nominated for the purpose.
77	Sub-Clause 20.16: Change of address	Parties to the contract may change the nominated address by employer with a notice to all concerned.
78	Additional Clause: Work by persons other than the Contractor	<p>Work by persons other than the Contractor</p> <p>If the Contractor shall fail to carry out any work required under the Contract or refuse to comply with any instruction or order given by the Engineer in accordance with the Contract within a reasonable time, the Engineer may give the Contractor 14 days' notice in writing to carry out such work or comply with such instruction. If the Contractor fails to comply with such notice, the Employer shall be entitled to carry out such work or instruction by his own workmen or by other contractors. Without prejudice to any other right or remedy, all additional</p>

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		<p>expenditure properly incurred by the Employer in having such work or instruction carried out shall be recoverable by the Employer from the Contractor.</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, in the opinion of the Engineer, be urgently necessary and the Contractor is unable or unwilling at once to do such remedial or other work, the Engineer may authorize the carrying out of such remedial or other work by a person other than the Contractor. If the remedial or other work so authorized by the Engineer is work, which, in the Engineer's opinion, the Contractor was liable to do under the Contract, all expenses properly incurred in carrying out the same shall be recoverable by the Employer from the Contractor. Provided that the Engineer shall, as soon after the occurrence of any such emergency as may be reasonably practicable, notify the Contractor thereof in writing.</p>
79	Additional Clause: Training of Contractor's employees / staff / workers	<p>The Contractor shall provide a training / workshop on Safety, Health and Environment (SHE) to all its workers / employees / subcontractors of atleast 2 weeks (96 hours) at the time of induction. Before posting any of his workers / staff / employees / subcontractors, the Contractor shall give a certificate that the said person had undergone the requisite SHE training. Non-compliance of the above will invoke penalties as per conditions of contract on SHE.</p>
80	Additional clause: Confidentiality of Information	<p>Confidentiality of Information</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> <p>The Employer, Engineer and any third party to whom an assignment has been made in accordance with Sub-clause 1.7 of General Conditions of Contract may use any information provided by the Contractor in accordance with the Contract. The Employer shall use reasonable endeavours to ensure that the Engineer and any third party- referred to in aforesaid Sub-Clause 1.7 shall not, divulge such information except for any purpose connected with the Contract.</p>
81	Additional Clause: Maintaining the Site	<p>In general the cleanliness, lighting, safety, security, drinking water, first aid etc. will be the responsibility of the civil contractor as specified in the interface document.</p> <p>The Contractor shall be responsible for maintaining the site. The daily sweeping and cleaning of the area under his possession/work shall be his responsibility.</p>

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		In case of repeated aberrations notices by the Engineer, a minimum penalty of Rs. 5000/- shall be imposed for each instance.
82	Additional Clause: EIA & SIA	The Employer will engage suitable agencies for performing Environmental Impact Assessment and Social Impact Assessment due to the Project. These agencies will suggest appropriate monitoring mechanism as well as mitigation measures for implementation by MAHA-METRO. The Contractor will be required to implement these measures as part of its obligation under SHE Manual / other relevant conditions. In case, implementing these measures are beyond the scope of work as detailed in Bidding Documents, the same shall be taken up as a Variation.
83	Additional Clause: Interface Requirements	The Contractor shall be responsible to interface with the other contractors as per the interface table provided in the contract. Employer will supervise/facilitate the coordination between the Contractor and other designated contractors. However, the Contractor will allow for liaison with, and modifications to his design to cater for the work of such other contractors. The list of interface items is indicative only and the ultimate responsibility of commissioning lies with the Contractor.
84	Additional Clause: Part Termination	The Contractor shall be responsible for site progress for meeting the deadlines set by the Engineer for meeting the key dates/ROD. In the event of failure of the Contractor in the opinion of the Engineer for performance of any part activity, Employer reserves the right to notify the Contractor and if Contractor does not improve in the next 15 days, Employer may decide to off-load the part of the work and get this work done through other contractors. The additional cost of the work, if any, incurred by the Employer shall be recovered from the Contractor's payment
85	Pre-Completion Incentives	The bidder will be eligible for incentive payment at the rate of INR 50000 (Fifty Thousand) / day , if he completes the work in all respects and certified by the Engineer to that effect, earlier reckoned from the date of scheduled completion date stipulated in the agreement, subjected to a maximum of INR 25 Lakhs . Engineer's decision in regard to payment of incentive and the amount thereof shall be final and binding on the contractor, without any right to appeal. This incentive clause is not tenable in case of grant of EOT due to any reason whatsoever.
86	Site Mobility	Refer Annexure-IX-A
87	Site Office for Employer	Refer Annexure-IX-A

Appendix 1 to Particular Conditions of Contract

Corrupt and Fraudulent Practices Policy

The Employer, the Implementing Agency and the contractors, suppliers or consultants must observe the highest standard of ethics during contract procurement and performance.

By signing the Statement of Integrity (form available as Appendix to Letter of Bid) the contractor, supplier or consultant declares that (i) *“it did not engage in any practice likely to influence the contract award process to the Employer's detriment, and that it did not and will not get involved in any anti-competitive practice”*, and that (ii) *“the negotiation, the procurement and the performance of the contract did not and shall not give rise to any act of corruption or fraud”*.

Moreover, the Agency requires including in the Bidding Documents and Agency-financed contracts a provision requiring that bidders and contractors, suppliers and consultants will permit the Agency to inspect their accounts and records relating to the procurement and performance of the Agency-financed contract, and to have them audited by auditors appointed by the Agency.

The Agency reserves the right to take any action it deems appropriate to check that these ethics rules are observed and reserves, in particular, the rights to:

- i. reject a proposal for a contract award if it is established that during the selection process the bidder that is recommended for the award has been convicted of corruption, directly or by means of an agent, or has engaged in fraud or anti-competitive practices in view of being awarded the Contract;
- ii. declare misprocurement when it is established that, at any time, the Employer, the contractor, the supplier, the consultant or its representatives have engaged in acts of corruption, fraud or anti-competitive practices during the contract procurement or performance without the Employer having taken appropriate action in due time satisfactory to the Agency to remedy the situation, including by failing to inform the Agency at the time they knew of such practices.

The Agency defines, for the purposes of this provision, the terms set forth below as follows:

(a) Corruption of a public officer means:

- the act of promising, offering or giving to a public officer, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such public officer to act or refrain from acting in his official capacity; or
- the act by which a public officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such public officer to act or refrain from acting in his official capacity.

(b) A *“public officer”* shall be construed as meaning

- any person who holds a legislative, executive, administrative or judicial mandate (within the State of the Employer) regardless of whether that person was nominated or elected, regardless of the permanent or temporary, paid or unpaid nature of the position and regardless of the hierarchical level the person occupies;

SECTION IX: Particular Condition of Contract

- any other person who performs a public function, including for a State institution or a State-owned company, or who provides a public service;
 - any other person defined as a public officer by the national laws of the Employer.
- (c) Corruption of a private person means:
- the act of promising, offering or giving to any person other than a public officer, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations; or
 - the act by which any person other than a public officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations.
- (d) Fraud means any dishonest conduct (act or omission), whether or not it constitutes a criminal offence, deliberately intended to deceive others, to intentionally conceal items, to violate or vitiate consent, to circumvent legal or regulatory requirements and/or to violate internal rules in order to obtain illegitimate profit.
- (e) Anti-competitive practices means:
- any concerted or implied practices which have as their object or effect the prevention, restriction or distortion of competition within a marketplace, especially where they (i) limit access to the marketplace or free exercise of competition by other undertakings, (ii) prevent free, competition-driven price determination by artificially causing price increases or decreases, (iii) restrict or control production, markets, investments or technical progress; or (iv) divide up market shares or sources of supply.
 - any abuse by one undertaking or a group of undertakings which hold a dominant position on an internal market or on a substantial part of it.
 - any practice whereby prices are quoted or set unreasonably low, the object of which is to eliminate an undertaking or any of its products from a market or to prevent it from entering the market.

ANNEXURE-IX-B

List of approved Laboratories

1. VNIT, REGIONAL ENGINEERING COLLEGE, NAGPUR.
2. P.W.D., NAGPUR REGION, NAGPUR.
3. GOVT. POLYTECHNIC, SADR, NAGPUR.
4. GEOTECH SERVICES, X18, MIDC, Hingna Industrial estate, Nagpur
440016
5. GEOSYSTEM RESEARCH & CONSULTANTS INDIA PVT. LTD., M 1 & M2,
Pushpkunj Commercial Complex, Central Bazaar Road, Nagpur.
6. Anandjiwala Technical Consultancy, P-119, MIDC Industrial area,
Hingna, C/o DTC Chambers, Wadi, Nagpur-440028

Annexure-IX-C

LIST OF APPROVED MANUFACTURERS / VENDORS

All materials and products shall conform to the relevant standards/specifications of IS code, BS Code etc. and shall be of approved make and design. A list of manufacturers / vendors is given herein below for guidance. The approval of a manufacturer/vendor shall be given only after review of the sample / specimen by the Engineer. The complete system and installation shall also be in conformity with the – **“Applicable Codes, Standards and Publications”**.

List of approved makes for products and materials is given below. Other equivalent manufacturers may be considered with prior approval.

.No.	Details of Materials/Products	Manufacturer’s Name
1.	Epoxy / Polyester resin For fixing anchor fasteners in soffits	“Lokset” of Fosroc Chemicals (India) Limited, STP MBT Apple chemie
2.	Fire stop Sealant	<ul style="list-style-type: none"> • Dow Corning’s “Firestop Sealant 700: by • Universal Silicones Lubricants Pvt Ltd. • GE Silicone’s Pensil 300 Fire stop Sealant”
3.	Ply wood	<ul style="list-style-type: none"> • Uniply • Europly • Archidply • Century ply • Hunsurply • Corbett • Duroply (Green marked, BWR Grade) of Sarda Plywood Industries Ltd., • Green Plywood Kitply
4.	Block board	<ul style="list-style-type: none"> • Uniply • Euro Board • Green blockboard • Century board • Archid blockboard • Duroboard of Sarada Plywood • Bhutan Board

5.	Veneers	<ul style="list-style-type: none"> • Greenply • Euro make • Jackson • Timex • Legend • Sarda Plywood Industries Ltd.
6.	Burl Veneer	<ul style="list-style-type: none"> • Green • Euro make • Jackson • Venture Enterprise • Kitply Industries Ltd.
7.	Adhesive	<ul style="list-style-type: none"> • “Pidilite • Araldite • Jivanjor • Apple chemie
	Cement based Adhesive	<ul style="list-style-type: none"> • Ultratech
8.	Flush Doors	<ul style="list-style-type: none"> • Kutty, • Karnataka State forest department, • Green, Decorative Duroply (Green marked), • Kitply
9.	Plastic Laminates	<ul style="list-style-type: none"> • Formica • Greenlam • Vir • Sundeck • Neoluxe • Bakelite Hylam
10.	Aluminium Sections	<ul style="list-style-type: none"> • Indian Aluminium Co. • Hindustan Aluminium / • Jindal, • Boruka
11.	Aluminium Composite Panel	<ul style="list-style-type: none"> • Flexibond • Alucobond • AluKbond • Eurobond • AlucoPanel
12.	Float Glass/Toughened Glass Insulating Glass	<ul style="list-style-type: none"> • Float Glass India Ltd • Modiguard • Saint Gobain • Belgium glass Ltd

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13.	Bevelled and Embossed Glass/Mirrors	<ul style="list-style-type: none"> • Gujarat Guardian Ltd. • Modi • Saint Gobain
14.	Powder Coatings	<ul style="list-style-type: none"> • Berger • Nerocoat • Jenson & Nicholson
15.	Asphalt Emulsion	<ul style="list-style-type: none"> • Karnak Chemical Corporation • STP
16.	Tile Joint Filler	<ul style="list-style-type: none"> • Bal Adhesives & Grouts • “Roff Rainbow Tile mate” of Roff construction Chemicals Pvt Ltd. • Winsil 20/Silicon Sealant of GE Bayer Silicon • “Zentrival FM” of MC-Bauchemie (IndiaPvt Ltd) • Apple Chemie • BASF
17.	PVC Tile Spacers	<ul style="list-style-type: none"> • Kajaria Ceramics Limited • Arpitha Exports
18.	Heavy Duty Chequered Tiles	<ul style="list-style-type: none"> • NITCO • Modern Tiles
19.	Ceramic Tiles	<ul style="list-style-type: none"> • Kajaria • Bell • Spartek • Goldcoin • Johnson • Somany • RAK Ceramics • Murudeshwar Ceramics
20.	Vitrified Tiles	<ul style="list-style-type: none"> • “Naveen Diamontile” of Murudeshwar Ceramics Ltd. • “Granamite” of Restile Ceramics Limited • “Marbo Granit” of Bell Granito Ceramica Ltd • Johnson Tiles • Somany Tiles
21.	Marble blended Vinyl Tiles/Sheet	<ul style="list-style-type: none"> • Armstrong of Inarco Ltd • Terkett Floorings • Krishna Vinyl

22.	Glass Mosaic Tiles	<ul style="list-style-type: none"> • Mridul Enterprises • Italia • Palladio
23.	Marble Mosaic Tiles	<ul style="list-style-type: none"> • Nitco • Basant Tiles
24.	Aluminum Linear Ceiling	<ul style="list-style-type: none"> • Luxalan • Interarch • J C Industries • Hunter Douglas • Fundermax • Armstrong
25.	Steel Panel Ceilings	<ul style="list-style-type: none"> • Interarch • Armstrong • Metckaft
26.	Resin Bonded Glass Wool	<ul style="list-style-type: none"> • Rockloyd • Kingsway • LLYOD Insulations (INDIA) Ltd.
27.	MS Tubes	<ul style="list-style-type: none"> • Tata • Lloyd Metal & Engineering Co. • NSL Limited
28.	Modified Bituminous	<ul style="list-style-type: none"> • “Multiplas Standard” of Integrated Waterproofing Membrane Limited • “SUPER THERMOLAY”/”POLYFLEX’ of STP Limited . • “LOTUS-3” of the Structural Waterproofing Co. Limited • “HEAVY DUTY POLYPLY” of Ana Roofings Private Ltd • Apple chemie • Shell • Hincola
29.	Epoxy Putty	<ul style="list-style-type: none"> • “Techoxy” by Choksey Chemicals Pvt Ltd. • Apple chemie
30.	Polysulphide Sealants	<ul style="list-style-type: none"> • Pidilite Industries Ltd . • STP • Fosroc • Choksey • Apple chemie

31.	Silicone Sealants	<ul style="list-style-type: none"> • G.E. Bayer Silicone • Dow Corning • Waclear
32.	Sealant Joints	<ul style="list-style-type: none"> • Watson Bowman Acme Corporation • “Silpray” of G.E. Bayer Silicare
33.	Paints	<ul style="list-style-type: none"> • I.C.I. • Berger • Jonson & Nicholson • Asian Paints • Dulux • Nerolac • Surfa
34.	Emulsion Paint	<ul style="list-style-type: none"> • ICI • Dulux Velvet • Luxol Silk • Jonson & Nicholson • Asian Paints • Dulux • Nerolac • Surfa
35.	Synthetic Enamel	<ul style="list-style-type: none"> • I.C.I. • Berger • Jonson & Nicholson • Asian Paints • Dulux • Nerolac • Surfa
36.	Texture Paints	<ul style="list-style-type: none"> • Spectrum • Unitile • Surfa • Birla
37.	Polyurethane Paint	<ul style="list-style-type: none"> • MRF • Berger
38.	Wax Polish	<ul style="list-style-type: none"> • Reckitt & Colman • Asian • Berger
39.	Melamine	<ul style="list-style-type: none"> • ICI Delux Timberstone Melamine Coating • Asian / • Berger

40.	Membrane Water Proofing	<ul style="list-style-type: none"> • Padmaja Engineering Services, INC • Bitumat • Apple Chemie
		<ul style="list-style-type: none"> • BASF • Pidilite
	Cement based water proofing	<ul style="list-style-type: none"> • Ultratech
41.	Cement Bonded Particle Board	<ul style="list-style-type: none"> • Bison Panel Board • Everest Industries
42.	Stainless Steel Railings	<ul style="list-style-type: none"> • Salem Steel • Jindal Stainless steel • GM 2 metal works • Entarchcon Infratech Pvt. Ltd.
43.	Raised (Access) Floor / Cavity floor	<ul style="list-style-type: none"> • Hewetson • United Insulation • Proactive Systems • Universal Infrastructure Systems
44.	Fire Check Doors	<ul style="list-style-type: none"> • Godrej • Shakthi Hormann Pvt.Ltd.
45.	Pressed Steel Door Frames	<ul style="list-style-type: none"> • Deccan Structural Systems Pvt. Ltd, • Agew • San-Harvic
46.	Ceramic Claustra	<ul style="list-style-type: none"> • Scindia Potteris
47.	Interlocking Paving Tiles	<ul style="list-style-type: none"> • Pavestone Marketing Pvt Ltd • Nitco Marble & Granite Pvt. Ltd
48.	Ashford Formula	<ul style="list-style-type: none"> • JB Associates
49.	Eleganstone	<ul style="list-style-type: none"> • Bubna Commodities (P) Ltd
50.	Roc Wool	<ul style="list-style-type: none"> • Lloyd Insulation (India) Ltd • ROCKWOOL
51.	Cavity Block	<ul style="list-style-type: none"> • Apco Concrete Block • Besser Concrete Systems Ltd • Sobha Concrete Products
52.	AAC Blocks	<ul style="list-style-type: none"> • Hyderabad Industries Ltd • Ballarpur Industries Ltd • Ultratech
53.	Cement concrete designer tile	<ul style="list-style-type: none"> • Eurocon tiles, • Duracrete • Ultra tiles.
54.	Polycarbonate sheets	<ul style="list-style-type: none"> • GE Plastics (Lexan) • Tuflite

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55.	Iron Mongery	<ul style="list-style-type: none"> • Dorma • Ozone
		<ul style="list-style-type: none"> • Kich • Yale • Dorset • Henderson • Ebco
56.	AAC Block joint adhesive	<ul style="list-style-type: none"> • Ultratech • Apple Chemie
57.	Readymade Plastering	<ul style="list-style-type: none"> • Ultratech • Apple Chemie
58.	Cement base grouting	<ul style="list-style-type: none"> • Ultrateh • Apple Chemie • BASF
59.	Baffel Celing	<ul style="list-style-type: none"> • Armstrong • Hunter Douglas
60.	Exterior cladding	<ul style="list-style-type: none"> • Hunter Douglas • Fundermax
61.	Perforated metal ceiling	<ul style="list-style-type: none"> • Hunter Douglas • Fundermax • Armstrong
62.	Glass Dome	<ul style="list-style-type: none"> • Entrachcon Infratech Pvt. Ltd.
63.	Tensile Roofing	<ul style="list-style-type: none"> • Saint Gobain
64.	Roof Latches	<ul style="list-style-type: none"> • LATCHWAYS
65.	AL Roof Vents	<ul style="list-style-type: none"> • Agaris Airvent Systems
66.	Roofing 1. Galvalume 2. Zinalume	<ul style="list-style-type: none"> • Tata Blue Scope • JSW Steel • LLYOD Insulations (INDIA) Ltd. • VM Zinc • VIJAYANATH • LLYOD Insulations (INDIA) Ltd. • Tata Blue Scope
67.	Toilet Cubicles	<ul style="list-style-type: none"> • Macro Enterprises
68.	Tactile Flooring	<ul style="list-style-type: none"> • Johnson Tiles
69.	CEM Board	<ul style="list-style-type: none"> • USG Boral • NCL

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70.	Calcium Silicate Board	• Promat
71.	AL windows & Glazing	AJIT INDIA (Madras) Pvt. Ltd.
72.	Cement	ACC, Ultratech, Gujarat, Ambuja, Grasim, JK Lakshmi
73.	Reinforcement Bars	SAIL Plants, Rashtriya Ispat Nigam Ltd. Vizag Steel Plant, , Tata Steel , Ispat Industries , JSW Steel
74.	Epoxy	FOSROC, SIKA QUALCRETE, Araldite, BASF
75.	Expansion Joints	Prequalified Manufacturers as per RDSO's latest approved list or as approved by NMRCL.
76.	Admixtures	FOSROC, MBT. MC Baucheme, Sika, APEX, Pidilite, BASF
77.	Pile Integrity Testing Agency	CBRI. Pile Dynamic. AIMIL, Geo dynamic.
78.	Anchor Fastener	HILTi. FISHER, BAUCH
79.	Structural Steel	TATA, SAIL, ESSAR, Jindal Steel & Power Ltd, JSW
80.	Stainless Steel	Jindal. SAIL
81.	Pre-stressing Strand (LRPC)	TATA SSL Ltd, USHA Martin,
82.	Welding Electrodes	ESAB. Advani - Orlikon Weld Alloy. Modi L&T Eutectic,
83.	Pot/Elastomeric Bearings	Prequalified Manufacturers as per RDSO's latest approved list
84.	Horizontal Tie Bars/Shear Bars	BB Bars System, BBV Systems ,Dextra
85.	HDPE Sheathing	Rex Polyextrusion, Gwalior Polypipes Ltd, M/s Dynamic Prestress
86.	Formwork Release Agent	FOSROC, MBT, MC Baucheme, Ado Conmat, CICO, SWC, Choksey, BASF, Adoadditives, STP
87.	Prestressing System	Freyssinet, BBR, VSL, Dynamic, Killick Nixon, Tensacciai (India Ltd.), Usha Martin, Posten, VSIL
88.	Reinforcement Couplers	Dextra, Moment
89.	Hollow Sections, Pipes	Surya Pipes, Hi-Tech Pipes, JSW, JSPL,
90.	Drainage Pipes	Tirupati Plastomatics, Duraline, REX, STIPL
91.	Acrylic Textured Coatings	Spectrum, Renova, Wallz, Surfa Nova, Jotun, Asian Paints
92.	Non shrink Grout	Fosroc Chemical (India). SIKA BASF, ELCHEM, MBT. Sika.
93.	Bonding Coat	CICO, FOSROC, Sunanda speciality coating Pvt. Ltd., BASF, SWC. TAM
94.	Polysuphide Sealant	CICO. Pidilite. BASF. FOSROC. SWC, STP, SIKA, Fairmate

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95.	Steel Structural Fasteners	Pooja Forge, Sundram Fasteners, Unbrako, Nelson, Panchsheel
96.	Paints	Berger, Johnson Nicholson, Nerclac, Asian,
97.	Micro Silica	Sika, Elkem, FOSROC. MAPEI. Comiche, Star Silica, TAM, CALIPAR, CICO
98.	Fire Resistant Paints	Akzo Noble, PPG or equivalent, Jotun
99.	External Acrylic Emulsion	Berger, Apex, Asian, Nerolac, Jenson & Nicklson
100.	Integral Crystalline Waterproofing Method	
101.	Water stopper/Bar	Kanta Rubber. Greenstreak, Maruti, Duron
102.	Liquid polymer membrane waterproofing	INTEGRITANK, BASF. MAPEI, PIDILITE. DAVCO, CICO
103.	Curing Compound	Clean tech concure, SINAK, FOSROC, Ado additives, TAM, STP SWC.CICO
104.	Polycarbonate Sheets	M/s Gallina Acroplus. Coxwell, Poly U, Fabic, SABIC I.DANPALON
105.	Fly ash	Thermal plant. Ashcrete, Ultra pozz, star pozz, (the fly ash shall be as per our specifications)
106.	False Ceiling	Hunter Douglas
107.	ACP	Hunter Douglas, Durobuild
108.	Aluminum Louvers	Hunter Douglas-LUXALON H-3 , CS-RS-1605
109.	SS Railing	Sanvijay
110.	Barbed Wire / Chain-link fencing	Krishna Industries Bhilwara, / Concertina Coils New Delhi,
111.	PEB/Steel Structures/Pipe Structure	TT, Framacad, Voltagreen, Everest, ZAMIL
112.	Cement (For Brick Works, & General Work, Wall/Boundary Wall only)	Birla Gold (Manikgarh Cements)
113.	MS Angles & Flats	Ramson Steel (For general purpose only, not for dynamic & heavy loading structures)
114.	Corrosion Inhibitors - Reinforcement	Krishna Conchem Product Pvt. Ltd.
115.	Coal tar epoxy for sub-structure protection.	Krishna Conchem Product Pvt. Ltd.

The above list is not exhaustive. Contractor may proposes similar product of other reputed vendor too for the works. However the approval /acceptance / rejection of proposed vendor rest with NMRCL.

Annexure-IX-D**Proposed Vendor List For MEP Works:**

Sl. No.	Item	Proposed vendor List for NMRCL
Vendor List for Electrical items:		
1.1	MS/GI Conduits ISI embossed black enamelled / galvanized	AKG BEC,
1.2	MS/GI Conduit accessories superior type as per approved samples	Sharma Sales Corporation Super Sales Corporation
1.3	PVC rigid conduit and accessories ISI embossed	BEC, AK
1.4	PVC flexible conduit and accessories	PMA-SSK
1.5	MS Raceways and raceway accessories.	V K Industries Steelways
1.6	Cable trays & Cable ladder	Indo Asian Profab Patny Innospacer Rattan Omcara Emco Mahaveer,kalkatta Technofab Engineers Sunrise Electrical Industries M K Industries Sai Cable Tray Pinnacle metals
2	Wires, cables and cable accessories	
2.1	Wires	
2.1.1	1100 volt grade FRLSZH /FR PVC insulated stranded copper conductor wires	Finolex Polycab Bon Ton KEI RR cable Anchor RPG Universal Leoni Lapp
2.2	1100 volt grade Cables	
2.2.1	1100 volt grade ,armoured, XLPE FRLSZH/Fire Resistant cable, Copper/Aluminium Conductor cables	Poly cab Havells Finolex KEI RR cable Anchor

		RPG Universal Leoni Lapp Cords Rallison Govind cables
2.3	Cable Accessories	
2.3.1	1100 volts Doubles compression brass cable glands	Dowells, Peeco, Comet Siemens
2.3.2	1100 volts Doubles compression PVC cable glands	Trinity Touch (Jacob)
2.3.3	1100 volt Cable lugs	Dowell's (Biller India Pvt. Ltd)
2.3.4	Terminal blocks & cage clamps	ELMEXX, PHOENIX, WAGO, Connectwel
3	Wiring accessories	
3.1	Modular grid plate wiring accessories (switches, socket outlets bells etc.) with boxes.	Siemens Honeywell Wraparound Plus Legrand Mosaic
3.2	Metal clad Socket Outlets with boxes	Anchor MK Legrand Crabtree
3.3	Under floor junction boxes and cable management system	Legrand
3.4	Weather Proof plugs and sockets (IP 65 / 66)	Neptune Legrand
4.	Distribution equipment	
4.1	Switchgear	
4.1.1	MCB's/RCCB's	L&T, GE, ABB, Siemens, Schneider, Merlin Gerin
4.1.2	Earth leakage circuit breaker	L&T, GE, ABB, Siemens, Schneider, Merlin Gerin
4.1.3	Timers in Distribution Boards	L&T, GE, ABB, Siemens, Schneider, Merlin Gerin
4.1.4	Distribution Boards	Schneider Siemens Legrand Lexic
4.2	Circuit Breakers	
4.2.1	Moulded Case Circuit Breakers, Motor protection circuit breaker	L&T, GE, ABB, Siemens, Schneider, Merlin Gerin
4.2.2	Switch Fuse Units and Isolators	L&T, GE, ABB, Siemens, Schneider, Merlin Gerin
4.2.3	Change over switch /	L&T

	Isolators	HH Elcon
4.2.4	Air Circuit Breaker	L&T, GE, ABB, Siemens, Schneider, Merlin Gerin
4.2.5	Automatic transfer switch (ATS)	Tricolite ASCO Cummins Socomac
4.2.6	Power/auxiliary, Capacitor control Contactors, overload relays	L&T, GE, ABB, Siemens, Schneider, Merlin Gerin
4.2.7	MPP heavy duty Capacitors	Siemens (Epcos), Neptune Ducati
4.3	Accessories	
4.3.1	Protection relays electromechanical	Areva, ABB, L&T,
4.3.2	Protection Relays Numeric	Areva, ABB, Siemens
4.3.3	APFC relay 3 phase	L&T, Ducati Neptune Conzerv,
4.3.4	Single phase preventer, overload relays	Siemens ABB, Schneider Electric,
4.3.5	Current Transformer	Gillbert & Maxwell, Precise, AE,
4.3.6	Control / Potential Transformer	Gillbert & Maxwell, Precise, AE
4.3.7	Push Buttons, Indicating lamps LED	L&T, GE, Siemens, Schneider,
4.3.8	Selector switches	L&T, Siemens,
4.3.9	Instruments – analogue	L&T Rishab, AE,
4.3.10	Digital meters	L&T, Schneider,
4.3.11	Power and harmonic analyzer	Conzerv Secure Neptune Ducati
4.3.12	Programmable Logic Controller (PLC)	Allen Bradley, Siemens
4.4	LT 415 volt switchboards	
4.4.1	Main LT switchboards PLC Panels Capacitor Panels Floor LT panels	Dricolite, EMCO Switchgear, Power control, Bajaj, Lotus, Pragathi control, Pyrotech
5.	Bus Trunking	
5.1	Lighting Bus Trunking	Dricolite,

		EMCO Switchgear, Power control, Bajaj, Lotus, Pragathi control, Pyrotech
6.	Light Fixture & Accessories	
6.1	Light fittings	Philips, Wipro, GE
6.2	Area Lighting Masts	Wipro, Philips, GE
6.3	Circulator fans/exhaust fans	Crompton Greaves, Orient, Khaitan, Almonard
6.4	Lighting Control system	Hubbell, Dynalite, Wipro
6.5	Ceiling Fans	Crompton Greaves, Orient, Khaitan
6.6	LED	Nichia, Lumileds, Citizen, Cree, LG
7.	UPS System	
7.1	UPS System	Emerson Delta Socomac Hireal
7.2	UPS Battery	Exide, Farukawa, Standard, Aamaraja
8.	Miscellaneous Sub Station equipment	
8.1	Rubber mats	
8.2	CO2 Fire extinguishers	Fire Traces Tyco
8.3	Battery banks maintenance free VRLA	HBL Nife Exide, Amar Raja, Standard Furukawa
8.4	Battery charger	HBL Nife AE Caldyne, Amar Raja
9	Miscellaneous	
9.1	Anchor Fastener	Hilti, Fisher
9.2	Welding rods	Advani Oerlikon L&T
9.3	Paints	ICI, Asian, Shalimar
9.4	Fire sealing material	Hilti Birla 3M Roxtec
10	BMS / SCADA	GE Honey well Mitsubishi Siemens Rockwell Automation ABB

11	DG SET	Sudhir Powerica Mahindra Jackson
Vendor List for Fire Fitting Systems:		
1	Fire hydrant valves	Inter Valves Lehary Kartar Zotoisi Sant
2	Piping	TATA ,Jindal, Apollo, Values
3	Fire hose pipes with Stainless Steel coupling	New Age Ind. CRC Jayshree
4	Rubber hose reel	Jyoti Maruti
5	First aid fire hose reels	
6	Fire extinguishers	Minimax Safex
7	Sprinkler heads	
	(a) Sidewall type	
	(b) Sprinkler intelligent (auto start / shut)	Tyco Reliable Grinnell
8	Horizontal centrifugal pumps	Kirlosker WILO KSB Groundfas Becon CRI
9	Electric motors	Siemens, KEC, CGL
10	Electrical switch gear & starter	As per electrical works
11	Cables	As per electrical works
12	Flow switch	System Sensor, Potter
13	Suction strainer	Leader / Zoloto
14	Vibration eliminator connectors	Resistoflex
15	Fire alarm detectors	Edwards Notifier
16	Panel Flooding(CO2)	FireDe Tech Fire Traces
Vendor list for HVAC System		
1	VRV Unit	Toshiba Blue star Voltas Daikin

		Mitsubishi
2.	Fans	Flakt, Kruger, System Air, Marathon
3	Grille/diffuser and fire damper	Caryaire, Ravistar, Air Flow
4	Factory fabricated ducting	Rolastar, Zeco, Techno Fabriduct
5	Fiber glass Insulation	UP Twiga, Kimco, Owens Corning
6	Anchor Fasteners	Hilti, Fischer
7	MS/GI Conduits ISI embossed black enamelled / galvanized	As per Electrical works
8	Cable trays & Cable ladder	As per Electrical works
9	1100 volt grade XLPE Insulated Aluminium Conductor cables	As per Electrical works
10	1100 volts Doubles compression brass câble glands	As per Electrical works
11	MCB's/RCCB's	As per Electrical works
12	Moulded Case Circuit Breakers, Motor protection circuit breaker	As per Electrical works
13	Main LT switchboards PLC Panels Capacitor Panels Floor LT panels	As per Electrical works
14	Electrical motors	CGL, Siemens, KEC
15	Welding rods	Advani Oerlikon, L&T
Vendor list for Public Health Engineering		
1	Sanitary Fittings	Parryware Jaquware

		Hindware
2	Water Cooler	Blue star Daiken Volts
3	Water heater	Bajaj Smith
4	Piping	TATA Jindal Apollo Values
5	Horizontal centrifugal pumps	Kirlosker WILO KSB Groundfas Becon CRI
6	Valves	Inter Valves Lehary Kartar Zotoisi Sant

ANNEXURE-IX-C

Site Office and Facilities for the Employer/Engineer

1. General

The Contractor shall provide and maintain for the use of the Employer/Central Railway office facilities throughout the course of the work including Extension of Time and up to the completion of DLP. No Extra claim shall be granted irrespective of the basis of EOT. The details of the accommodation & the other facilities are detailed in following paras. The rate facilities is deemed to be included in the overall quoted price of the contract. The equipment, software and other facilities provided during the currency of contract will be the property of the contractor on completion of of DLP.

2. Transport

2.1 The Contractor shall provide 2 (Two) numbers of Innova model SUV having AC facility for the use of the Employer within one month from the date of commencement of the works upto a period of the completion of DLP. The Contractor will bear all expenses, connected with the operation and the maintenance of this vehicle, including driver's wages, overtime and other benefits, cost of the fuel, lubricant, repairs and maintenance, third party insurance, any other related expenses etc. to the satisfaction of the Engineer. The vehicle shall be replaced with a new vehicle during breakdown time, failing which the Employer will hire the vehicle at the risk and cost of the Contractor.

2.2 Road Transport

- a) The vehicles shall not more than one year old, should have taxi permit and delivered and maintained by the Contractor in good roadworthy condition including daily cleaning.
- b) The Contractor shall employ and make available competent drivers fully licensed to operate the vehicles as and when required by the Employer. The Contractor shall replace drivers at the request of the Engineer/Employer. Alternate arrangement of drivers should be ensured by the contractor in case of emergency or excessive working hours due to demands of work.
- c) The vehicles shall be licensed and insured for use on the public highway and shall have comprehensive insurance cover for any qualified driver authorised by the Engineer/ Employer together with any authorised passengers and the carriage of goods or samples. All the relevant and valid documents of the vehicle should any time be available with the driver and can be asked to show by the Employer anytime.
- d) The Contractor shall provide fuel, oil for running of each vehicle for 3000 kms monthly and ensure maintenance in conformity with the vehicle manufacturer's recommendations and all relevant toll and parking charges incurred in connection with the Works. The vehicle shall be provided day and night (24 hours) as required by the Employer.
- e) A suitable replacement shall be provided by the contractor for any vehicle out of service for more than 24 hours. If the contractor at any time fails to provide vehicle(s) or substitute vehicle(s) as specified, an amount of Rs.3000 per day for each vehicle (that the Contractor failed to provide) shall be recovered from the Contractor.

2.3 Number of Vehicles

The Contractor shall provide the following type of vehicles of as per requirement indicated by the Project Director within one month of date of commencement.

Type	Numbers
Innova or Similar	2

3. Office Maintenance and Security

3.1 The contractor shall provide within one month from the Date of Commencement following personnel in each of the office as required for watch and ward and running of the site office upto a period of 90 days after physical completion of work as certified by Engineer.

i) Office Assistance/document controller: (1 Personnel's)

Note: In case of delay beyond Two-month, penalty @ Rs 10000/- Per week or part thereof will be imposed.

4. Equipment for the Use of the Employer/Engineer

The Contractor shall provide new equipment and software as listed below and maintain them for the exclusive use of the Employer and the Engineer. The Contractor shall provide and maintain the following equipment for the use of the Engineer and the Employer within one month from the date of commencement of the works upto a period of Completion of DLP. The equipment and software shall be the property of the Contractor.

a. Colour scanners, printer and copier: A4 and A3 size - 1 no model (imageRUNNER ADVANCE DX C3700) or equivalent.

Note: In case of failure to provide the equipment within one month, penalty @ Rs 5000/- per equipment per week or part thereof will be imposed.

5. Documentation

5.1 A complete set of documentation will be supplied with each System. The documentation should be self-tutorial in nature and be readily understood by non-computer personnel.

5.2 The following manuals will be supplied with the system: a. Manual on how to operate the equipment; and b. Manual on how to use the facilities and software provided by the supplier. (Including languages and utilities)

ANNEXURE-IX-G

CONTRACT KEY DATES AND COMPLETION DATE

(DELETED)

**MAHARASHTRA METRO RAIL CORPORATION LIMITED
(NAGPUR METRO RAIL PROJECT)**

BID DOCUMENTS

FOR

Construction Of Subway as RCC Box 1x7x3 Mt. by Pushing Method method at Railway's Ch.830 /09-11 Between Khapri-Ajni Station In Lieu Of Existing Level Crossing No.120 at Manish Nagar Crossing under Nagpur-Division Of Central Railway

**TENDER NO.
N1CRF-03/2022**

**PART 3: CONDITIONS OF CONTRACT AND CONTRACT FORMS
SECTION X: CONTRACT FORMS**



Maharashtra Metro Rail Corporation Limited

(Nagpur Metro Rail Project)

**Metro Bhawan, East High Court Road (VIP Road),
Infront of Dr. Babasaheb Ambedkar Collage,
Near Dikshabhoomi, Nagpur-440010, Maharashtra, INDIA
Website: www.metro railnagpur.com**

Section X. Contract Forms

Table of Forms

- 1. Notification of Award
- 2. Contract Agreement
- 3. Performance Security
- 4. Advance Payment Security
- 5. Retention Money Security
- 6. Form of Designer’s Warranty.....
- 7. Parent Company Undertaking.....
- 8. Parent Company Guarantee
- 9. Contractor’s Warranty
- 10. Sub-Contractor’s / Vendor’s Warranty.....
- 11. Indemnity Bond.....
- 12. Guarantee for Safe Custody.....

Contract Form-1**Notification of Award****LETTER OF ACCEPTANCE**

[letter head paper of the Employer]

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Bid dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by our institution.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section X – Contract Forms, of the Bidding Documents

Authorized Signature: _____
Name and Title of Signatory: _____
Name of institution: _____

Attachment: Contract Agreement

Contract Form-2**Contract Agreement**

THIS AGREEMENT made the _____ day of _____, _____, between _____ of _____ (hereinafter “the Employer”), of the one part, and _____ of _____ (hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as _____ should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein, in the sum of [*insert Contract Price or Ceiling in words and figures, expressed in the Contract currency(ies)*] (hereinafter called “the Contract Price”).

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - (i) the Letter of Acceptance
 - (ii) the Letter of Bid and Appendix to Bid (including the signed Statement of Integrity)
 - (iii) the addenda Nos _____ (if any)
 - (iv) the Particular Conditions
 - (v) the General Conditions;
 - (vi) the Technical Specifications
 - (vii) the Drawings; and
 - (viii) the completed Schedules and any other documents forming part of the contract,
3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, 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.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of _____ on the day, month and year specified above.

Signed by _____ (for the Employer)

Signed by _____ (for the Contractor)

Contract Form-3**Performance Security****Option 1: (Demand Guarantee)****Beneficiary:** _____**Date:** _____**PERFORMANCE GUARANTEE No.:** _____**Guarantor:** _____

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's first demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

¹ The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

² Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

Option 2: Performance Bond

By this Bond _____ as Principal (hereinafter called “the Contractor”) and _____] as Surety (hereinafter called “the Surety”), are held and firmly bound unto _____] as Obligee (hereinafter called “the Employer”) in the amount of _____, for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a written Agreement with the Employer dated the _____ day of _____, 20 ____, for _____ in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Employer to be, in default under the Contract, the Employer having performed the Employer’s obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a Bid or bids from qualified Bidders for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive Bidder, arrange for a Contract between such Bidder and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by Employer to Contractor under the Contract, less the amount properly paid by Employer to Contractor; or
- (3) pay the Employer the amount required by Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors, and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this _____ day of _____ 20_____
_____.

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

Contract Form-4**Advance Payment Security****BANK GUARANTEE FOR MOBILISATION ADVANCE**

To
Maharashtra Metro Rail Corporation Ltd.,
Regd Office: "Metro Bhawan", East High Court Road (VIP Road),
Infront of Dr. Babasaheb Ambedkar Collage,
Near Dikshabhoomi, Nagpur-440010, Maharashtra, INDIA.

Bank Guarantee No. _____, dt. _____ for
Rs. _____ (Rupees _____ only).

w.e.f. : _____
valid upto : _____
claim upto : _____

- In Consideration of M/s. Maharashtra Metro Rail Corporation Ltd., (hereinafter called "the Employer", which expression shall, unless repugnant to the context or subject thereof include his successor and assigns) having awarded M/s. _____ having its Registered Office at _____ (hereinafter referred to as "the Contractor", which expression shall unless repugnant to the context of meaning thereof include its successors, administrators, executors and assigns), a contract by issue of Employers Letter of Acceptance No. _____ dated _____ and the same having been mutually accepted by the Contractor, resulting in a Contract bearing No. _____ for Rs. _____ (Rupees _____ only) for Contract _____ : (Name of work) _____ (hereinafter called "the Contract") and the Employer has agreed to make an advance payment to the Contractor for performance of the said Contract amounting to Rs. _____ (Rupees _____ only) of Mobilisation Advance.
- We, _____ constituted under the _____ Act, 1955 having its Corporate Centre and Central Office at _____ and one of its Local Head Office at _____ and Branch Office at _____ (hereinafter referred to as "the Bank", which expression shall unless repugnant to the context of meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, immediately on demand any or all monies payable by the Contractor to the extent of Rs. _____ (Rupees _____)

only) as aforesaid at any time upto _____ without any demur, reservation, context, recourse or protest and or without any reference to the Contractor.

3. Any such demand made by the Employer on the Bank shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator and shall continue to be enforceable till the Employer discharges this guarantee. However, not later than expiry date of guarantee.
4. The Employer shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee, from time to time to vary the advance or to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty without affecting his guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they meet have against the Contractor and to exercise the same at any time in any manner and either to enforce or to forebear to enforce any covenants, contained or implied, in the Contract between the Employer and Contractor or any other course or demand or security available to the Employer. The Bank shall not be redeemed to its obligation under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid of any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would but for this provision have the effect of relieving the bank.
5. The Bank also agrees that the Employer at his option shall be entitled to enforce this Guarantee against this bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

Notwithstanding anything contrary contained in any law for the time being in force or banking practice this guarantee shall not be assignable or transferable by the beneficiary. Notice or invocation by any person such as assignee, transferee or agent of beneficiary shall not be entertained by the bank any invocation of guarantee can be made only by the beneficiary directly.

Notwithstanding anything contained herein:

- a) Bank liability under this Bank Guarantee shall not exceed Rs. _____ (Rupees _____ only)
- b) This Bank Guarantee shall be valid upto _____.
- c) We are liable to pay the guarantee amount or part thereof under this Bank Guarantee only & only if you serve upon us a written claim or demand on or before _____.
- d) Thereafter all your rights under this guarantee shall be forfeited and we shall be released from all our liabilities hereunder irrespective of whether the guarantee in original is returned to us or not.

Dated _____.

Contract Form-5**Retention Money Security****Demand Guarantee**

_____ [Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ [Insert name and Address of Employer]

Date: _____ [Insert date of issue]

RETENTION MONEY GUARANTEE No.: _____ [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that _____ [insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture] (hereinafter called "the Applicant") has entered into Contract No. _____ [insert reference number of the contract] dated _____ with the Beneficiary, for the execution of _____ [insert name of contract and brief description of Works](hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of [insert thesecond half of the Retention Money]orifthe amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money,thedifference between half of the Retention Money and the amount guaranteed under the Performance Security] is to be made against a Retention Money guarantee.

At the request of the Applicant, we,as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ [insert amount in figures]()[amount in words]¹ upon receipt by us of the Beneficiary's first demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract,without your needing to prove or show grounds for your demand or the sum specified therein.

¹ The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Applicant on its account number _____ at _____ *[insert name and address of Applicant's bank]*.

This guarantee shall expire no later than the day of, 2...², and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

² *Insert the same expiry date as set forth in the performance security, representing the date twenty-eight days after the completion date described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

Contract Form-6
[DELETED]

Form of Designer's Warranty

(Refer. Sub - **Clause 21** of the PC)

THIS AGREEMENT is made the day of

BETWEEN:

- (1) [] [whose registered office is at]/[of] [] ("the Designer"); and
- (2) The Nagpur Metro Rail Corporation Limited (together with its successors and assigns, "the Employer") of _____ [address].

WHEREAS:

- (a) By a contract _____ dated [] ("the Contract") made between (1) Nagpur Metro Rail Corporation Limited ("the Employer") and (2) [] ("the Contractor"), the Contractor has agreed to design, execute, complete, test and commission (including Integrated Testing and Commissioning) and remedy any defect in the Works upon the terms and conditions contained in the Contract.
- (b) The Designer has had an opportunity of reading and noting the provisions of the Contract (other than details of the Contractor's prices and rates).
- (c) Pursuant to the Contract, the Contractor wishes to enter into an agreement with the Designer and Designer agrees to the wishes of the Contractor (the Consultancy agreement) to carry out the Contractor's obligations under the Contract in relation to the design and functions ascribed to the Designer in the Contract.
- (d) The Contract stipulates that the Contractor shall ensure that the Designer executes a warranty agreement in favour of the Employer.

NOW IT IS HEREBY AGREED as follows:

1. In consideration of the Employer not objecting to the Contractor and the Designer entering into the Consultancy Agreement, the Designer warrants and undertakes to the Employer that he has exercised and will continue to exercise all the skill and care to be expected of a professionally qualified and competent designer experienced in work of similar nature and scope as the Works in carrying out the design of the Works and in performing the other duties and functions ascribed to him in the Contract.
2. The Designer agrees that, in the event of the termination of the Contract by the Employer, the Designer will, if so required by notice in writing given by the Employer, except subject to Clause 4 the instructions of the Employer or his appointee to the exclusion of the Contractor in respect of the carrying out and completion of the Works upon the terms and conditions of the Consultancy Agreement.
3. The Designer further agrees that he will not, without first giving the Employer not less than 21 days' previous notice in writing, exercise any rights it may have to terminate the Consultancy Agreement or to treat the same as having been as repudiated by the Contractor or to discontinue the performance of any duties to be performed by the Designer pursuant thereto. The Designer's right to terminate the Consultancy Agreement or to treat the same as having been repudiated or to

- discontinue the performance thereof shall cease if, within such period of notice and subject to Clause 4, the Employer shall give notice in writing to the Designer requiring the Designer to accept the instructions of the Employer or his appointee to the exclusion of the Contractor in respect of the carrying out and completion of the Contract Works upon the terms and conditions of the Consultancy Agreement.
4. Any notice given by the Employer under Clause 2 or 3 shall state that the Employer or his appointee accepts liability for payment of the fees payable to the Designer under the Consultancy Agreement and for performance of the Contractor's obligations under the Consultancy Agreement, including payment of any fees outstanding at the date of such notice.
 5. The Employer shall be entitled to assign the benefit of this Warranty at any time without the consent of the Designer being required.
 6. All documents arising out of or in connection with this Warranty shall be served:
 - (1) upon the Employer at [] marked for the attention of [];
 - (2) upon the Designer at [].
 7. The Employer and the Designer may change their respective nominated addresses for service of documents to another address in India but only by prior written notice to each other. All demands and notices must be in writing.
 8. This Warranty shall be governed by and construed according to the laws for the time being in force in India.
 9. Except to the extent (if any) expressly permitted by the Consultancy Agreement, the Designer shall not sub-contract any of the Designer's obligations under the Consultancy Agreement without the prior written consent of the Employer's Representative.
 10. Without prejudice to its obligations under this Warranty, the Designer shall maintain with well established underwriters of repute and on terms and conditions reasonably acceptable to the Employer, professional indemnity insurance (as per sub-clause 18.1 of the General Conditions) in respect of the Designer and its sub-consultants for Indian Rupees (*in words*.....
Rupees) in relation to his design of the Works for any one occurrence or series of occurrences arising out of any one event from the date of notification of acceptance until 5 years after the issue of Performance Certificate for the whole of works. The Designer shall immediately inform the Employer if for any reason professional indemnity insurance is not maintained in accordance with this Warranty or becomes void or unenforceable.
 11. Insofar as the patent, copyright or other intellectual property rights in any Design Data (as defined in the Contract), plans, calculations, drawings, documents, materials, computer software, know-how and information relating to the Works shall be vested in the Designer, the Designer grants to the Employer his successors and assigns a royalty-free, non-exclusive and irrevocable licence (carrying the right to grant sub-licences) to use and reproduce any of the works designs or inventions incorporated and referred to in such documents or materials and any such know-how and information for all purposes relating to the Works (including without limitation the design, construction, reconstruction, completion, reinstatement, extension, repair and operation of the Works). To the extent beneficial ownership of any such patent, copyright or other intellectual property right is vested in anyone other than the Designer or the Contractor, the Designer shall use his best endeavors to procure that the beneficial owner thereof shall grant a like licence to the Employer. Any such licence granted shall not be determined if the Designer shall for any reason cease to be employed in connection with the Works.

12. (1) Any dispute or difference of any kind whatsoever between the Employer and the Designer arising under out of or in connection with this Warranty shall be referred to arbitration in accordance with Clause 20 of GC "Claims, Disputes and Arbitration" as defined in the Contract shall be deemed to include any such dispute or difference between the Employer and the Designer.
- (2) In the event that the Employer is of the opinion that the issues in such a dispute or difference will or may touch upon or concern a dispute or difference arising under out of or in connection with the Contract ("the Contract Dispute") then provided that an arbitrator has not already been appointed, the Employer may by notice in writing to the Designer require and the Designer shall be deemed to have consented to the referral of such dispute or difference to the arbitrator to whom the Contract Dispute has been or will be referred.
- (3) Save as expressly otherwise provided, the arbitrator shall have full power to open up, review and revise any decision, opinion, instruction, notice, order, direction, withholding of approval or consent, statement of objection, determination, certificate, assessment or valuation by the Employer's Representative or the Contractor, relating to the dispute or difference.

IN WITNESS whereof this Warranty has been executed as a deed on the date first before written.

THE COMMON SEAL of)
[Designer])
was affixed hereto in)
the presence of:-)

Contract Form-7
DELETED

Parent Company Undertaking

THIS UNDERTAKING is issued on the _____ day of _____

BY _____ [whose registered office is at] / [of] _____ ("the Parent Company").

infavour of

Nagpur Metro Rail Corporation Limited together with its successors and assigns, (the Employer):

.....
.....
.....

WHEREAS

(A) By a Contract for _____ in respect of Nagpur Metro Rail Project

Contract No: NMRCL/_____ ("the Contract") made between

(1) Nagpur Metro Rail Corporation Limited (the "Employer")

and

(2) _____ (the "Contractor") the Contractor has agreed to design, execute, complete and remedy any defects in the works ("the Works") upon the terms and conditions contained in the Contract.

(B) Pursuant to the terms of the Contract, the Contractor has agreed to procure the provision of an undertaking in the terms hereof.

(C) The Parent Company is the beneficial owner of ____ % [see Note 1] of the issued share capital of [the Contractor] [see Note 2].

(D) At the request of the Contractor, the Parent Company has agreed to provide this undertaking.

NOW IT IS HEREBY UNDERTAKEN AND AGREED as follows:

1. In consideration of the Employer entering into the Contract with the Contractor, the Parent Company hereby undertakes to the Employer that, without the written consent of the Employer, it will not [and will ensure that none of the companies referred to in Recital (C) will] [see Note 5]:
 - a. Sell, transfer, assign or otherwise dispose of or deal with ownership of the whole

or any part of EITHER [the share holding or other interest in the [Contractor] [see Note 3] OR [the share holdings or other interests] [see Note 4] referred to in Recital (C) in any way which will affect the beneficial ownership and control in [the Contractor] [see Note 3] of the Parent Company [and the other companies referred to in Recital (C)] [see Note 5]; and

- b. take any action which may result in the Contractor being unable to comply with its obligations or perform in any way its duties under the Contract [or take any action which may result in [the Member forming part of the Contractor] [see Note 3] being unable to comply with its obligations or perform in any way its duties under the [Consortium or other relevant] agreement] [see Note 6]

until such time as the Works shall have been completed, all the Contractor's obligations under the Contract shall have been performed and the Defects Liability Period (as defined in the Contract) for the whole and every part of the Works shall have elapsed and further that it will ensure [that the Member forming part of the Contractor will take all steps necessary to ensure [see Note 6] compliance by the Contractor with the provisions of the Contract.

2. The obligations of the Parent Company under this Undertaking shall remain in full force and effect and shall not be affected or discharged in any way and the Parent Company hereby waives notice of:
 - a. any suspension of the Works, variation or amendment to the Contract (including without limitation extension of time for performance) or any concession or waiver by the Employer in respect of the Contractor's obligations [and/or the obligations of [_____] [see Note 7]
 - b. any provision of the Contract being or becoming illegal, invalid, void, voidable or unenforceable;
 - c. the termination of the Contract or of the employment of the Contractor and/or [_____] [see Note 7] under the Contract for any reason;
 - d. any forbearance or waiver of any right of action or remedy the Employer may have against the Contractor [and/or [_____]] [see Note 7] or negligence by the Employer in enforcing any such right of action or remedy;
 - e. any bond, undertaking, security or other guarantee held or obtained by the Employer for any of the obligations of the Contractor [and/or [_____]] [see Note 7] under the Contract or any release or waiver thereof.
3. This Undertaking shall extend to any variation of or amendment to the Contract and to any agreement supplemental thereto agreed between the Employer and the Contractor [and/or [_____]] [see Note 7] and for the avoidance of doubt the Parent Company hereby authorises the Employer and the Contractor [and/or [_____]] [see Note 7] to make any such amendment, variation or supplemental agreement.
4. All documents arising out of or in connection with this Undertaking shall be served:

- a. upon the Employer, at _____ marked for the attention of _____;
 - b. upon the Parent Company, at _____
5. The Employer and the Parent Company may change their respective nominated addresses for service of documents to another address but only by prior written notice to each other. All demands and notices must be in writing.
 6. This Undertaking shall be governed by and construed according to the laws for the time being in force in India and the Parent Company agrees to submit to the exclusive jurisdiction of the courts at Nagpur, Maharashtra, India.

IN WITNESS where of this Undertaking has been executed as a deed on the date first before written.

Name:

Designation:

Date of Board resolution authorizing executant to execute this undertaking

Place:

Notes:

(For preparation of but not for inclusion in the engrossment of this Undertaking)

1. If the Parent Company is not the immediate parent company, the chain of ownership must be recited, identifying each company in the chain and the shareholdings or other interests in each subsidiary.
2. If the Contractor is a Consortium, that fact and the Consortium or other relevant agreement must be recited. In such case, insert the name of the Members of the Consortium in respect of which the parent company undertaking is being given. In such a case, the parent company of each of the Members is required to give the undertaking.
3. If Note 2 applies, refer to the Member relating to that Parent Company (which is giving this undertaking) and not the Contractor.
4. If Note 1 applies, use this alternative.
5. If Note 1 applies, add this provision.
6. If Note 2 applies, add this provision.
7. If Note 2 applies, add this provision and insert the name of the Member.
8. The notarized copy of the board resolution of the Parent Company must also accompany this Undertaking. In case the Parent Company is a foreign entity, then such board resolution should be notarized by a notary in its home country followed by the consularisation by the Indian Embassy there, or apostilised as per Hague Convention, as the case may be.

Contract Form-8
DELETED

Parent Company Guarantee

THIS GUARANTEE is made the _____ day of _____

BY _____ whose registered office is at _____ [and _____ whose registered office is at _____] ("the Guarantor").

To Nagpur Metro Rail Corporation Limited together with its successors and assigns, "the Employer") of:

.....
.....
.....

WHEREAS

(A) By a Contract for _____ of Nagpur Metro Rail Project

Contract No: _____ ("the Contract") made between

(1) Nagpur Metro Rail Corporation Limited (the "Employer")

and

(2) _____ (the "Contractor") the Contractor has agreed to design, execute, complete and remedy any defects in the works ("the Works") upon the terms and conditions contained in the Contract.

(B) Pursuant to the terms of the Contract, the Contractor has agreed to procure the provision of a guarantee in the terms hereof. [see Note 1]

(C) At the request of the Contractor, the Guarantor has agreed to guarantee performance of the Contract by the [Contractor] [see Note 2] as set out herein.

IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the Employer entering into the Contract with the Contractor, the Guarantor irrevocably and unconditionally guarantees to the Employer as a primary obligation and not as a surety due performance by the [Contractor] [see Note 2] of all of its obligations and liabilities under and in accordance with the Contract save that nothing herein shall be construed as imposing greater obligations or liabilities on the Guarantor than are imposed on the [Contractor] [see Note 2] in the Contract.
2. The obligations of the Guarantor under this Guarantee shall remain in full force and effect and shall not be affected or discharged in any way by and the Guarantor hereby waives notice of:

- a. any suspension of the Works, variation to or amendment of the Contract (including without limitation extension of time for performance) or any concession or waiver by the Employer in respect of the Contractor's obligations [and/or the obligations of _____] [see Note 3] under the Contract;
 - b. any provision of the Contract being or becoming illegal, invalid, void, voidable or unenforceable;
 - c. the termination of the Contract or of the engagement of the Contractor [and / or _____] [see Note 3] under the Contract for any reason;
 - d. any forbearance or waiver of any right of action or remedy the Employer may have against the Contractor [and / or _____] [see Note 3] or negligence by the Employer in enforcing any such right of action or remedy;
 - e. any bond, undertaking, security or other guarantee held or obtained by the Employer for any of the obligations of the Contractor [and / or _____] [see Note 3] under the Contract or any release or waiver thereof.
3. This Guarantee shall extend to any variation of or amendment to the Contract and to any agreement supplemental thereto agreed between the Employer and the Contractor [and/or _____] [see Note 3] and for the avoidance of doubt the Guarantor hereby authorises the Employer and the Contractor [and/or _____] [see Note 3] to make any such amendment, variation or supplemental agreement.
 4. This Guarantee is a continuing guarantee and accordingly shall cover all of the obligations and liabilities of the [Contractor] [see Note 2] under the Contract and remain in full force and effect until all the said obligations and liabilities of the Contractor shall have been carried out, completed and discharged in accordance with the Contract. This Guarantee is in addition to any other security which the Employer may at any time hold and may be enforced without first having recourse to any such security or taking any steps or proceedings against the Contractor.
 5. Until expiry of the Defects Liability Period (as defined in the Contract) for the whole and every part of the Works, the Guarantor shall not on any ground whatsoever make any claim or threaten to make any claim whether by proceedings or otherwise against the Contractor [and/or _____] [see Note 3] for the recovery of any sum paid by the Guarantor pursuant to this Guarantee. Any such claim shall be subordinate to any claims (contingent or otherwise) which the Employer may have against the Contractor [and/or _____] [see Note 3] arising out of or in connection with the Contract until such time as such claims shall be satisfied by the Contractor [and/or _____] [see Note 3] or the Guarantor as the case may be. To that intent the Guarantor shall not claim or have the benefit of any security which the Employer holds or may hold for any monies or liabilities due or incurred by the Contractor [and/or _____] [see Note 3] to the Employer and, in case the Guarantor receives any sum from the Contractor [and/or _____] [see Note 3] in respect of any payment by the Guarantor hereunder, the Guarantor shall hold such sum in trust for the Employer for so long as any sum is payable (contingently or otherwise) under this Guarantee.

6. The Employer shall be entitled to assign the benefit of this Guarantee at any time without the consent of the Guarantor or the [Contractor] [see Note 2] being required.
7. All documents arising out of or in connection with this Guarantee shall be served:
 - a. upon the Employer, at _____ marked for the attention of _____;
 - b. upon the Guarantor, at _____ India [see Note 5]
8. The Employer and the Guarantor may change their respective nominated addresses for service of documents to another address but only by prior written notice to each other. All demands and notices must be in writing.
9. This Guarantee shall be governed by and construed according to the laws for the time being in force in India and the Guarantor agrees to submit to the exclusive jurisdiction of the courts at Nagpur, Maharashtra, India.

IN WITNESS whereof this Guarantee has been executed as a deed on the date first before written

.....

Name:

Designation:

Date of Board resolution authorizing executant to execute this undertaking

Place:

Notes:

(For preparation of but not inclusion in the engrossment of this Guarantee)

1. If the Contractor is a Consortium, that fact and the Consortium or other relevant agreement and the relationship of the Guarantor to the concerned Members forming part of the Contractor must be recited.
2. If Note 1 applies, replace the word "Contractor" with name of the concerned Member of the Consortium being guaranteed.
3. If Note 1 applies, add additional wording and insert the name the concerned Member of the Consortium being guaranteed.
4. The notarized copy of the board resolution of the Guarantor must also accompany this Guarantee. In case the Guarantor is a foreign entity, then such board resolution should be notarized by a notary in its home country followed by the consularisation by the Indian Embassy there, or apostilised as per Hague Convention, as the case may be.
5. The address for service shall be in India.

Contract Form-9

Contractor’s Warranty

THIS WARRANTY is made the _____ day of _____

BY _____ of _____ [and [see Note 1]] ([jointly] "the Contractor")

To Nagpur Metro Rail Corporation Limited together with its successors and assigns, "the Employer") of:

.....
.....
.....

WHEREAS

(A) By a Contract for _____ of Nagpur Metro Rail Project

Contract No: ("the Contract") made between

(1) Nagpur Metro Rail Corporation Limited (the “Employer”)

and

(2) _____ (the “Contractor”), the Contractor has agreed to design, execute, complete, test and commission (including Integrated Testing and Commissioning) and remedy any defects in the works ("the Works") upon the terms and conditions contained in the Contract.

(B) [See Note 3].

(C) At the request of the Employer and pursuant to the terms of the Contract the Contractor has agreed to provide this Warranty.

NOW IT IS AGREED AS FOLLOWS:

1. The Contractor hereby warrants and undertakes that:
 - a. the Contractor will design, execute, complete, test and commission (including Integrated Testing and Commissioning) and remedy any defect in the Works in accordance with the terms of the Contract; and
 - b. the Contractor owes a duty of care to the Employer in relation to the performance of its duties under the Contract; and
 - c. the Contractor will rectify or replace free of cost to the Employer any defect or failure of equipment provided in the Works for a period of 24 months from the date of taking over of section of the Works; and

- d. the Contractor agrees that should any modification be required to any part of the construction work as a consequence of failure analysis, the aforesaid period of 24 months shall re-commence from the date when the modified part is commissioned into service if the date of modification is later than the date of taking over of last trainset, and such modification shall be carried out free of cost to the Employer in all sections; and
 - e. the Contractor shall maintain the manufacture & supply of spares (including those of its Sub-Contractors / vendors) for the equipment supplied in the Contract-work for at least 5 years from the date of Completion of the Contract; and
 - f. the Contractor has exercised and will continue to exercise in the design of the Works all the skill and care to be expected of a professionally qualified and competent designer experienced in work of similar nature and scope as the Works; and
 - g. the Works will, when completed, comply in all respects with the Employer's Requirements, the Contractor's Technical Proposals, the final Design Document and the intended use of the Works; and
 - h. the Works has been or will be designed and manufactured to the highest standards available using internationally proven up-to-date good practice; and
 - i. the Works will, when completed, comply with enactments and regulations relevant to the Works; and
 - j. no Materials generally known to be deleterious or not in accordance with good engineering practice have been or will be specified or selected or incorporated in the Works by the Contractor.
2. The liability of [the companies comprising [see Note 3]] the Contractor under this Warranty [shall be joint and several and [see Note 3]] shall not be released, diminished or in any way affected by any independent inquiry or investigation into the Works or any matter related to the Contract whether carried out by or on behalf of the Employer or any liability or right of action which may arise out of such inquiry or investigation.
 3. Insofar as the copyright or other intellectual property rights in any plans, calculations, drawings, documents, materials, plant, know-how and other information relating to the Works shall be vested in [the Contractor] [see Note 5], the [Contractor] [see Note 5] grants to the Employer its successors and assigns a royalty free, non-exclusive and irrevocable licence (carrying the right to grant sub-licences) to use and reproduce any of the works designs, inventions or other information incorporated and referred to in such documents or materials and any such know-how and information for all purposes relating to the Works of the Nagpur Metro Rail Project including without limitation the design, manufacture, installation, completion, testing and commissioning (including Integrated Testing and Commissioning) reinstatement, extension and the remedy of any defect in the Works. To the extent that beneficial ownership of any such copyright or other intellectual property rights is vested in anyone other than the [Contractor] [see Note 5], the [Contractor] [see Note 5], shall use best endeavours to procure that the beneficial owner thereof shall grant a like licence to the Employer. For the avoidance of doubt, any

such licence granted shall not be determined if the [Contractor] [see Note 5], shall for any reason cease to be employed in connection with the Works.

4. The provisions of this Warranty shall be without prejudice to and shall not be deemed or construed so as to limit or exclude any rights or remedies which the Employer may have against the Contractor, whether in tort or otherwise.
5. Nothing contained in this Warranty shall vary or affect the Contractor's rights and obligations under the Contract.
6. The address for service of all documents arising out of or in connection with this Warranty shall be:
 - a. Upon the Employer at:

.....
.....
.....
 - b. Upon the Contractor at _____ India. [Note 4]
7. The Employer and the Contractor may change their respective nominated addresses to another address in India but only by prior written notice to each other. All notices must be in writing.
8. This Warranty shall be governed by and construed according to the laws for the time being in force in India.
9.
 - (1) Any dispute or difference of any kind whatsoever between the Employer and the Contractor arising under out of or in connection with this Warranty shall be referred to arbitration in accordance with the provisions relating to 'Conciliation and Arbitration' as set out in the General Conditions of Contract. "Dispute" as defined in the Contract shall be deemed to include any such dispute or difference between the Employer and Contractor.
 - (2) In the event that the Employer is of the opinion that the issues in such a dispute or difference will or may touch upon or concern a dispute or difference arising under out of or in connection with the Contract ("the Contract Dispute") then provided that an arbitrator has not already been appointed pursuant to Clause 9(1), the Employer may by notice in writing to the Contractor require and the Contractor shall be deemed to have consented to the referral of such dispute or difference to the arbitrator to whom the Contract Dispute has been or will be referred.
 - (3) Save as expressly otherwise provided, the arbitrator shall have full power to open up, review and revise any decision, opinion, instruction, notice, order, direction, withholding of approval or consent, determination, certificate, statement of objections relating to the dispute.
 - (4) Subject to the foregoing provisions of this clause 9, the Employer and the Contractor

agree to submit to the exclusive jurisdiction of the Courts of India at Nagpur.

IN WITNESS whereof this Warranty has been executed as a deed on the date written at the head hereof.

.....

Name:

Designation:

Date of Board resolution authorizing executant to execute this undertaking

Place:

Notes:

(for preparation of and not inclusion in the engrossment of this Warranty)

1. If the Contractor is a Consortium,, each Member of such Consortium shall be a party and liability under this warranty will be joint and several, with consequential grammatical changes.
2. If Note 1 applies, that fact and the Consortium or other relevant agreement must be recited.
3. Delete if Note 1 does not apply.
4. The address for service shall be in India.
5. If Note 1 applies, then insert the name of each Member.

Contract Form-10

Sub-Contractor’s / Vendor’s Warranty

(As applicable)

THIS WARRANTY is made the _____ day of _____

BY _____ [whose registered office is at] / [of] _____ ("the Sub-contractor") and

TO Nagpur Metro Rail Corporation Limited together with its successors and assigns, "the Employer") of:

.....
.....
.....

WHEREAS

(A) By a Contract for _____ of Nagpur Metro Rail Project

Contract No: ("the Contract") made between

(1) Nagpur Metro Rail Corporation Limited (the “Employer”)

and

(2) _____ (the “Contractor”), the Contractor has agreed to _____ and remedy any defects in the works ("the Works") upon the terms and conditions contained in the Contract.

(B) The Sub-contractor / vendor has had an opportunity of reading and noting the provisions of the Contract (other than details of the Contractor's prices and rates).

(C) Pursuant to the Contract, the Contractor wishes to enter into an agreement (“the Sub-contract”) with the Sub-contractor / Vendor to carry out and complete a part of the Works as more particularly described in the Sub-contract ("the Sub-contract Works").

(D) The Contract stipulates that the Contractor shall obtain the consent of the Engineer before entering into the Sub-contract, and that the Contractor shall procure that the Sub-contractor executes a warranty in favour of the Employer.

NOW IT IS HEREBY AGREED as follows:

1. In consideration of the Engineer consenting to the Contractor and the Sub-contractor / Vendor entering into the Sub-contract, the Sub-contractor warrants and undertakes to the Employer that:

- a. he will execute and complete the sub-contracted Works / supply, and will carry out each and all of the obligations, duties and undertakings of the Sub-contractor / Vendor under the Sub-contract when and if such obligations, duties and undertakings shall become due and performable, in accordance with the terms of the Sub-contract (as the same may from time to time be varied or amended with the consent of the Employer); and
 - b. he will supply to the Contractor and in specific cases wherever required to the Engineer with all information as may be required from time to time in relation to progress of the Sub-contract Works.
2. The Sub-contractor / Vendor undertakes to indemnify the Employer against each and every liability which the Employer may have to any person whatsoever and against any claims, demands, proceedings, loss, damages, costs and expenses sustained, incurred or payable by the Employer provided that the Sub-contractor / Vendor shall have no greater liability to the Employer by virtue of this Warranty than the liability of the Contractor to the Employer under the Contract insofar as and to the extent that the same has arisen by reason of the execution of the Sub-Contract or any breach by the Sub-contractor / Vendor of his obligations under the Sub-contract.
3. No allowance/extension of time by the Employer hereunder or by the Contractor under the Sub-contract nor any forbearance or forgiveness in or in respect of any matter or thing concerning this Warranty or the Sub-contract on the part of the Employer or the Contractor, nor anything that the Employer or the Contractor may do or omit or neglect to do, shall in any way release the Sub-contractor / Vendor from any liability under this Warranty.
4. The Sub-contractor / Vendor agrees that he will not without first giving the Employer not less than 21 day's prior notice in writing exercise any right he may have to terminate the Sub-contract or treat the same as having been repudiated by the Contractor or withhold performance of its obligations under the Sub-contract.
5.
 - (1) In the event that the Contract or the employment of the Contractor under the Contract is terminated for any reason whatsoever and if so requested by the Employer in writing within 21 days of such termination, the Sub-contractor / Vendor shall carry out and complete his obligations under this Warranty and shall enter into a novation agreement with the Employer and the Contractor in which the Sub-contractor will undertake inter alia to perform the Sub-contract and be bound by its terms and conditions as if the Employer had originally been named as a contracting party in place of the Contractor. The said novation agreement will be in such form as the Employer may reasonably require.
 - (2) In the event that the Employer does not require the Sub-contractor / Vendor to enter into a novation agreement as required by Sub-clause 5 (1), the Sub-contractor shall have no claim whatsoever against the Employer for any damage, loss or expense howsoever arising out of or in connection with this Warranty.
6. Insofar as the copyright or other intellectual property rights, in any plans, calculations, drawings, documents, materials, know-how and information relating to the Sub-contract

Works shall be vested in the Sub-contractor / Vendor, the Sub-contractor / Vendor grants to the Employer, his successors and assignees a royalty free, non-exclusive and irrevocable licence (carrying the right to grant sub-licences) to use and reproduce any of the works designs, inventions or other information incorporated and referred to in such documents or materials and any such know-how and information for all purposes relating to the Works of the Nagpur Metro Rail Project, without limitation the design of enabling facilities, construction, installation, reconstruction, completion, reinstatement, extension, remedy of any defect of the Works. To the extent beneficial ownership of any such copyright or other intellectual property right is vested in anyone other than the Sub-contractor / Vendor, the Sub-contractor shall use best endeavours to procure that the beneficial owner thereof shall grant a like licence to the Employer. For the avoidance of doubt, any such licence granted shall not be determined if the Sub-contractor / Vendor shall for any reason cease to be employed in connection with the Sub-contract Works.

7. In the event of any ambiguity or conflict between the terms of the Sub-contract and this Warranty, the terms of this Warranty shall prevail.
8. The provisions of this Warranty shall be without prejudice to and shall not be deemed or construed so as to limit or exclude any rights or remedies which the Employer may have against the Sub-contractor / Vendor whether in tort or otherwise.
9. Nothing contained in this Warranty shall vary or affect the Sub-contractor's / Vendor's rights and obligations under the Sub-contract.
10. The Employer shall be entitled to assign the benefit of this Warranty at any time without the consent of the Sub-contractor / Vendor being required.
11. All documents arising out of or in connection with this Warranty shall be served:
 - a. Upon the Employer at:

 - b. Upon the Sub-Contractor / Vendor at _____ India.
12. The Employer and the Sub-contractor / Vendor may change their respective nominated addresses for service of documents to another address in India but only by prior written notice to each other. All demands and notices must be in writing.
13. This Warranty shall be governed by and construed according to the laws for the time being in force in India.
14.
 - (1) Any dispute or difference of any kind whatsoever between the Employer and the Sub-contractor / Vendor arising under out of or in connection with this Warranty shall be referred to arbitration in accordance with the arbitration provisions as described in the Contract.
 - (2) In the event that the Employer is of the opinion that the issues in such a dispute or

difference will or may touch upon or concern a dispute or difference arising under out of or in connection with the Contract ("the Contract Dispute") then provided that an arbitrator has not already been appointed pursuant to Clause 14 (1), the Employer may by notice in writing to the Sub-contractor / Vendor require and the Sub-contractor / Vendor shall be deemed to have consented to the referral of such dispute or difference to the arbitrator to whom the Contract Dispute has been or will be referred.

(3) Save as expressly otherwise provided, the arbitrator shall have full power to open up, review and revise any decision, opinion, instruction, notice, order, direction, withholding of approval or consent, determination, certificate, statement of objection, assessment or valuation by the Engineer or the Contractor relating to the dispute or difference.

(4) Subject to the foregoing provisions of this clause 14, the Sub-Contractor agrees to submit to the exclusive jurisdiction of the Courts at Nagpur, Maharashtra.

IN WITNESS whereof this Warranty has been executed as a deed on the date first before written

.....

Name:

Designation:

Date of Board resolution authorizing executant to execute this undertaking

Place:

Note: The notarized copy of the board resolution of the Sub-Contractor/vendor must also accompany this Warranty. In case the Sub-Contractor/vendor is a foreign entity, then such board resolution should be notarized by a notary in its home country followed by the consularisation by the Indian Embassy there, or apostilised as per Hague Convention, as the case may be.

Contract Form-11**Indemnity Bond**

THIS INDENTURE made onbetween(hereinafter called the Contractor) which expression shall where the context do admits or implies be deemed to include its executors, administrators and assigns of the one part and the Nagpur Metro Rail Corporation Ltd. (hereinafter called NMRCL) of the other part.

WHEREAS by the agreement (LOA No dated.....) (hereinafter called the said agreement) the contractor has agreed to “-----” and whereas the contractor has applied to the NMRCL that they may be allowed advance on the security of materials absolutely belonging to them and brought by them to the site of the works covered under the project of the said agreement for use in the construction of such of the work as they have under taken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges).

AND WHEREAS the NMRCL has agreed to make stage payment to the contractor the total sum of Rs.----- (Rupees -----only) for stage payment Bill. The quantities and other particulars of which are detailed in this bill for the said works signed by the Contractor on “-----” and NMRCL has reserved to itself option of making any further advances till date on the security of other materials brought by the contractor to site of the said work.

NOW THIS INDENTURE WITNESS that in pursuance of the said agreement and its consideration of the sum of Rs. ----- (Rupees -----only) on or before the execution of these present amount paid to the contractor by the NMRCL (the receipt where of the contractor) both hereby acknowledge and of such further Stage payment, if any, as may be made to him so aforesaid to the contractor do the covenant and agreed with the NMRCL and declare as follows:

1. That the said sum of Rs. ----- (Rupees ----- only) so Stage Payment by the NMRCL to the contractors as aforesaid and all or any further sum or sum's advanced as aforesaid shall be employed by the contractor in or towards the execution of the said works and for no other purpose whatsoever.
2. That the Stage Payment detailed in the said running account bill which have been offered to and accepted by the NMRCL as security are absolutely the contractor's own property and free from encumbrances of any kind and the contractor's shall not make any application for or receive any further payments on the security of work executed which are not absolutely his own property and free from encumbrances of any kind the Contractor indemnifies the NMRCL against all claims on any materials in respect of which any Stage Payment has been made to him as aforesaid.
3. That the Stage Payment detailed in the said running account bill and all other stage payments on the security of which further payments or Stage Payment any hereafter be made as aforesaid (hereinafter called the said materials) shall be used by the contractor solely in the execution of the said works in accordance with the directions of the Engineer / NMRCL and in the terms of the said agreement.

4. That the contractor shall be fully liable for the materials/components and shall make at his own cost all necessary and adequate arrangement for the proper watch, safe custody and protection against all risks including, acts of the God of the said materials/components and provide on approved insurance in favour of NMRCL that until used in construction as aforesaid the said materials shall remain at the site of said works in the contractor's custody and on his own responsibility and shall at the time be open to inspection by the Engineer/NMRCL. This insurance will be valid for a period until this material is approved and fixed in the building or advance has been fully recovered from contractor.
5. That the said materials/components shall not on any account be removed/shifted from the site of the works except with the written permission of the Engineer/NMRCL.
6. That issue of any Stage Payment excess of what is finally required to be used at site would be the contractor's property without any liability on NMRCL., who would recover the cost of this from the contractor.
7. That the contractor hereby charges all the said materials components with the repayment to the NMRCL of the said sum of Rs. ----- (Rupees ---- ----- --only) and any further sum or sums advanced as aforesaid and all cost charges. Damages and expenses payable under these presents provided always and it is hereby agreed and declared that not with power contained therein, if any, whenever the convenient for payment, and repayment herein before contained shall become enforceable and the money owned shall not be paid in accordance therewith, the NMRCL., may at any time thereafter adopt all or any of the following courses as he may deem best.
 - a. That if the contractor shall at any time not be able to complete any part of the Component / equipment as per provision in contract Agreement it shall be considered as the work being left incomplete by the contractor and action as per the conditions of the contract shall be taken.
 - b. Deduct all or any of the money owing out of the performance security or any sum due to the contractor under the said agreement.

That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail.

This widening shall be co-extensive to the agreement dated between Nagpur Metro Rail Corporation Limited, _____. (Client) and(Contractor).

IN WITNESS where of the said contractor and by the order under the direction of NMRCL has here set their respective hands the day and years first above written.

Signed, Sealed & Delivered by the said Contractor:

IN THE PRESENCE OF: WITNESS:

1. NAME: Signature:
SIGNED BY (ADDRESS)

BY THE ORDER AND DIRECTION OF THE NMRCL IN THE PRESENCE OF:

SIGNATURE: WITNESS
(NAME AND ADDRESS)

Contract Form-12**Guarantee for Safe Custody**

(To be stamped in accordance with Stamp Act, of the country of issuing bank)

To:

NAGPUR METRO RAIL CORPORATION LIMITED,

WHEREAS – the Consortium/ Joint venture consisting of:

(Name of Lead Member of the Group and address)

(Name of Member of the Group and address)

(Name of Member of the Group and address) ^[]_[]

(hereinafter called “the Contractor”), with M/s----- as the lead member has undertaken, in pursuance of Contract No. [] datedfor [Note 4] (hereinafter called “the Contract”), ^[]_[]AND WHEREAS according to the said Contract the Employer is obliged to pay to the Contractor the sum of [] ([]) (“the Payment on delivery”) as set out in the priced Bill of Quantities.

(A) Pursuant to the said activities, [Note 4] are to be manufactured offshore or in India for subsequent delivery to the Contractor’s premises in Nagpur, India and held in safe custody by the Contractor.

(B) Pursuant to the terms of the Contract, the Contractor, as a condition precedent to his entitlement to receive any payment for items including an element of [Note 4] Contract [] to the Contractor’s premises in Nagpur, is obliged to provide a Guarantee in the terms hereof for 95 percent of the Payment. ^[]_[]

AND WHEREAS we (Insert name and address of scheduled commercial bank based in India) 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)----- (in words), such sum being payable in the types and proportion of currencies in which the Contract Price is payable and we hereby unconditionally, irrevocably and without demur undertake to immediately 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.

1. We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.
2. 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 the guarantee and we hereby waive notice of any such change, addition or modification.

3. The Bank shall pay to the Employer the amount thus demanded without requiring further evidence or proof of:
 - a. the default of the Contractor; or
 - b. the Employer's entitlement to terminate the Contract or the employment of the Contractor under the Contract; or
 - c. any termination of the Contract or the employment of the Contractor under the contract; or
 - d. of the amount due and payable under this bank Guarantee.

4. The liability of the Bank under this Guarantee shall remain in full force and effect and shall not be affected or discharged in any way by and the Bank hereby waives notice of:
 - a. any suspension of the Works, variation to or amendment of the Contract (including without limitation extension of time for performance or adjustment to the Tender Total or other payment under the Contract) or any concession or waiver by the Employer in respect of the Contractor's obligations under the Contract;
 - b. the termination of the Contract or of the employment of the Contractor under the Contract solely as a result of default by the Contractor under the Contract;
 - c. any forbearance or waiver of any right of action or remedy the Employer may have against the Contractor or negligence by the Employer in enforcing any such right of action or remedy;
 - d. any other security or guarantee held or obtained by the Employer for any of the obligations of the Contractor under the Contract or any release or waiver thereof;
 - e. any act or omission of the Contractor pursuant to any other arrangement with the Surety.

5. The liability of the Bank under this Guarantee shall cease on whichever of the following events first occurs:
 - a. payment by the Bank of the Guaranteed Sum in full to the Employer; or
 - b. receipt of written notification from the Employer that the[Note 4] have been installed and tested to the satisfaction of the Employer.

6. Until the NMRCL has issued an instruction to the Bank to the effect that this Guarantee can be released, the Bank undertakes to extend the validity under the same conditions for successive periods of six (6) calendar months at a time and to forward the appropriate extension sheets to the NMRCL.

SIGNATURE AND SEAL OF THE GUARANTOR

NAME OF THE BANK-----
ADDRESS-----
DATE-----

Notes:

1. The stamp papers of appropriate value shall be purchased in the name of the Bank, who issues the 'Bank Guarantee'.
2. The Bank Guarantee shall be from a scheduled commercial bank based in India, acceptable to the Employer.
3. The amount payable under this Guarantee shall be 95 percent of the aggregate of the installments of the Payment made to the Contractor prior to the date of the written demand referred to above less the aggregate of any sums in respect of items installed, tested and certified by the Employer's Representative (as defined in the Contract) in accordance with the terms of the Contract.
4. Enter name of the Contract.

MAHARASHTRA METRO RAIL CORPORATION LIMITED
(NAGPUR METRO RAIL PROJECT)

BID DOCUMENTS

FOR

Construction Of Subway as RCC Box 1x7x3 Mt. by Pushing Method / Cut & Cover method at Railway's Ch.830 /09-11 Between Khapri-Ajni Station In Lieu Of Existing Level Crossing No.120 at Manish Nagar Crossing under Nagpur-Division Of Central Railway

TENDER NO.
N1CRF-03/2022

PART 3:
CONDITIONS OF CONTRACT AND CONTRACT FORMS
Section XI: SHE Manual



Maharashtra Metro Rail Corporation Limited

(Nagpur Metro Rail Project)

**Metro Bhawan, East High Court Road (VIP Road),
Infront of Dr. Babasaheb Ambedkar Collage,
Near Dikshabhoomi, Nagpur-440010, Maharashtra, INDIA
Website: www.metrotrainagpur.com**

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PART I: SHE MANAGEMNT

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

1.2.1 The Environmental Quality Management Manual (EQM) forms an essential part of the overall Environmental Protection System employed by NMRCL for the construction of Nagpur Metro Rail Project.

1.2.2 Definition & Abbreviations

- (a) **“Environment”** means 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 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 (L_{eq})”** 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. L_{10} and L_{90} are the percentile exceeding levels of sound which is exceeded 10% and 90% of the time of measurement.
- (k) **“Waste”** is unwanted surplus substance arising from the application of all construction operations and any substance or article, which is required to be disposed.
- (l) **“Suspended Particulate Matter”** is abbreviated as SPM and measured in $\mu\text{g}/\text{m}^3$.
- (m) **“Environmental Quality Management Manual”** is abbreviated as **EQM**.
- (n) **“Air Monitoring and Control Plan”** is abbreviated as **AMCP**.

- (o) “**Noise Monitoring and Control Plan**” is abbreviated as **NMCP**.
- (p) “**Ministry of Environment and Forests, Government of India**” is abbreviated as **MOEF**.
- (q) “**Central Pollution Control Board**” is abbreviated as **CPCB**.

(r) Notwithstanding the definition of “Site” of Clause 1.1.6.7 of the GCC and in the context of the present specification the ESHS specifications, the word “Worksite(s)” means:

- (i) The land where work will be carried out, or
- (ii) the land necessary for the implantation of Worksite facilities (work camp, workshops, offices, storage areas, concrete production plants) and including special access roads, or
- (iii) quarries for aggregates, rock material and riprap, or
- (iv) borrow areas for sand and other selected material, or
- (v) stockpiling areas for backfill material or other demolition rubble, or
- (vi) any other location, specifically designated in the Contract as a Worksite

The term « Worksite(s) » encompasses any individual Worksite or all Worksites.

1.2.3 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 Nagpur Metro Rail Corporation Limited or NMRCL
- (vi) “**Chief Safety Officer**” means an officer nominated by NMRCL 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) “**MBOCWR**” means Maharashtra Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules, 2003

- (xiii) **“Notifications”** (Central and state) – collection of cess.
- (xiv) **“CIIBC”** means Chief Inspector of Inspection of Building and Other Constructions of Government of Maharashtra
- (xv) **“HIRA”** means Hazard Identification and Risk Assessment

1.3 Application of this document

- 1.3.1 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.

Pursuant to Clause 4.4 of the GCC, the Contractor is fully liable for all actions, non-compliance and negligence by subcontractors, their representatives, employees and workers, to the same degree as it would be held liable for its own actions, non-compliance or negligence or that of its own representatives, employees or workers.

1.4 Purpose of this document

- 1.4.1 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.
- 1.4.2 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 NMRCL Project Safety, Health & Environment Manual for best SHE performance.
- 1.4.3 These requirements shall be read together with NMRCL's 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 NMRCL's Project SHE Manual.

2.0 'SHE' TARGETS AND GOALS

- 2.1 The SHE targets, goals and aim for the Works are to achieve:
- (i) Zero total recordable injuries.
 - (ii) Zero reportable environmental incidents
 - (iii) All personnel inducted in accordance with the approved contractor SHE plan
 - (iv) Total compliance of conducting inspections and audits as per approved SHE plan
 - (v) 100% incident recording and reporting
 - (vi) 100% adherence of usage of appropriate PPEs at work
 - (vii) 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 before the award of Contract by the Contractor with regard to various provisions on Safety, Health and Environment to be practiced during the construction work.

3.2 NMRCL's SHE Policy and Management Systems

- 3.2.1 The construction works shall be undertaken in accordance with NMRCL'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, Central Rules 1998, The Building & Other Construction Workers Welfare Cess Act 1996 and Central Welfare Rules 1998, Maharashtra Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules, 2003, Building and Other Construction Workers Welfare Cess act 1996 and Central Rules 1998, 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 listed below but not limiting to:

- (i) Indian Electricity Act 2003 and Rules 1956
- (ii) National Building Code, 2005
- (iii) Factories Act, 1948, Maharashtra Government Factories Rules, 1963
- (iv) Motor Vehicles Act as amended in 1994 and The Central Motor Vehicles Rules, 1989
- (v) The Motor Transport Workers Act 1961 & Maharashtra Rules 1965
- (vi) Indian Road Congress Code IRC: SP: 55-2001 'Guidelines on Safety In Road Construction Zones'
- (vii) The Petroleum Act, 1934 and Rules 1976
- (viii) Gas Cylinder Rules, 2003
- (ix) Indian Explosives Act, 1884, along with the Explosives substance Act 1908 and the Explosives Rules 1983
- (x) The (Indian) Boilers Act, 1923
- (xi) The Public Liability Insurance Act 1991 and Rules 1991
- (xii) Minimum Wages Act, 1948 and The Minimum Wages (Maharashtra Rules) 1961

- (xiii) The Contract Labour (Regulation & Abolition) Act 1970 & The Contract Labour (P&R) (Maharashtra) Rules, 1972
- (xiv) The Child Labour (Prohibition & regulation) Act 1986 and Maharashtra Rules 1994
- (xv) Environment Protection Act, 1986 and Rules 1986
- (xvi) Air (Prevention and control of Pollution) Act, 1981
- (xvii) Water (Prevention and Control of Pollution) Act, 1974
- (xviii) The Noise Pollution (Regulation & Control) Rules, 2000
- (xix) Notification on Control of Noise from Diesel Generator (DG) sets, 2002
- (xx) Recycled Plastic Usage Rules, 1998
- (xxi) Notification, Central Ground Water Board, Act January 1997
- (xxii) The Manufacturing, Storage and Import of Hazardous Chemical Rules, 1989
- (xxiii) Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
- (xxiv) The Hazardous Waste (Management, Handling & Trans-boundary Movement) Rules, 2007
- (xxv) Relevant Rules / Guidelines regarding Preservation of Trees
- (xxvi) Batteries (Management and Handling) Rules
- (xxvii) Fly ash utilization notification, Sept 1999 as amended in August 2003
- (xxviii) Guidelines of Nagpur Urban Development Authority
- (xxix) Guidelines of Maharashtra Pollution Control Board

3.3.3 Workman Compensation Act, 1923 along with allied Rules

The Contractor shall ensure that all his employees / workmen are covered under 'Workmen 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.

3.3.5 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 Contractor complies with norms, standards and discharge limit values recommended by the specialised international organisations affiliated to the United Nations, as described in clause 3.4.2 below.

3.4.2 The specialised international organisations affiliated to the United Nations referred to in Clause 9.2 include:

- World Bank, including the IFC and its Environmental, Health and Safety guidelines available from <http://www.ifc.org/ehsguidelines>

For matters not addressed in the IFC above document, the norms, standards and discharge limit values of the following institutions shall apply:

- World Health Organization (WHO)
- International Labour Organization (ILO) (in particular in pursuance to Clauses 6.20, 6.21, 6.23 and 6.24 of the GCC)
- International Maritime Organization (IMO)

3.4.3 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.

3.4.4 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.

3.4.5 In case of failure on the part of the Contractor, the Employer at the cost of the Contractor shall do the same.

3.5 Method Statement and Risk Assessment

3.5.1 Method Statement should be submitted by the Contractor. The Method Statement should include activity list, job step, equipment list, HIRA (Hazard Identification and Risk Assessment) etc.

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/CIIBC and display it at conspicuous places at work sites in Hindi and local 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, organisation and arrangements for SHE
- (ii) The name(s) and experience of person(s) within the Contractor's proposed management who shall be responsible for co-ordinating 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 recognised 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 plan 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 minimise 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

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, build ability 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 ORGANISATION

6.1 Education and Experience

- 6.1.1 The Contractor shall appoint the required SHE personnel as prescribed in General Instruction [NMRCL/SHE/GI/001](#) (enclosed at the end) based upon the statutory requirement and establish the safety organisation based upon the Contract value. The minimum educational qualification and the work experience are given in General Instruction [NMRCL/SHE/GI/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 authorised 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 fail to provide the minimum required manpower as illustrated in General Instruction [NMRCL/SHE/GI/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 VIII 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 [NMRCL/SHE/GI/001](#)

6.9 Facilities to be provided to SHE personnel

6.9.1 As per Schedule VIII 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 / equipments to be provided for SHE personnel are given in the General Instruction [NMRCL/SHE/GI/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 meetings 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. SF 001](#)

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	<ul style="list-style-type: none"> i) Labour Welfare Officer ii) In charge of plant and machinery iii) In charge of site electrics iv) In charge of stores. v) Senior Managers/ Engineers heading different sub functions. vi) Sub – contractor’s representative vii) Labour Contractor’s representative viii) Workers’ representative ix) Co-contractor representative. x) SHE staffs
Employer’s Representatives	NMRCL 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	<ul style="list-style-type: none"> (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
- (vii) Safety presentation by Members
- (viii) Report from Employer
- (ix) Matters arising
- (x) 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 [NMRCL/SHE/GI/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 [NMRCL/SHE/GI/005](#)

8.3 Contractor shall also issue a 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 SHE TRAINING

- 9.1 The behaviour of people at all levels of the Contractor is critical for SHE performance.
- 9.2 The Contractor shall organise quality SHE training to engage Managers, supervisors and other personnel in behavioural change and improve safety performance.
- 9.3 The Contractor shall analyse 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 behavioural-based training programmes for all the executives to identify, recognise 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 [NMRCL/SHE/GI/006](#)
- 9.6 The contents of SHE training to Managers/Supervisors as given in General Instruction [NMRCL/SHE/GI/007](#) shall be conducted.
- 9.7 The refresher-training programme 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 training institute recognized by Maharashtra State Road Transport Corporation / Government of Maharashtra, or any other driving institute registered under Motor Vehicles Act.

- 9.12 All the above listed training programmes except at [Clause 9.11](#) shall be organised by the Contractor only after taking approval from the Employer for the training faculty / organisation, 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.
- 9.14 The Contractor detail in the training programme the actions and ESHS training for subcontractors and other members of the joint venture when applicable.

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:
- (i) Planned General Inspection
 - (ii) Routine Inspection
 - (iii) Specific Inspection
 - (iv) 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:

- (i) Monthly contractor and sub-contractors site safety committee Inspection.
- (ii) Weekly safety inspection by construction supervisors (Contractors and Sub-contractors)
- (iii) 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 are 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.
- (iii) Inspection performed before and after a welding and gas cutting operation.
- (iv) 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) NMRCL 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 & Environmental plan and its supplementary procedures and programs against applicable and current SHE legalisation 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 (MARS)

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 NMRCL 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:

$$\text{Overall Audit Rating} = \frac{\text{Actual Score Achieved}}{\text{Max Possible Score}} * 100$$

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

SN	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
3	< 90%	Improvement Desirable	Contractor rectification within one month and confirmed in writing to Employer

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
- (vii) Education and training of electrical personnel undertaken
- (viii) 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 Audit

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 audits 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 equipments

- (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 NMRCL 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 to 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 Contractor shall also observe important days as listed in General Instruction [NMRCL/SHE/GI/008](#) and printing and displaying safety signage and posters as listed in General Instruction [NMRCL/SHE/GI/009](#)

12.3 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 number 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
- (vi) 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 hrs 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
- (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 equipments, 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, "near miss" 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 approved format.
- 14.1.3 No accident / dangerous occurrences is exempted from reporting to the Employer.
- 14.1.4 Any wilful delay in verbal and written reporting to the Employer shall be penalised as per relevant clause.

14.1.5 Near Miss

An incident or a situation with clear potential for an undesirable outcome to occur, even though no actual negative consequences happened. In other words, it is an event with potential to cause injury, property damage, environmental release or an adverse community reaction. Generally the following events are some examples of near miss when:

- (i) A person trips over an object and falls to the ground but did not get injured
- (ii) A person has to dive or jump out of the way to avoid a collision with a motorized vehicle, a moving object like a suspended part on a conveyor or from an uncontrolled suspended load;
- (iii) A person has to jump from a falling ladder;
- (iv) An object with significant mass falls from a distance of sufficient height that would cause injury to a person if they were struck;
- (v) A machine part becomes a projectile;
- (vi) A person works on a piece of equipment that he/EHS believes is de-energized and that equipment starts up putting that person in jeopardy;
- (vii) A low speed collision occurs and an occupant of that vehicle is not wearing a seat belt and is not injured.
- (viii) Stored energy unexpectedly releases which could cause injury if a person were struck or contacted, e.g. a high tension spring (like your garage door spring) breaks or a pocket of steam releases;
- (ix) Any steps of the vessel entry procedure are omitted in a vessel entry;
- (x) Any emergency equipment (fire extinguisher, Scott Air Pack, Oxygen sensor, eye wash, etc) fails to operate properly when called on in an emergency.

If Protective Equipment is called for and worn and it prevents an injury, then in this case it would not be a near miss. As an example, a mechanic is wearing a hard hat in a barricaded area where hard hats must be worn and a 100gram bolt falls from a height of 2 meters and strikes his hard hat and no injury occurs. That would not be a near miss. But if he were not wearing a hardhat and the bolt falls a meter away, then it would be a near miss.

14.1.6 Each non-conformity will be documented by a digital photograph with captions to provide a visual illustration, explicitly indicating the location, date of inspection and the non-conformity in question.

14.2 Reporting to Government organisations

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:

- (i) causes loss of life; or
- (ii) disables a worker from working for a period of 48 hours or more immediately following the accident;
- (iii) 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:
 - a. the Regional Labour Commissioner, wherein the Contractor has registered the firm/work
 - b. the board with which the worker involved was registered as a beneficiary;
 - c. Director General and
 - d. 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:

- (i) causes loss of life; or
- (ii) disables the injured worker from work for more than 10 days to
 - a. the officer-in-charge of the nearest police station;
 - b. the District Magistrate or, if the District Magistrate by order so desires, to
 - c. 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 organised 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) publicise 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 wilful 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 detail the Contractor's procedures, including detailed communications arrangements, for dealing with all emergencies that could affect the Site. This include 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 neighbourhood 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 NMRCL, 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 utilise the services of experts/agencies empanelled 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 [NMRCL/SHE/GI/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 defence 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 [NMRCL/SHE/GI/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, NMRCL 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, fire fighting 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 off from the working areas to officially designated dumpsites. Trucks carrying sand, earth and any pulverized materials etc. in order to avoid dust or odour impact shall be covered while moving. The tyres 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. All truck drivers should generally be accompanied by a Cleaner.
- 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 penalised 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 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:

- (i) 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
- (ii) rope access and positioning techniques;

18.1.5 **“work at height”** means:

- (i) work in any place, including a place at or below ground level;
- (ii) 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:

- (iii) a guard-rail, toe-board, barrier or similar collective means of protection
- (iv) a working platform
- (v) a net, airbag or other collective safe guard for arresting falls
- (vi) personal fall protection system
- (vii) ladders

18.1.7 **“working platform”** means:

- (i) any platform used as a place of work or as a means of access to or egress from a place of work;

- (ii) includes any scaffold, suspended scaffold, cradle, mobile platforms, trestle, gangway, gantry and stairway which is so used.

18.2 Organisation 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 jeopardise 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.

- (i) his ensuring that the work is carried out:
 - a. from an existing place of work; or
 - b. (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

- (ii) Where it is not reasonably practicable for the work to be carried out in accordance with sub-paragraph (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:

- (i) So far as is reasonably practicable, provide sufficient work equipment to minimise:
 - a. The distance and consequences; or
 - b. Where it is not reasonably practicable to minimise the distance, the consequences, of a fall; and
- (ii) 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

- (i) 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:
 - 1. The working conditions and the risks to the safety of persons at the place where the work equipment is to be used;
 - 2. In the case of work equipment for access and egress, the distance to be negotiated;
 - 3. The distance and consequences of a potential fall;
 - 4. The duration and frequency of use;
 - 5. The need for easy and timely evacuation and rescue in an emergency; and
 - 6. Any additional risk posed by the use, installation or removal of that work equipment or by evacuation and rescue from it;
- (ii) The Contractor shall select work equipment for work at height which:
 - a. has characteristics including dimensions which:
 - 1. Are appropriate to the nature of the work to be performed and the foreseeable loadings; and
 - 2. Allow passage without risk; and
 - b. Is in other respects the most suitable work equipment, having regard in particular to the purposes specified in [Clause 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:

- (i) 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;
- (ii) 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 minimise 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:

- (i) prominent warning notices are so far as is reasonably practicable affixed at the approach to the place where the fragile surface is situated; or
- (ii) 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 [Clause 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 Contractor 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,

- (i) Where a workplace contains an area in which, owing to the nature of the work, there is a risk of any person at work;
 - a. falling a distance; or
 - b. 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 unauthorised persons from entering such area; and

- (ii) 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

- (i) at suitable intervals; and
- (ii) each time that exceptional circumstances which are liable to jeopardise 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 [Clause 18.12.1](#), the Contractor shall ensure that a working platform

- (i) used for construction work; and
- (ii) from which a person could fall 2 metres 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",

- (i) means such visual or more rigorous inspection by a competent person as is appropriate for safety purposes; and
- (ii) includes any testing appropriate for those purposes,

18.13 Inspection of places of work at height

The Contractor shall so far as is 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 workmen shall use any work equipment or safety device provided to him for work at height by the Contractor, in accordance with:

- (i) any training in the use of the work equipment or device concerned which have been received by him; and
- (ii) 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
 - a. through which a person could fall;
 - b. through which any material or object could fall and injure a person; or
 - c. 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:
 - a. the risk of slipping or tripping; or
 - b. 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 millimetres 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 millimetres.
- (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 platforms 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
 1. through which a person could fall;
 2. through which any material or object could fall and injure a person; or
 3. 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
 1. the risk of slipping or tripping; or
 2. 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 recognised 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 dimensions, 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 are a 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
 1. the work can so far as is reasonably practicable be performed safely while using that system; and
 2. 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 minimise 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.
- (v) All fall protection system should be inspected weekly as a minimum.

18.20 Requirements for Ladders

- (i) 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
- a. The short duration of use; or
 - b. Existing features on site, which he cannot alter.
- (ii) Only metal ladders shall be allowed. Bamboo ladders are prohibited.
- (iii) 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.
- (iv) A ladder shall be so positioned as to ensure its stability during use
- (v) 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.
- (vi) A portable ladder shall be prevented from slipping during use by:
- a. securing the stiles at or near their upper or lower ends;
 - b. an effective anti-slip or other effective stability device; or
 - c. any other arrangement of equivalent effectiveness.
- (vii) 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.
- (viii) No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.
- (ix) A mobile ladder shall be prevented from moving before it is stepped on.
- (x) Where a ladder or run of ladders raises a vertical distance of 9 metres or more above its base, there shall, where reasonably practicable, be provided at suitable intervals sufficient safe landing areas or rest platforms.
- (xi) 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
 - 1. the low risk; and
 - 2. the short duration of use.
- (xii) Ladders should be inspected weekly for any damage or corrosion.

18.21 Detailed requirements for Scaffolding

18.21.1 Scaffold General

This procedure provides general information about the competent person, erection, inspection, and use of both welded-frame and tube-and-coupler scaffolds.

- (i) Scaffolds are intended to provide safe working positions at elevations. To eliminate fall exposures, scaffolds must have complete handrails, mid-rails, and decking. Do not use fall arrest equipment as a substitute for handrails, mid-rails, or a complete deck.
- (ii) Before erecting scaffolds, consider all nearby or overhead hazardous energy sources such as electrical, mechanical, pneumatic, thermal, and chemical.
- (iii) Welded-frame scaffolds are made of basic prefabricated end frames, cross-bracing, and frame-connecting devices to hold the parts firmly in place. Tube and-coupler and system scaffolds are made of various lengths of tubing clamped together by special patented couplers to support working platforms of various shapes.
- (iv) All complete scaffolds will have a top handrail approx. 1.1 meter above the platform, mid rail approx. 0.6 meter above the platform and a toe plate 10 cm tall from the platform.
- (v) Do not inter mix scaffold components manufactured by different manufacturers unless the component parts fit together without force or modification.
- (vi) Bamboo components are not permitted on NMRCL Sites.

Competent person: one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt, corrective measures to eliminate those.

Qualified person: one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve or resolve problems related to the subject matter, the work, or the project.

18.21.2 Erecting Scaffolds

- (i) Only employees who have been trained by and are under the supervision of a competent person will erect scaffolds. The NMRCL Project Safety Manager must approve scaffolds higher than 50 feet (15 meters) above the base plates.
- (ii) Where fall hazards cannot be eliminated, use fall-arrest systems while erecting, modifying, and dismantling scaffolds. It is the responsibility of the competent person to determine the feasibility and type of fall-arrest system to be used.
- (iii) Set scaffold legs on base plates placed on foundations or mudsills that are adequate for supporting the maximum intended loads. Scaffold boards and

- (iv) masonry blocks are not appropriate scaffold foundations. The total load on a scaffold consists of the sum of the weight of the workers and materials on a scaffold plus the weight of the scaffold.
- (v) Install adjusting screws only between the base plate and the vertical frame section. Never use adjusting screws together with casters. Do not extend adjusting screws beyond 12 inches (30 centimetres).
- (vi) The position and number of braces used on a scaffold not only restricts the amount of side movement, but also determines the strength of the scaffold. Never use cross-braces as substitutes for handrails or mid rails.
- (vii) When the height of a scaffold exceeds three times the smallest width of the base, secure it to the building or structure at every other lift and every 9 meters horizontally. The scaffold should be secured by both ties and braces to prevent movement Equip scaffold working platforms with handrails approximately one meter high, mid rails, and toe boards, all secured rigidly. Working platforms should be completely decked with safety planks, manufactured scaffold decking, or laminated wooden planks.
- (viii) To allow access to the working platform of a tubular welded frame scaffold, the ladder built into the end frames can be used if it has been specifically designed and constructed by the manufacturer for the purpose of access.
- (ix) Employees engaged in erecting or dismantling tubular-welded frame scaffolds may use the end-frame horizontal members for access provided they are parallel, level, and are not more than 22 inches apart vertically. Hook-on attachable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use. Consideration should be given to breaking the ladder at approximately 6 meter intervals. Retractable or vertical lifelines should be used for fall protection while climbing more than 20-feet.
- (x) When portable straight or extension ladders are used for access to tube-and coupler scaffolds, the 4-to-1 slope should be maintained to avoid a horizontal tube interfering with the use of the ladder.
- (xi) Scaffold users should be able to step off the scaffold access ladder directly onto the working platform. Provide entry gates for scaffolds to eliminate the need for users to climb over handrails.
- (xii) Tag or otherwise identify scaffolds that should not be occupied or that require particular safety precautions. The tag should indicate special requirements, the date of erection, and the signature of the competent person.
- (xiii) Scaffolds and their components must be capable of supporting, without failure, at least four times the maximum intended load. Materials should be evenly distributed on platforms and not concentrated in one small area.
- (xiv) During erection of scaffolds, the electrical clearances shall be maintained as per the tabulation mentioned herein in this document

18.21.3 Scaffold Inspection

- (i) A competent person shall visually inspect all components of the scaffold for defects prior to each shift's use and following any occurrence that could affect the scaffold's structural integrity. Defective components will be immediately discarded.
- (ii) Before erecting and while dismantling scaffolds, inspect all components. Scaffold components should be straight and free from bends, kinks, dents, and severe rusting. Immediately discard defective components. Inspections should include an evaluation of the following components:

- a. Handrails, mid-rails, toe boards, cross-bracing and steel tubing for nicks and other damage, especially near the centre span, and for signs that welding arcs may have struck the equipment
 - b. weld zones on the scaffold frame for cracks
 - c. the end of tubing for splits or cracks
 - d. manufactured decks for loose bolts or rivet connections and bent, kinked, or dented frames
 - e. safety planks for rot, cracks, cuts, and other external damage
 - f. tie rods or bolts and angle iron cleats
 - g. cams, springs, threaded connection, toggle pins, or other quick-connecting devices
 - h. Casters for rough rolling surfaces, "sticky" swivels, and defective locking mechanisms.
- (iii) Scaffold Inspection Tag, Boards, identifying that the scaffold is "Safe For Use" or "Scaffolds Under Construction" must be attached to all scaffolds.

18.21.4 Scaffold Training

- (i) Employees involved in the erection, dismantling, moving, repairing, etc., of scaffolding shall receive training from a competent person. The purpose of the training is to recognize any hazards associated with the work in question. Training shall consist of:
- a. The nature of scaffold hazards
 - b. The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold.
 - c. The design criteria, maximum intended load-carrying capacity, and intended use of the scaffold.
- (ii) Employees who perform work while on a scaffold shall be trained by a qualified person so they will recognize hazards associated with the type of scaffold being used and understand the procedures to control those hazards. Training will cover the following topics as necessary:
- a. The nature of any electrical hazards, fall hazards, and falling object hazards in the work area.
 - b. The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems used.
 - c. The proper use of the scaffold and the proper handling of materials on the scaffold.
 - d. The maximum intended load and the load-carrying capacities of the scaffolds used.

18.21.5 Suspended Scaffolding

Swinging stages, toothpicks, boatswain chairs, float, and needle beams require special approval prior to use.

Attach and secure safety harness before stepping on these scaffolds and do not remove until clear of the scaffold. Tie off to independent lifeline or building structure. One lifeline per person.

19.0 OVERHEAD PROTECTION

- 19.1 All contractors shall provide overhead protections as per Rule 41 of BOCWR.
- 19.2 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.

- 19.3 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 20° to its horizontal sloping into the building.
- 19.4 Overhead protection shall not be erected more than a height of 5m from the base of the building.
- 19.5 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:

- 20.1 All places should be free from dust, debris or similar materials.
- 20.2 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.
- 20.3 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.
- 20.4 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.
- 20.5 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.
- 20.6 Suitable safety net shall be provided at places of material / man falling is possible in accordance with national standards.
- 20.7 The collapse of formwork in the construction industry has the potential for severe injury and death. The four stages of the use of formwork (erection, adjustment, concrete placement and dismantling) all need to be managed in a risk assessment framework. Implementing suitable control measures can eliminate or reduce the potential for events such as the collapse of formwork. Suitable control measures include:
- (i) keeping the documentation for the formwork at the workplace;
 - (ii) following the formwork documentation;
 - (iii) planning to ensure that all elements of the process are conducted in a safe manner – eg ensuring operators such as crane operators, concrete placers are suitably licensed and trained, appropriate personal protective equipment is used etc;
 - (iv) erecting the formwork on foundations which will support the loads to be imposed on the formwork;
 - (v) not erecting formwork near excavation;
 - (vi) ensuring materials used in the erection of formwork are not defective;
 - (vii) securing loose material which may be dislodged as a result of inclement weather;
 - (viii) inspecting the formwork assembly before and during the placement of concrete;
 - (ix) not attaching equipment to the formwork assembly unless specifically designed for this purpose; and not using a stripping process which may cause damage to the permanent structure.

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 eye nuts 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 synchronised mobile jacks, pre-stressing hydraulic jacks, jacks fitted with launching girders etc. and Employer's 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 utilise 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.

21.7.3 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 relevant Rule of GBOCWR 2003, 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.

21.8.2 Every lifting appliances and gears like cranes, hydras etc, if so constructed that the safe working load may be varied by raising or lowering of the jib or otherwise shall be attached with an automatic indicator of safe working loads approved by Bureau of Indian standards/ International certifying bodies which gives a warning to the operator and arrests further movements of the lifting parts.

21.9 Qualification of operator of lifting appliances and of signaller 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 a operator of a rigger or derricks unless he:

- (i) is above twenty-one years of age and possesses a valid heavy transport vehicle driving licence as per Motor Vehicle Act and Rules.
- (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 VII of BOCW Rules.

21.10 General requirements of appliances

21.10.1 Out-of level

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 control of out-of-level is of utmost importance.

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 at all tyres 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, licence, safe worthiness certificate, Employer's approval certificate, and pollution under check certificate shall only be used for transport of segments.
 - (vii) All vehicle drivers including heavy vehicle operators shall be trained on defensive driving at training institute recognized by Maharashtra State Road Transport Corporation / Government of Maharashtra, or any other driving institute registered under Motor Vehicles Act.
 - (viii) Drivers shall also have undergone proper medical examination as per relevant clause mentioned under 'Medical Facilities'.
 - (ix) The segments shall be rigidly 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. Further, necessary arrangements / modification should be made in the trailer and Engineer / Employer approval shall be obtained before the transportation starts.
 - (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 Macalloy 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

23.1 Construction machineries may include dumpers and dump trucks, lift trucks and telescopic handlers piling rigs, vibro hammers, rail welding equipments, 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 browsers, 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 equipments 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 devises and its working condition, manufacturer's maintenance checklist, past projects wherein the equipments were used etc as its minimum content.

23.3 Reverse Horns

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 equipments 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 banks man 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 tyres 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 180° 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 stabilisers 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 stabilise 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 Requirements related to use of Bulldozers

23.6.1 General

- (i) Be careful when working near the edge of banks, ditches, cuts or fills, or near overhanging material. The vibration and weight of the machine may cause the edge to give way or overhanging material to fall.
- (ii) Before starting work, ensure that an observer is present when plant is required to work in water where the depth may endanger the operator.
- (iii) Avoid obstacles such as rocks or logs. If forced to cross them, use extreme caution and change to the lowest gear.
- (iv) Ease up to the balance point and ease down to minimise the jolt on contact with the other side.
- (v) When receiving a wire rope on a drum or through Sheaves, operators should disengage the master clutch, idle the engine, and lock the brakes.

NOTE: All operators should stop engines before working with ropes wound on front-mounted drums.

23.6.2 Clearing Operations

- (i) When clearing trees, watch out for dead branches in treetops.

- (ii) Dozer operators should make sure that all persons are standing clear before pushing over trees, dozing rocks or rolling logs.
- (iii) A long rope should be used to pull over large dead trees. (Make sure in advance that a falling tree will clear the machine and operator).
- (iv) In excavation work, operators should be alert to dangers from overhanging dirt and rocks. In such cases, dozers should be equipped with the relevant overhead protection.

23.7 Requirements related to use of Excavators

- (i) When excavating trenches, place the excavated material at a distance of one and a half times the depth of the trench from the edge of that trench. Where this is not practicable, place excavated materials at least one (1) metre from the edge of the trench.
- (ii) Ensure the ground beneath the machine is not undercut.
- (iii) Watch boom clearance when travelling. Uneven ground may cause the boom to weave and collide with obstructions.
- (iv) Avoid jerky slewing or sudden braking. These can make the machine unstable and overload machine components.
- (v) Ensure the operator has the appropriate restricted operator's licence if the excavator is to be used in the crane mode.
- (vi) When an excavator is used in the crane mode, check that the lifting weight is well within the approved lifting capacity for the machine. This lifting capacity shall be clearly and permanently marked on each machine.
- (vii) Only operate attachments while stationary, as operation during travelling may starve one of the track drive motors and result in an unintended turn.
- (viii) Consider implementing a 'Permit to Work' system, particularly when working near power lines or underground power for example: - that the height of power lines is known; - that the underground location is known; and - visible measure, such as tiger tails, are put in place.

23.8 Requirements related to use of Trucks

23.8.1 General

- (i) Drive defensively
- (ii) Obey road signs
- (iii) Never race with other vehicles
- (iv) When following another vehicle, always allow enough distance to stop safely.
- (v) One truck length for every 10 km per hour of truck speed should be the minimum distance between vehicles.
- (vi) Reversing is the most hazardous truck operation. Reversing alarms, which are fitted on some trucks, are effective in warning persons of the danger. Reverse trucks only when they are under the direction of a signalman or when satisfied that the way is clear and will remain clear.
- (vii) Be cautious of spillage from loaded units and any hazards the spillage might present to people on the ground and to the tyres of other plant.
- (viii) Trucks sometimes fall over a tip head because the driver backs over the edge or the edge collapses under the weight of the truck.
- (ix) Use a protective beam or timber baulk or back under the control of a signalman in order to avoid this happening.

- (x) Principal Contractors should provide an earth mound to at least half the wheel diameter. This is a known control that is also used in the mining industry.
- (xi) Where ground conditions are soft, or the tip head is likely to subside, dump loads back from the edge and have a dozer move the material over the edge.

23.8.2 Loading

- (i) Never enter or leave the cab during loading.
- (ii) Watch for and avoid other vehicles, personnel and rock outcrops on entering or leaving the loading area.
- (iii) Stay a safe distance from trucks ahead at the loading point, and follow the directions of the signalman or loader operator before moving into the loading position.
- (iv) Move off when signalled that loading is complete.
- (v) Load material, e.g. timber, so that it does not project beyond the truck body and present a hazard to other plant, people or structures.
- (vi) Where material is to be transported on a public road, maintain a distance of 1.2 metre or more beyond the front or rear of the vehicle, or 150 mm on either side, shall have a visible red flag or object fastened to the projecting end.
- (vii) Unusually wide or long loads require a permit from the Police Department.
- (viii) Secure loads at the lowest possible level on the tray with ropes or chains, and take special care when the truck is to travel over rough terrain.
- (ix) Truck operators are responsible for giving load placement requirements to crane operators before loading operations begin.
- (x) The load should be placed so that it will remain stable during loading, unloading and travelling.

23.8.3 Unloading

- (i) Lower truck bodies before leaving the dump area.
- (ii) Only raise truck bodies to unload materials on surfaces where the vehicle will remain stable and upright.
- (iii) Never raise truck bodies to within a specified distance of overhead power line.
- (iv) Take special care when tipping a load or spreading screenings on a road.
- (v) With the tray up, trucks are less stable and are more likely to roll over, particularly on hilly sections or roads with surface irregularities or steep shoulders.
- (vi) Check that the raised tray will not foul overhead power lines or telephone wires.
- (vii) Never place part of your body under a raised truck body unless the truck body is securely propped.

23.8.4 Transporting personnel

- (i) Trucks shall not be used to transport personnel unless they are specifically designed to do so.
- (ii) Where a bus is employed for the transportation of personnel, the bus shall: -be enclosed; have seats which are attached to the vehicle; have a safe means of access and exit; and, have two means of exit in case of emergency.
- (iii) Drivers transporting personnel should be alert, dependable and careful.
- (iv) Relevant safety rules include: never allow passengers to ride with their arms outside the vehicle; only start the vehicle after everyone is seated; persons should only get on or off the vehicle when it is stationary; tools, plant or gear should be stored in a compartment separate from passengers, i.e. compartments that are designed for storage and transportation and are separate from where personnel are seated.
- (v) All items stored in this compartment should be secured against movement; and ensure that exhaust fumes do not enter the passengers' compartment.

23.8.5 Towing

- (i) When towing another vehicle, take the following precautions: ensure the towing cable is undamaged and has a safe working load adequate for the job.

- (ii) Slings, straps or chains which are used for towing should not be used for lifting any gear or materials and should be identified as such, e.g. slings and chains, etc. should be tagged "not for use in hoisting operations";
- (iii) Before reversing, ensure everyone is clear. Get help from a signaller if the rear view is obstructed;
- (iv) Attach the towing cable securely to the machines at the points recommended by the manufacturer.
- (v) If these are not known, ensure fixing points are selected that will not damage the tow cable or the machine;
- (vi) check what brakes are operational on the towed vehicle. There is unlikely to be any power assistance available for the brake system. Do not rely on parking brakes as a means of control;
- (vii) When moving off, take up the slack carefully. Do not jerk the cable, and keep it taut to avoid damage;
- (viii) keep towing speed down and as constant as possible;
- (ix) Keep clear of the area between the towing vehicle and the towed vehicle; and attach a warning sign on the rear of the towed vehicle or machine which reads "Vehicle Under Tow".

23.9 Penalty

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 GUARDING

- 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 [NMRCL/SHE/GI/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 penalised.

26.3 Work on site

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

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

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, vapours 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:

- (a) Fixed plant – 400V 3 phase
- (b) Movable plant fed via trailing cable over 3.75 kW – 400V, 3 phase
- (c) Installation in site buildings – 230V single phase
- (d) Fixed flood lighting – 230V single phase
- (e) Portable and hand tools – 115V single phase
- (f) Site lighting - 115V single phase
- (g) 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 equipments (including Potable equipments), 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 equipments 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.

26.8 Cables

- 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 6m above ground.
 - 26.8.8 Cables carrying a voltage to earth in excess of 65V other than supply for welding process shall have metal armour 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 armour 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 an 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 EN 60529.

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 recognised standards for example as detailed as follows:

- (i) 110 volts: Yellow
- (ii) 240 volts: Blue
- (iii) 415 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 equipments

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 equipments:

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 unauthorised 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

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:

- (a) it is unreasonable in all the circumstances for it to be dead; and
- (b) it is reasonable in all the circumstances for him to be at work on or near it while it is live; and
- (c) 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.

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:

SN	Type of Lighting	Area of Requirement	Luminaries
1	Area Lighting	Workmen and vehicles to move about in safely.	<ul style="list-style-type: none"> Shovel type: non-symmetrical Symmetrical or non-symmetrical tungsten halogen
2	Beam flood lighting	Concentrated light over an area from a relatively great distance.	<ul style="list-style-type: none"> Portable flood light (Conical beam) Wide angle flood (fan shaped beam) Medium or narrow angle flood (Conical beam)
3	Dispersive lighting	Lighting for indoor	<ul style="list-style-type: none"> Dispersive (Mercury florescent) Cargo cluster Florescent trough
4	Walkway lighting	Lighting for stairways, ladder ways, corridors, scaffold access routes, etc.	<ul style="list-style-type: none"> Well glass unit Bulkhead unit (tungsten filament) Bulk head unit (Florescent)
5	Local lighting	Lighting on sites and fittings are generally accessible to operatives	<ul style="list-style-type: none"> PAR (Parabolic Aluminised Reflector) lamp cluster Festoons (with or without shades) Adjustable florescent work 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 luminaries 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.

27.7 The Contractor shall take every effort to illuminate the work site as per the Employer's requirement illustrated in General Instruction [NMRCL/SHE/GI/011](#).

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, nail pullers.
- 28.2.2 The Contractor shall ensure that,
- (a) 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.
 - (b) Mushroom headed chisels shall not be used in the worksite where the fragments of the head may cause injury.
 - (c) Unless hatchet has a striking face, it shall be used as a hammer.
 - (d) Only knives of retractable blades shall be used in the worksite.
 - (e) No screwdrivers shall be used for scraping, chiselling or punching holes.
 - (f) A pilot hole shall always be driven before driving a screw.
 - (g) 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 equipments, which gives out more noise as mentioned in [Clause 43.0](#) of this 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 need 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 in 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 180° 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 moves 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 vapours 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

- 30.1 A confined space is any space that:
- (i) Is large enough and so configured that an worker can bodily enter (any portion of the body) and perform assigned work,
 - (ii) Has limited or restricted mean for entry and/or exit,
 - (iii) Is not designed for continuous occupancy
 - (iv) Contains or has the potential to contain a hazardous atmosphere,
 - (v) Contains a material that has the potential for engulfing an entrant,
 - (vi) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section, or
 - (vii) Contains other recognized serious safety or health hazard.
- 30.2 Contractors must ensure all confined spaces are identified and managed using documented site confined space management methods.
- 30.3 As per BOCWR Rule 40:
- (i) 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.

- (ii) No worker shall be allowed into any confined space or tank or trench or excavation wherein there is given off any dust, fumes / vapours or other impurities which is likely to be injurious or offensive, explosive or poisonous or noxious or gaseous material or other harmful articles unless steps are carried out by the Contractor and certified by the responsible person to be safe.

30.4 Dangerous Substances:-

30.4.1 A substance is considered dangerous if one or several of its properties render it dangerous. The Contractor identifies and manages dangerous substances planned for use on the Worksite in the manner described in the present Clause .

30.4.2 The transport to the Worksite and use of dangerous substances requires prior authorisation from the Engineer.

30.4.3 Details of risks and related prevention and protection measures are included in the health and safety plan.

30.4.4 The Contractor obtains all necessary authorisations and/or licenses for the storage and use of dangerous substances from local authorities. A copy of the authorisations is provided to the Engineer.

30.4.5 For each dangerous substance used, the Contractor will implement the recommendations described (i) in the Material Safety Data Sheets (MSDS), and (ii) by the Globally Harmonized System of Classification and Labelling of Chemicals established by the United Nations for hazardous chemicals.

30.4.6 Copies of MSDSs are kept on the Worksite, and made available to personnel. The Contractor provides the Engineer with copies of all MSDSs.

30.4.7 Storage of dangerous substances

Storage areas are designed and equipped by the Contractor based, not only on the chemical and physical properties of the products, but also on the types of containers stored, the number of people requiring access, and the quantities of the substance used.

Pursuant to SHE Clause 53.11, the Contractor anticipates and plans for the storage and management of hazardous waste.

Storage areas for dangerous substances are subject to strict rules, which are regularly checked by the SHE manager appointed. The rules include the following as a minimum:

- a) Access to the storage area is limited to trained and authorised individuals.
- b) An inventory is maintained up-to-date.
- c) MSDSs must be available for all stored dangerous substances, and the substances must be clearly labelled.
- d) A strict and methodical storage system is implemented (storage plan posted, large or heavy packaging may not be stored at heights, equipment and tools may not be stored in the dangerous substance storage room).
- e) Compliance with product expiry dates and implementation of a disposal procedure for substances which are not needed or which have expired.
- f) Entrances, exits and access to emergency equipment are kept clear at all times.

Storage areas are clearly identified with warning signs at the entrance. The Contractor displays the storage plan (location of the different products, maximum inventory), a summary of labelling system and information on chemical incompatibilities.

Chemicals which could react together (leading to explosions, fire, projections or the emission of dangerous gases) are physically separated.

Products that react violently with water are stored so as to prevent contact with water, even in the event of flooding.

Inflammable products are stored separately in a dedicated area with adequate ventilation at all times.

Buildings used to store large quantities of dangerous substances are isolated from other buildings to avoid the spreading of fire. Such buildings are constructed using solid and non-combustible building materials, and are equipped with evacuation systems and the appropriate firefighting equipment. Access to the buildings is clear, allowing for rapid evacuation in the event of an accident. The electrical systems are reduced to the essential minimum, and access points are equipped with adequate lighting (300 lux).

All storage areas are equipped with secondary retentions. Each storage area acts as a general secondary retention. Suitable absorbents (neutralising and non-combustible) are available in the storage area to clean up any spills and leaks.

The Contractor maintains the storage area at a suitable temperature for dangerous substances to prevent overpressure and bursting of containers.

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 fire fighting equipment.
- 31.4 The Contractor shall also give consideration to the provision of adequate fire fighting arrangements within the underground and tunnelling operations including the provision of Fire Service compatible hose connections and emergency lighting.
- 31.5 As per the GBOCW Rules 2003, all lifting appliances' driver cabin should be provided with a suitable portable fire extinguisher.
- 31.6 Combustible scrap and other construction debris should be disposed off 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 metres 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

As per BOCWR Rule 44, 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 be 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
- (vii) 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.

33.2 Damages to people and property.

33.2.1 Pursuant to Clauses 4.14 and 17.1 of the GCC, the Contractor is responsible for damages to people and property caused by the execution of the works or the procedures used for execution.

33.2.2 The Engineer is informed of any damage caused to people, or the property of individuals, other than the Contractor's personnel, within 6 hours of the event, regardless of the value of the prejudice.

33.2.3 Housing existing before the start of the works, located within a minimum radius of 800 m around the perimeter of the quarries and within a minimum radius of 500 m around the other Worksites that will be subject to blasting, will be examined by a bailiff unless agreed upon otherwise with the Engineer.

33.2.4 The bailiff's sworn statement is prepared and provided to the Engineer with the SEPP.

33.2.5 Should any problems be detected due to the intensity of blasting, the Engineer is entitled to request that the Contractor carry out seismic measurements of the intensity of the vibrations induced by the blasting, at variable distances from the blasting points, under the supervision of the Engineer, and at the cost of the Contractor.

34.0 EXCAVATION

34.1 Excavation: 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 Tunnelling

34.2.1 The Contractor shall inform in writing to the Director General within 30 days, prior to the commencement of any tunnelling work.

34.2.2 The Contractor shall appoint a responsible person for safe operation for tunnelling 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 maintaining 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 tunnelling 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 tunnelling 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 or 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 tunnelling.
- (vii) adequate number of water outlets provided for fire fighting 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 tunnelling 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 Piling

34.3.1 General Precautions

There are certain hazards which are common to all types of piling, and the following precautions are necessary:

- (i) prior to piling, all underground services should be located and made safe. A check should be made to ensure there are no cellars, underground water courses or ground conditions which might cause hazards; there should be a firm level base for the crane, or crane mats provided;
- (ii) when working on piling operations one must wear a safety helmet, and ear and eye protection where necessary;
- (iii) All cranes, lifting appliances and lifting gear must have appropriate certificates of testing and thorough examination, and should be large enough for the job;
- (iv) particular attention should be paid to the risk of damage to lifting gear from sharp edges;
- (v) Cranes used for raising or lowering workers must be fitted with a dead man's handle and lowering should be done under power; you must be carried in properly constructed cages which cannot spin or tip;
- (vi) piling contractors should be asked to provide a written method statement setting out the precautions relevant to the type of piling they are to employ;
- (vii) Induction training and information for you as supervisor or operative should be specifically related to the method statement.

34.3.2 Bored Piles

Workers may need to enter a borehole for inspection or for clearing out in undercuts, and there are certain precautions which must be taken prior to entry:

- (i) the borehole should be at least 75 cm in diameter;
- (ii) the borehole should be treated as a confined space and the precautions which are advised elsewhere to ensure a satisfactory atmosphere must be closely followed;
- (iii) waste material from the borehole should be kept clear of the borehole;
- (iv) Descent into a borehole should be in properly designed skips, chains or cages fitted with an anti-spin device. The power source of the lifting appliance should be kept running throughout the time someone is underground;
- (v) while a worker is working down a borehole he/she must wear a safety harness;
- (vi) all workers concerned must be trained and competent in rescue from deep boreholes, and emergency rescue drills should be carried out at regular intervals;
- (vii) A banksman who can see workers in the borehole should be present at all times;
- (viii) There must be adequate lighting at safe reduced voltage and a means of communication from the borehole.
- (ix) Wherever possible, the need for workers to enter pile boreholes should be avoided by the use of television cameras and other techniques for remote inspection.

34.4 Warning signs and notices

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 tunnelling, shall be displayed or erected at

conspicuous places in Hindi and in a language understood by majority of such building workers at such building such excavation or tunnelling 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:

- (i) Entry into confined spaces
- (ii) Work in close proximity to overhead power lines and telecommunication cables.
- (iii) Hot work
- (iv) To dig where underground services may be located
- (v) Work with heavy moving machinery
- (vi) Working on electrical equipment
- (vii) Work with radioactive isotopes
- (viii) Heavy lifting operations and lifting operations closer to live power line

35.3 The permit-to-work system should be fully documented, laying down:

- (i) How the system works;
- (ii) The jobs it is to be used for;
- (iii) The responsibilities and training of those involved; and
- (iv) How to check its operation;

35.4 A Work Permit authorisation 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.

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 /tunnelling 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 behaviour 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 conform to IRC: 67.

36.7 Regulatory signs

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 utilised 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 A warning sign as given in General Instruction [NMRCL/SHE/GI/012](#) shall be installed at all secondary road which merges with the primary road where the construction work is in progress at sufficient distance before it merges with the primary road so as to alert the road users regarding the 'Metro Work in Progress'.

36.8.4 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

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-reflectored red and white band shall be used wherever required.

36.9.3 Drums

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

- (i) 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.
- (ii) The structure dimension of the barricade, material and composition, its colour scheme, NMRCL logo and other details shall be in accordance with specifications laid down in tender document.
- (iii) 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.
- (iv) 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 Tow away vehicle

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.

36.9.8 Cleaning of roads

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 sweepage.

37.0 WORK ADJACENT TO LIVE 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:

- (i) The rules provided for in the Railway's manual should be followed.
- (ii) No persons are allowed to encroach onto the railway unless the owner has given specific authority.

- (iii) Adequate protection in accordance with the railway owner's requirements shall be followed. (Provision of Block Inspectors, Flagmen and Lookouts)
- (iv) All persons shall wear high visibility clothing at all times.
- (v) Any induction training requirements of the railways shall be strictly observed

38.0 BATCHING PLANT AND CASTING YARD LAYOUT

- 38.1 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.
- 38.2 The batching plant / casting yard shall be barricaded and made as a compulsory PPE zone
- 38.3 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.
- 38.4 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.
- 38.5 Drainage shall be effectively provided and waste water shall be disposed after proper treatment
- 38.6 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.
- 38.7 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.
- 38.8 The PPEs provided to cement handling workmen shall conform to international standards.
- 38.9 Access roads and internal circulation roads shall be well laid and maintained properly at all time.
- 38.10 Non-adherence to any of the above provision shall be penalised 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-grap 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 /tunnelling 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
Hard hat with company Logo	Hard hat with reflective tape
Safety boots	Safety boots
Hi-visibility waistcoat covering upper body and meeting the following requirements as per BS EN 471:1994:	Hi-visibility jacket covering upper body and meeting the following requirements as per BS EN 471:1994:
(a) Background in fluorescent orange-red in colour	(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 cm ²	(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 diagonal strips of 5 cm wide on back in an 'X' pattern covering at least 570cm ²	(c) Two vertical green strips of 5cm wide on front side, covering the torso at least 500 cm ²
(d) Horizontal strips not less than 5cm wide running around the bottom of the vertical strip in front and 'X' pattern at back.	(d) Two diagonal strips of 5 cm wide on back in an 'X' pattern covering at least 570cm ²
(e) The bottom strip shall be at a distance of 5cm from the bottom of the vest.	(e) Horizontal strips not less than 5cm wide running around the bottom of the vertical strip in front and 'X' pattern at back.
(f) Strips must be retro reflective and fluorescent	(f) The bottom strip shall be at a distance of 5cm from the bottom of the vest.
(g) Waistcoat shall have a side adjustable fit and a side and front tear-away feature on vests made of nylon.	(g) Strips must be retro reflective and fluorescent.

39.4.1 Colour coding for helmets

Safety Helmet Colour Code (Every Helmet should have the LOGO* affixed /painted)	Person to use
White	NMRCL 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

Note: LOGO*

- (i) Logo shall have its outer dimension 2"*2" and shall be conspicuous
- (ii) Logo shall be either painted or affixed
- (iii) 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, tunnelling 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.

40.0 VISITORS TO SITE

- 40.1 No visitor is allowed to enter the site without the permission of the Employer. All authorised 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, 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:

- a. Executive Summary
- b. Brief mention of construction activities
- c. Monitoring results under AMCP
- d. Interpretation of monitoring results, significance and influencing factors
- e. Graphical representation of monitored results over past four reporting periods.
- f. Measures to control spill under Spill Prevention and Control Plan (SPCP).
- g. Action taken on recommendations under site inspection programme or specific directions.
- h. Summary of complaints, results of investigations and follow-up action
- i. 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 are likely to be received by NMRCL, 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 NMRCL.

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 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.

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:
 - (a) General Physique;
 - (b) Vision: Total visual performance using standard orthorator like Titmus Vision Tester should be estimated and suitability for placement ascertained in accordance with the prescribed job standards.
 - (c) 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.
 - (d) 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.
 - (e) Upper Limbs: Adequate arm function and grip
 - (f) Spine: Adequately flexible for the job concerned.
 - (g) Lower Limbs: Adequate leg and foot concerned.
 - (h) 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

The Contractor shall ensure at a construction site an occupational health centre, mobile or static is provided and maintained in good order. Services and facilities as per the scale lay down in Schedule X of BOCWR. A construction medical officer appointed in an occupational health centre, possess the qualification as laid down in Schedule XI of BOCWR.

42.3 Ambulance van and room

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 van and room are maintained in good repair and is equipped with standard facilities specified in Schedule IV and Schedule V of BOCWR.

42.4 First-aid boxes

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 III 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 programmes.

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) There should not be accumulation of still water at any site, In case of still water, it should be covered by earth and levelled.
 - (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 Hindi and English, 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 Government regulations.
- 42.7.2 Smoking at public worksites by any employee is also prohibited as per Government 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 are given in the project SHE Manual and the monitoring locations shall be identified.

43.2 Noise Monitoring

- 43.2.1 The activities which are expected to cause noise during the construction of Project, 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, travelling 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 Control Plan (NMCP) will provide guidance for construction activity. It shall also address noise performance criteria used in the selection of construction equipment.
- 43.2.4 The Noise Control Plan shall provide for:
- (i) Definition of noise-sensitive uses in the zones affected by construction;
 - (ii) Calculation of future noise levels at the closest noise-sensitive receptors to the construction activity based on construction activity and ambient noise levels;
 - (iii) Evaluation and specification of the noise abatement measures that can be applied to meet the noise objectives;
 - (iv) Monitoring construction activity and providing adjustments to noise abatement controls that may be required to increase their effectiveness;
 - (v) It shall specify the nighttime and daytime construction activities.
- 43.2.5 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.
- 43.2.6 If the measured noise levels exceed the noise limits, the noise levels shall be reduced by appropriate abatement measures.
- 43.2.7 The Engineer shall monitor Contractor's performance of tasks specified, and will inspect the procedures related to the control of noise.
- 43.2.8 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.
- 43.2.9 Limit for construction noise is based on the existing ambient noise levels in areas adjoining the construction sites.
- 43.2.10 The noise levels emanating from any source during construction, shall not exceed 5 dBA or more above existing ambient pre-construction noise levels. The same may be varied from time to time by and at the sole discretion of the Engineer.
- 43.2.11 Where there are no ambient noise measurements, the construction activities shall be limited to levels 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 Level L_{max} dBA
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	Day Time	Night Time
Residential	75	65
Commercial (all times)		85
Industrial (all times)		90

43.2.12 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 Table3, if a sensitive receptor would be affected.

Table 3: Noise Emission Limits for Construction Equipment used during night hours
(Measured at 50 feet from Construction Equipment)

SN	Equipment Category	L _{max} Level dBA
1.	Backhoe	80
2.	Bar Bender	75
3.	Chain Saw	81
4.	Compactor	80
5.	Compressor	80
6.	Concrete Mixer	85
7.	Concrete Pump	82
8.	Crane	85
9.	Dozer	85
10.	Front end loader	80
11.	Generator	82
12.	Gradall	85
13.	Grader	85
14.	Paver	85
15.	Pneumatic tools	85
16.	Scraper	85
17.	Tractor	84

Noise emission limits apply to equipment used at surface of the construction site during night time hours of 9 pm to 6 am.

43.2.13 The adjustments for close-in equipment noise shall be made in accordance with Table4.

Table 4: Adjustments for Close-in Equipment Noise

Distance (Feet)	Level to Estimate Sound Level at 50 Feet dB (A)
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 hour / day)	0.01 in/sec (80 VdB re 10 ⁻⁶ in/sec)
Transient (< 1 hour / day)	0.03 in/sec (90 VdB re 10 ⁻⁶ in/sec)
Transient (< 10 minutes / day)	0.10 in/sec (100 VdB re 10 ⁻⁶ in/sec)

43.2.14 When Diesel Generator (DG) Sets are used for operation of equipment and machinery, then 'Standards and Guidelines for control of Noise Pollution from Stationary DG Sets', under Environment (Protection) Act, 1986 shall apply.

43.2.15 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.

43.2.16 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.

43.4 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 above, feasible administrative or engineering controls should be utilized as given in this document and NMRCL'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.

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/CIIBC 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 [NMRCL/SHE/GI/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 Government regulatory requirements and all subsidiary legislation

45.2 Operations involving ionising 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 Government Enactments.

45.5 The Contractor shall ensure that all site personnel and members of the public are not exposed to radiation.

45.6 Asbestos

Asbestos fibres are naturally occurring and extremely aerodynamic. Because of this, almost everyone is exposed to asbestos. Asbestos fibres can become a health risk if inhaled at high concentrations over extended periods of time. Asbestos is only dangerous if it becomes airborne. As long as asbestos-containing materials are not damaged, the asbestos fibres do not become airborne, and do not pose a health hazard to building occupants.

As a preventive action, no asbestos containing material will be used during any of the site activity mitigate the hazard

45.7 Lead-Based Paint

Lead-based paint is a source of lead poisoning. Ingestion and inhalation of lead dust that is created as lead-based paint chips and peels, or from improper sanding or scraping of lead-based painted surfaces can lead to exposure.

Paints and other chemicals used for painting should be stored in a proper contained area.

Empty Paint containers, waste paint brushes, clothes stained with paint should be properly disposed.

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

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.

46.1.5 In case if the Contractor fail 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 at the cost of the Contractor.

46.2 Canteen

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, Rule 244 of BOCWR and as stipulated in Rule 247 of BOCWR the changes 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

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.

Proper Housekeeping should be maintained at such locations where tea and snacks are served.

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 litres 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 metres of any washing places, urinals or latrines.

46.5 Labour Accommodation

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 Creches

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.

46.7 Heat Stress

Contractors/Subcontractors shall establish the necessary programs to ensure that project employees work safely in heat stress conditions. The reduction of adverse health effects can be accomplished by engineering controls, work practices, training, acclimatization, monitoring, water and electrolyte balance and the recognition and treatment of heat stress emergencies.

PART- IV ENVIRONMENTAL MANAGEMENT

47.0 ENVIRONMENTAL MANAGEMENT

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 air quality impacts.

47.1.2 For carrying out impact monitoring for 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 Fibre 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. (However monitoring is deleted).

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	Air
Sampling	RSPM, SPM 24-hours of the day CO: 12 hours from 0800 to 2000 hrs
Frequency at each location	Two 24-hour samples every 15 days at uniform intervals
Locations	To be determined by the Contractor based on air sensitive receptors
Number of locations	Two locations
Duration of Monitoring by Contractor	During civil construction
Additional Requirements	Ad hoc monitoring as required

Monitoring Reports should be submitted every month along with the Monthly SHE Report

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 minimise 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 minimise 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-utilised 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 to suppress 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 minimise 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 minimise 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:

- indicative of a deteriorating situation such that closer monitoring is reasonably indicated, or
- 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 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 accident and immediate action taken to avoid further accident 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 other State regulations in existence in Nagpur 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 Nagpur 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 Central 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 off 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 off at a location and in a manner that will cause neither pollution nor nuisance.
- 48.6 Any mud slurry from drilling, tunnelling, 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 PRESERVATION

- 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 advise 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 smoothed 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 FELLING 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 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 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 transplanted. 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 off
 - (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 off at landfill sites after obtaining approval of the competent authorities namely Nagpur Municipal Corporation etc.
- 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 [Clause 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.
- 53.7 The Contractor selects suppliers having a voluntary and documented policy to reduce the volume and weight of packaging, and to select recyclable or biodegradable packaging.
- 53.8 The Contractor establishes and maintains a waste register which is at the disposal of the Engineer. This register will record all waste management operations: production, collection, transport, treatment. The following aspects are documented in this register:
- Type of waste, using the nomenclature specified in [Clause 53.12](#);
 - Waste quantities;
 - Name and address of the third party waste management facilities receiving waste or parties taking possession of the substances no longer considered as waste;
 - Name and address of waste transport contractors;
 - Planned waste treatment.
- 53.9 The contractor files and maintains at the disposition of the Engineer the waste manifests for the collection, transport, treatment and/or elimination of waste.
- 53.10 The waste register is established and available as of the Contractors mobilisation to the Worksite. This register will be archived for at least 1 year after the provisional acceptance of the works.
- 53.11 The Contractor implements specific waste management practices adapted to the level of danger for human health or the natural environment. Three waste categories are identified for Worksites and in tracking documents:
- Hazardous waste: any waste with one or several dangerous properties as listed in appendix 2 of these SHE specifications.
 - Non-hazardous waste: any waste with no properties rendering it hazardous. Non-hazardous waste contaminated by hazardous material will be considered as hazardous waste, unless indicated otherwise by the Engineer.
 - Inert waste: any waste unaffected by any significant physical, chemical or biological modifications, which does not decompose, burn or produce any physical or chemical reaction, is not biodegradable and does not damage any substance with which it comes into contact in a manner likely to cause damage to the environment or human health.
- 53.12 The Contractor assesses, document and effectively implements any local recycling or re-use options for its waste.
- 53.13 Waste is categorised and stored separately prior to removal from the Worksites, depending on the level of danger, phase (liquid, solid or gas), the waste management solution to be applied and its potential in terms of recycling or reuse.
- 53.14 Waste is collected from each Worksite at the same rate that it is produced and is placed in

temporary locations meeting the following criteria:

- a) Located at a distance of over 100 m from any natural sensitive area and over 500 m from any socioeconomic sensitive area (school, market, healthcare centre, water well or catchment area), with the exception of waste storage area in camps.
- b) Protected from moving machinery and vehicles, but easy to access for regular collection.
- c) Located on a flat impervious surface to prevent infiltrations.
- d) Under cover for non-inert waste.
- e) Stored in containers of the appropriate size, tightness and level of resistance depending on the danger and phase (solid, liquid, gas) of the waste.
- f) Liquid wastes storage is equipped with secondary retention with a volume at least equal to the volume of the waste contained in the containers.
- g) Hazardous waste stored pursuant to Clause 30.4.7 of the present SHE specifications.

53.15 Waste is removed from Worksites and transported to recycling, treatment and waste management facilities on a regular basis. The frequency of removal, approved by the Engineer, guarantees:

- a) No overflow from containers.
- b) No unpleasant odour or emissions which are dangerous for human health.
- c) No proliferation of insects, rodents, dogs or other animals which are harmful or dangerous for human health.
- d) Regular cleaning of containers and surfaces on which they are located.

53.16 Unless otherwise specified in the Contract or instructed by the Engineer, waste incineration is prohibited on Worksites. Two exceptions are medical waste and green waste, which unless instructed to the contrary by the Engineer, are managed.

The use of third party waste management services is subject to a documented prior audit of the treatment, storage and recycling facilities by the Contractor, to guarantee the conformity with the provisions of the present ESHS specifications on waste.

53.17 The provisions applicable to the Contractor regarding waste management also apply to any third part waste management contractors. The Engineer reserves the right to inspect third party waste management facilities and prohibit the Contractor from using the facilities if considered unacceptable.

53.18 The management of non-hazardous waste complies with the following conditions:

53.18.1 Non contaminated inert waste is removed and can be disposed of to landfill with unused backfill material. The location, capacity and environmental protection measures, particularly for water courses, implemented by the Contractor or subcontractor, will comply with the provisions of the present ESHS specifications.

53.18.2 Non-hazardous waste that cannot be recycled is disposed of to landfill, and complying with the following criteria:

- a) Walls and base sealed by a geo-membrane or a layer of compacted clay with a permeability 10^{-7} cm/s.
- b) Drained for the recovery of leachates, which are routed to a lagoon aerobic/anaerobic treatment prior to discharge into the natural environment or

collected in a temporary storage prior to regular collection and transfer to a treatment unit (septic tank or wastewater treatment plant).

- c) Regularly compacted and covered by earth to limit odours and the proliferation of insects.
- d) When the landfill has reached full capacity, vents are installed to evacuate gases, and the landfill covered by a geo-membrane with a minimum thickness of 1 mm, or a layer of compacted clay, and a top layer of 1.5 m of topsoil, which is revegetated.

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 Waste (management, handling and trans-boundary movement) rules, 2007 and amendment 2008" shall be disposed off 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 of Environment (Protection) Act, 1986 shall be disposed off 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 Authorisation' with State Pollution Control Committee 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 Authorised 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. In case of 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:
 - 1. Use of energy efficient motors and pumps
 - 2. Use of energy efficient lighting, which uses energy efficient luminaries
 - 3. Adequate and uniform illumination level at construction sites suitable for the task
 - 4. Proper size and length of cables and wires to match the rating of equipment
 - 5. 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 NMRCL intends to build an image of safety conscious organisation. 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 NMRCL. Most of the accidents are avoidable and caused preliminarily due to Contractors' negligence. Hence NMRCL shall recover the cost of damages from the Contractors for every reportable incident (fatality / injury).

56.2 In addition every NMRCL 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 NMRCL's reputation. In view of this, NMRCL has decided to establish safety-enforcing organisation. The cost of establishing such organisation 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.

SN	Topic	Unsafe Act/Unsafe condition	Range of Levels	Deductible Amount
1	SHE Policy & Plan	i) SHE policy. a) non-compliance of clause 4.1	L1→L2	L1- Rs 5,000 per single violation, compounded to a maximum of Rs 25,000 at any single instance. L2- Rs 10000 per single violation, compounded to a maximum of Rs 50,000 at any single instance.
		ii) SHE plan	L1→L2	L1- Rs 100000 per single violation, compounded to a maximum of Rs 200000 at any single instance. L2- Rs 200000 per single violation, compounded to a maximum of Rs 400000 at any single instance.
		a) Not as per Employers' content and coverage (Clause 4.2,4.7)		
		b) Delay in submission (Clause 4.2, 4.4)		
		c) Not updated as per Employer's instruction as per Clause 4.4		
d) Copies not provided to all required supervisors/engineers				
2	SHE Organisation	Not complying to the minimum manpower requirements as mentioned in General Instruction NMRCL/SHE/GI/001(Clause 6.1.1)	L1→L2	L1- Rs100000 per month for first month and Rs 200000 for subsequent months. L2- Rs250000 per month for first month and Rs 500000 for subsequent months.
		Not filling up the vacancies created due to SHE personnel leaving the Contractor within 14 days.(Clause 6.7)		L1- Rs 50000 for first month and Rs 100000 for subsequent months. L2- Rs 150000 for first month and Rs 300000 for subsequent months.

		SHE organisation not provided with required Audiovisual and other equipments as per General Instruction.NMRCL /SHE/GI/012 (Clause 6.9.2)		L1- Rs 50000 for first violation and Rs 100000 for subsequent violations. L2- Rs 150000 for first violation and Rs 300000 for subsequent violations.
		Employing through outsourcing agencies and SHE personal are not in the payroll of the main Contractor.(Clause 6.5.1)		
		Disobedience / Improper conduct of any SHE personnel. (Clause 6.2)		
		Chief SHE Manager not reporting directly to CPM of Contractor. (Clause 6.6)		
3	SHE committee	Failed to formulate or conduct SHE Committee meeting for any month (Clause 7.4)	L1→L2	L1- Rs 100000 for the first violation and Rs 500000 for the subsequent violations. L2- Rs 200000 for the first violation and Rs 1000000 for the subsequent violations.
		Contractor and Sub-contractor representatives not attending SHE Committee meetings (Clause 7.10)		L1- Rs 5000 to the contractor of the member who had not attended the meeting for first violation and Rs 25000 for subsequent violations. L2- Rs 10000 to the contractor of the member who had not attended the meeting for first violation and Rs 50000 for subsequent violations.
		Failed to conduct Site inspection before conducting SHE Committee meeting (Clause 7.2.1 (viii))		L1-Rs 25000 for first violation and Rs 50000 for subsequent violations. L2-Rs 50000 for first violation and Rs 100000 for subsequent violations.
		Failed to send SHE Committee Meeting minutes or Agenda to Employer in time (Clause 7.8.1, 7.9.1)		
		Non-adherence of Clause 7.7.1		
		Non-adherence of Clause 7.9		
4	ID card	Non-adherence of Clause 8.1, 8.2 and 8.3	L1→L2	L1- Rs 100000 for first violation and Rs 200000 for subsequent violations. L2- Rs 250000 for first violation and Rs 500000 for subsequent violations.
5	SHE Training	Not complying to the requirements as mentioned in conditions of contract on SHE and project SHE manual with regard to:		
		a) Induction training not given (Clause 8.1)	L1→L2	L1- Rs 50000 for first violation on and Rs 100000 for subsequent violations. L2- Rs 150000 for first violation on and Rs 300000 for subsequent violations.
		b) Supervisor / engineer / manager training not conducted as per Clause 9.6		

		c) Refresher training as per Clause 9.7 and 9.11 not conducted		
		d) Tool-box talk not conducted as per Clause 9.8		
		e) Skill development training not conducted as Clause 9.9		
		f) Daily Safety Oath not conducted as per Clause 9.1		
		g) Top management behaviour based SHE training conducted (Clause 9.4)		
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	L1→L2	L1- Rs 50000 for first violation on and Rs 100000 for subsequent violations. L2- Rs 150000 for first violation on and Rs 300000 for subsequent violations.
		ii) Non compliance of clause 10.3.6		
7	SHE audit	Internal Audit: MARS	L1→L2	
		i) Not conducted as per SHE Plan (Clause 11.2.1) ii) Report not sent to Employer (Clause 11.2.6) iii) Action not taken for any month (Clause 11.2.4)		L1- Rs 50000 for first violation on and Rs 100000 for subsequent violations. L2- Rs 150000 for first violation on and Rs 300000 for subsequent violations.
		External Audit		
		Not conducted as per SHE Plan (Clause 11.4.3)		L1-Rs 100000 for first violation and Rs 200000 for subsequent violations.
		Report not sent to Employer (Clause 11.4.7)		L2-Rs 250000 for first violation and Rs 500000 for subsequent violations.
		Action not taken for any quarter (Clause 11.4.9)		
8	SHE Communication	Important days to be observed for SHE awareness as furnished by Employer not observed (Clause 12.2)	L1→L2	L1- Rs 10000 for first violation and Rs 50000 for subsequent violations. L2- Rs 20000 for first violation and Rs 100000 for subsequent violations.
		Posters as furnished by Employer not printed and displayed (Clause 12.2)		L1- 2,00,000 per contract L2- 4,00,000 per contract
9	SHE Submittals	Non compliance of Clause 13.1	L1→L2	L1- Rs 50000 for first violation on and Rs 100000 for subsequent violations. L2- Rs 150000 for first violation on and Rs 300000 for subsequent violations.

		Non compliance of Clause 13.2		L1-Rs 100000 for first violation and Rs 200000 for subsequent violations. L2-Rs 250000 for first violation and Rs 500000 for subsequent violations.
		Non compliance of Clause 13.3		
10	Injury and Incidence reporting	Fatal accidents	L3	L3- Rs 500000 penalty and enforcement of embargo for first fatality ,and Rs 1000,000 penalty and enforcement of embargo for every subsequent fatality.
		Injury accident	L2→L3	L2- Rs 100000 for first grievously injured person and Rs 200000 for every subsequent grievously injured person (Grievous Injury as defined by Workmen Compensation Act). L3- Rs 250000 for first grievously injured person and Rs 500000 for every subsequent grievously injured person
		Abnormal delay in reporting accidents or wilful suppression of information about any accidents / dangerous occurrence as per Clause 14.1.4	L2→L3	L2-Rs 100000 for first violation and Rs 200000 for subsequent violations. L3-Rs 250000 for first violation and Rs 500000 for subsequent violations.
		Non-compliance of the Clause 14.4	L2→L3	L2- Rs 50000 for first violation on and Rs 100000 for subsequent violations. L3- Rs 200000 for first violation on and Rs 400000 for subsequent violations.
		The contractor shall create a fund to cater, from which in any case of fatal accident or permanent disability, payments will be made to the aggrieved party over and above the statutory requirements.		

11	Emergency preparedness Plan	Non-compliance of the Clause 15.1, 15.2, 15.3, 15.4, 15.5 and 15.6	L2→L3	L2- Rs 100000 for non-compliance of any of the clauses . L3- Rs 200000 for non-compliance of any of the clauses .
12	Housekeeping	Housekeeping maintenance register not properly maintained up to date (Clause 17.4)	L1→L2	L1- Rs 10000 per single violation Compounded to a maximum of Rs 100000 at any single instance. L2- Rs 20000 per single violation Compounded to a maximum of Rs 200000 at any single instance
		Surrounding areas of drinking water tanks / taps not hygienically cleaned / maintained (Clause 17.4)		
		Office, stores, toilet / urinals not properly cleaned and maintained. (Clause 17.4)		
		Required dustbins at appropriate places not provided / not cleaned. (Clause 17.6)		
		Stairways, gangways, passageways blocked. (Clause 17.9)		
		Lumber with protruding nails left as such (Clause 17.10)		
		Openings unprotected (Clause 17.7)		
		Excavated earth not removed within a reasonable time.(Clause 17.15)		
		Truck carrying excavated earth not covered / tyres not cleaned. (Clause 17.11)		
		Vehicles / equipments parked / placed on roads obstructing free flow of traffic (Clause 17.13)		
		Unused surplus cables / steel scraps lying scattered (Clause 17.17)		
		Wooden scraps, empty wooden cable drums lying scattered (Clause 17.18)		
		Water stagnation leading to mosquito breeding (Clause 42.6.1)		
13	Working at Height / Ladders and Scaffolds	Not using or anchoring Safety Belt (Clause 18.9)	L2→L3	L1-Rs 10000 per single violation Compounded to a maximum of Rs 100000 at any single instance. L2-Rs 20000 per single violation Compounded to a maximum of Rs 200000 at any single instance.
		Not using Safety Net (Clause 18.18)		
		Absence of life line or anchorage point to anchor safety belt (Clause 18.19)		

		Non-compliance of Clause 18.17		L3-Rs 30000 per single violation Compounded to a maximum of Rs 300000 at any single instance.
		Using Bamboo ladders (Clause 18.20)	L1→L2	
		Painting of ladders	L1→L2	
		Improper usage (less than 1m extension above landing point, not maintaining 1:4 ratio) (Clause 18.20)	L2→L3	
		Aluminium ladders without base rubber bush (Clause 18.20)		
		Usage of broken / weak ladders (Clause 18.20)		
		Usage of re-bar welded ladders (Clause 18.20)		
		Improper guardrail, toe board, barriers and other means of collective protection (Clause 18.16)		
		Improper working platform (Clause 18.17)		
		Working at unprotected fragile surface (Clause 18.9)		
		Working at unprotected edges (Clause 20.0)		
14	Lifting appliances and gear	Non availability of fitness certificate as per Clause 21.3	L2→L3	L2-Rs 50000 per single violation Compounded to a maximum of Rs 500000 at any single instance. L3-Rs 100000 per single violation Compounded to a maximum of Rs 1000000 at any single instance.
		Documents not displayed on the machine or not available with the operator as per Clause 21.4		
		Maximum Safe Working Load not written on the machine as per Clause 21.5		
		Non-compliance of Clause 21.6		
		Non-compliance of Clause 21.7		
		Automatic safe load indicator not provided or not in working condition as per Clause 21.8		
		Age of the operator less than 21 years or without any licence and non-compliance of other item as per Clause 21.9		
		Non-compliance of Clause 21.10		
		Non-compliance of any of the items mentioned regarding rigging requirements as per Clause 21.11		
		Failure to submit method statement in case of all critical lifting (Clause 21.3)		
		Person riding on crane. (Clause 23.4)		
		Creating more noise and smoke (Clause 43.1.1)		
		Absence of portable fire extinguisher in driver cabin (Clause 31.5)		
		Fail to guard hoist platform (Clause 24.0)		
		No fencing of hoist rope movement area (Clause 24.0)		
		Hoist platform not in the horizontal position (Clause 21.2)		
15	Launching operation	Non-adherence of any of the provisions mentioned in Clause 22.2	L2→L3	L2-Rs 50000 for first violation and Rs 100000 for subsequent violations. L3-Rs 150000 for first violation and Rs 300000 for subsequent violations.

16	Site Electrical safety	Non-compliance of Clause 26.1.1	L2→L3	L2-Rs 10000 per single violation Compounded to a maximum of Rs 100000 at any single instance. L3-Rs 20000 per single violation Compounded to a maximum of Rs 200000 at any single instance
		Non-compliance of Clause 26.2.3, 26.2.4 & 26.2.5		
		Non-compliance of Clause 26.3.1		
		Non-compliance of Clause 26.7, 26.8 and 26.9.1		
		Non-compliance of Clause 26.10 and 26.13		
		Non-compliance of Clause 28.3.2		
		Exposed electric lines (fermentative damage) and circuits in the workplace. (Clause 26.5.1)		
		Inserting of wires directly into the socket		
		Improper grounding for the electrical appliances (Clause 26.7.1)		
		Electrical cables running on the ground (clause 26.8.5 & 26.8.6)		
	Non-compliance Clause 27.0			
17	Hand tools and Power tools	Non-compliance of Clause 28.0	L2→L3	L2-Rs 10000 per single violation Compounded to a maximum of Rs 50000 at any single instance. L3-Rs 20000 per single violation Compounded to a maximum of Rs 100000 at any single instance.
18	Gas Cutting	Wrong colour coding of cylinder.	L2→L3	L2-Rs 10000 per single violation Compounded to a maximum of Rs 50000 at any single instance. L3-Rs 20000 per single violation Compounded to a maximum of Rs 100000 at any single instance.
		Cylinders not stored in upright position. (Clause 29.1) Flash back arrester, non-return valve and regulator not present or not in working condition. (Clause 29.3 & 29.4)		
		Fail to put cylinders in a cylinder trolley. (Clause 29.1)		
		Damaged hose and fail to use hose clamps (Clause 29.2)		
		Using domestic LPG cylinders (Clause 29.5)		
		Fail to store cylinder 6.6m away from fire prone materials (Clause 29.8)		
		Fire extinguisher not placed in the vicinity during operation (Clause 29.6)		
19	Welding	Voltmeter and Ammeter not working (Clause 29.9)	L2→L3	L2-Rs 10000 per first violation and Rs 50000 for subsequent violations. L3-Rs 100000 per first violation and Rs 500000 for subsequent violations.
Non-availability of separate switch in the transformer (Clause 29.9)				
Improper grounding and return path. (Clause 29.10)				

		Damaged and bare openings in the welding cable. (Clause 29.10)		
		Damaged holder (Clause 29.10)		
		Fire extinguisher not placed in the vicinity during operation (Clause 29.6)		
20	Fire precaution	Smoking and open flames in fire prone area (Clause 31.6)	L2→L3	L2-Rs 5000 per single violation Compounded to a maximum of Rs 25000 at any single instance. L3-Rs 10000 per single violation Compounded to a maximum of Rs 500000 at any single instance.
		Using more than 24V portable electrical appliances in the fire prone area (Clause 34.2.3)		
		Not proper ventilation in cylinder storage area. (Clause 29.8)		
		Absence of fire extinguishers (Clause 31.1)		
		Fire extinguishers not refilled once in a year. (Clause 31.2)		
		Fire extinguisher placed in a not easily accessible location		
21	Excavation, Tunnelling and confined space	Non-compliance of Clause 34.1.1	L2→L3	L2-Rs 10000 per single violation Compounded to a maximum of Rs 50000 at any single instance. L3-Rs 20000 per single violation Compounded to a maximum of Rs 100000 at any single instance.
		Non-compliance of Clause 34.2.3		
		Non-compliance of Clause 34.4		
22	Work permit system	Non-compliance of Clause 35.2	L2→L3	L2- Rs 50000 per first violation and Rs 100000 for subsequent violations. L3- Rs 100000 per first violation and Rs 200000 for subsequent violations.
		Non-compliance of Clause 21.11.9		
23	Traffic Management	Non-compliance of Clause 36.4.1	L2→L3	L2-Rs 100000 per first violation and Rs 200000 for subsequent violations. L3-Rs 250000 per first violation and Rs 500000 for subsequent violations.
		Non-compliance of Clause 36.8.3		
		Non-compliance of Clause 36.9.2		
		Non-compliance of Clause 36.9.3		
		Non-compliance of Clause 36.9.7		
		Non-compliance of Clause 36.9.8		
		Barricades (Clause 36.9.4)		
		Not Cleaned	L2	Rs 25000 per single violation Compounded to a maximum of Rs 100000 at any single instance
		Not in alignment		
		Not numbered		
		Not painted		

		Red lights /reflectors not working		
		Damages not repaired		
		Not secured properly		
		Barricade inspector not employed		
		Protruding parts / portions repaired		
		Barricades maintaining register not properly maintained up to date		
		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.	L2	Rs 25000 per single violation Compounded to a maximum of Rs 100000 at any single instance
		Splashing of Bentonite on roads / non-cleaning of tyres of dumpers and transit mixers (Clause 17.11 & 17.14)		
		i) Mishandling of bentonite like splashing of bentonite outside specified width of barricading .ii) Non-cleaning of tyres of dumpers and transit mixers before leaving the site and thereby creating a traffic safety hazard to road users.	L2	a) Rs 100000 on first observation. b) Rs 200000 on second observation .c) Rs 300000 on third and subsequent observations
24	Batching plant / Casting yard	Non-adherence of any of the provisions mentioned in Clause 38.0.	L2	Rs 10000 for single violation compounded to a maximum of Rs 100000 at any single instant.
25	PPE (Personal Protective Equipment)	Not having (Clause 39.1)	L2→L3	L2-Rs 200 per single violation. L3-Rs 400 per single violation.
		Not wearing (or) using and kept it elsewhere (Clause 39.1)	L2→L3	
		Using damaged one (Clause 39.2)	L2→L3	
		Using wrong type (Clause 39.5)	L2→L3	
		Using wrong colour helmet or helmet without logo (Clause 39.4.1)	L1→L2	
		Using for other operation (e.g. Using safety helmet for storing materials or carrying water from one place to other) (Clause 39.5)	L2→L3	
		Not conforming to BIS standard (Clause 39.2)	L2→L3	L2-Rs 10000 for first violation and Rs 50000 for subsequent violations . L3-Rs 100000 for first violation and Rs 200000 for subsequent violations .

		Non-compliance of Clause 39.6, 39.7 and 39.8	L2→L3	L2-Rs 50000 for first violation and Rs 100000 for subsequent violations. L3-Rs 100000 for first violation and Rs 200000 for subsequent violations.
26	Occupational Health	Fail to conduct Medical examination to workers (Clause 42.1)	L1→L2	L1-Rs 10000 per single violation Compounded to a maximum of Rs 100000 at any single instance. L2-Rs 20000 per single violation Compounded to a maximum of Rs 200000 at any single instance. L3-Rs 30000 per single violation Compounded to a maximum of Rs 300000 at any single instance.
		Absence of ambulance van & room (Clause 42.3)		
		Workers not having ID card (Clause 8.2)		
		Absence of first-aid person in work site (Clause 42.4)	L2→L3	
		Absence or inadequacy of first-aid box (Clause 42.4)	L1→L2	
		Misuse of first-aid box (Clause 42.4)		
		First-aid box not satisfy the minimum Indian standard. (Clause 42.4)		
		Smoking inside the construction site (Clause 42.7.2)		
		Drink and drive or work (Clause 42.7.1)		
		Fumigation / insecticides not sprayed to prevent Mosquito breeding (Clause 42.6.3)		
		Non-compliance of Clause 44.1 and 44.2		
27	Labour Welfare measures	Inadequate number of toilets (Clause 46.1.1)	L1→L2	L1-Rs 10000 per single violation Compounded to a maximum of Rs 50000 at any single instance. L2-Rs 20000 per single violation Compounded to a maximum of Rs 100000 at any single instance.
		Toilets not cleaned properly (Clause 46.1.3)		
		Toilet placed more than 500m from the work site (Clause 46.1.3)		
		Absence of water facilities for toilets and washing places (Clause 46.1.3)		
		Accommodation not provided as per BOCWA (Clause 46.5.1)		
		Absence of drinking water (Clause 46.4)		
		Excessive noise and vibration (Clause 43.0)		
		Canteen not provided (Clause 46.2)		
		Food stuff not served on no loss no profit basis (Clause 46.3)		
		Creche not provided (Clause 46.6)		
		Non adherence of Labour welfare provisions of BOCWA (Clause 3.3.1.2)		
		Fail to register establishment and display the registration certificate at workplace (Clause 3.3.1.2)		
		Absence of workers register and records (Clause 3.3.1.2)		
		Absence of muster roll and wages register (Clause 3.3.1.2)		
Fail to display an abstract of BOCWA and BOCWR (Clause 3.3.1.2)				
28	Environmental Management	Tyre wash facility not provided (Clause 47.12)	L1→L2	L1-Rs 10000 per single violation Compounded to a maximum of Rs 50000 at any single instance. L2-Rs 20000 per single violation
		Spillage from vehicles not arrest (Clause 48.9)		
		Air monitoring not practiced (Clause 47.17)		

	The values of air monitoring not within acceptable limits (Clause 47.17, 43.2.1)	Compounded to a maximum of Rs 100000 at any single instance.
	Dust control measures at sites not practiced (Clause 47.13)	
	Improper disposal of debris / residues	
	Non compliance of Clause 53.0 & 54.0	

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.

56.5 Non-conformities detected during inspections carried out by the Engineer are subject to a process adapted to the severity of the situation. Non-conformities are divided into 4 categories as follows:

56.5.1 Notification of observation of minor non-conformities. The non-conformity results in a notification to the on-site Contractor's representative, followed-up by a signed notification of observation prepared by the Engineer. The multiplication of notifications of observation at the Worksite, or absence of corrective actions by the Contractor, can result in the severity of the non-conformity being raised to that of level 1.

56.5.2 Level 1 non conformity: Non-conformities that do not represent a serious immediate risk for health and environment. The non-conformity is the subject of a report addressed to the Contractor and which shall be resolved within five (5) days. The Contractor addresses to the Engineer a report explaining how the non-conformity has been corrected. Further to an inspection and a favourable evaluation of effectiveness of the corrective action, the Engineer signs a close-out report for the non-conformity. In all cases where a non-conformity of level 1 is not resolved within one (1) month, the severity of the non-conformity is raised to level 2.

56.5.3 Level 2 non-conformities: applies to all non-conformities that have resulted in damage to health or the environment or which represent a high risk to health and the environment. The same procedure as for level 1 non-conformities is applied. Corrective action shall be taken by the Contractor within three (3) days. The Contractor addresses a report explaining the corrective actions implemented. All level 2 non-conformities which are not resolved within one (1) month, are raised to level 3.

56.5.4 Level 3 non-conformities: applies to all non-conformities that represent a risk with major consequences to health and the environment. The highest levels of the Contractor's and Engineer's hierarchies present in the Employer's country are informed immediately and the Contractor has twenty-four (24) hours to bring the situation under control. Clause 14.7 of the Particular Conditions of Contract (PC), a level 3 non-conformity results in the suspension of interim payments until the non-conformity has been resolved. If the situation requires, and in pursuance to Clause 8.8 of the PC, the Engineer can order the suspension of work until the resolution of the non-conformity.

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 equipments. 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.

 <p>नागरी मेट्रो NAGPUR METRO</p>	<p>NAGPUR METRO RAIL CORPORATION LIMITED</p>
<p><u>APPENDIX NO.: 1</u></p>	

Memorandum of Understanding between NMRCL and the Contractor for safe execution of contract work

This Memorandum of Understanding is made and executed by and between **Nagpur Metro Rail Corporation Limited (NMRCL)**, a Company registered under the Companies Act 1956 and having its registered office at XXXX 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 endeavour.

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:

- (i) Tender Documents, including Notice Inviting Tender, General Conditions, Special Conditions;
- (ii) Conditions of Contract on Safety, Health and Environment and Project Safety, Health and Environment Manual;
- (iii) Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996, Central Rules 1998 and subsequent Maharashtra BOCW Rules 2003, Building and Other Construction Workers Welfare Cess Act 1996 and Rules 1998 and notification [Central & State] Collection of cess.
- (iv) Indian Electricity Act 2003 and Rules 1956;
- (v) Corresponding International / Bureau of Indian Standard Codes.

Including the amendments to any of the above rules and any other rules & regulations or procedures, circulars, notices & advices laid 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 down by the EMPLOYER.
- 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 execution of work.
- Clause - V Any negligence or violation in implementing any of the provision of the conditions of contract on Safety, Health & Environment and NMRCL project Safety, Health & Environment Manual shall be viewed seriously and the Contractor is liable to compensate the Employer for the loss of reputation. The cost of damage shall be fixed on case-to-case basis.

In witness thereof the Parties hereto by representatives duly authorised have executed this Memorandum of Understanding on _____ day of _____ 20_____.

Signed on

Signed on

For and on behalf of NMRCL

For and on behalf of (Contractor)

Signature:


Signature:

Name:

Name:

Title:

Title:

	NAGPUR METRO RAIL CORPORATION LIMITED
<u>APPENDIX NO.: 2</u>	

Safety, Welfare and Occupational Health requirements as per BOCW Act 1996 and Rules 1998 and Maharashtra BOCW Rules 2003


(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
G - Refers to relevant rules in Maharashtra BOCWR 2003

SN	Items	Relevant Sections / Rules in BOCWA and BOCWR and MBOCWR 2003
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 XVI and XVII
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, XXI
14.	Issue of wages book	R – 241(2)(a); Form XXIII
15.	Service certificate for each workers	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.	Creches	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

SN	Items	Relevant Sections / Rules in BOCWA and BOCWR and MBOCWR 2003
27.	Food charges on no loss no profit basis	R – 247
28.	GBOCWR 2003 welfare Board Rules	
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 equipments	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 Tunnelling 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

SN	Items	Relevant Sections / Rules in BOCWA and BOCWR and MBOCWR 2003
74.	Piling	C – XXII; R – 214 to 222
75.	Medical Examination for building and other construction worker, Crane operator an 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 centres 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 Maharashtra State Rules


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<u>APPENDIX NO.: 3</u>	

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 Organisation Chart Chart indicating reporting of SHE personnel
4.	Roles & Responsibility Individual responsibility of the: i) Project Manager ii) Construction Manager iii) Construction Supervisors iv) SHE Committee Members v) SHE In charge vi) Site Engineers vii) First Line Supervisors viii) Sub-contractors
5.	SHE Committee i) Details - Chairman, Members, Secretary and Employer's representative ii) 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 <ul style="list-style-type: none"> 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 Equipments ix) Mechanical Equipments x) Excavation xi) Fire Prevention xii) Hazardous Chemicals and Solvents xiii) Ionising Radiation xiv) Lighting xv) 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 Machinery
18.	Traffic management
19.	Housekeeping
20.	Environmental Management
21.	Emergency Management
22.	Visitors and Security arrangement

 <p>महाराष्ट्र मेट्रो NAGPUR METRO</p>	NAGPUR METRO RAIL CORPORATION LIMITED
<u>APPENDIX NO.: 4</u>	


**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 behaviours 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

NMRCL 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, NMRCL 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

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<u>General Instruction: NMRCL/SHE/GI/001</u>	

MINIMUM MANPOWER REQUIREMENTS OF SHE ORGANIZATION BASED ON CONTRACT VALUE

Awarded Contract value (in Rs Cr.)	1 Chief SHE Manager	2 Senior SHE Manager	3 Junior SHE Manager	4 Safety Steward	5 Senior SHE (Electrical) Engineer	6 Junior SHE (Electrical) Engineer	7 *Junior SHE (Fire) Manager / **Senior SHE (Fire) Manager	8 Occupational Health officer with Necessary Nursing Assistants (Refer Note3)	9 Environmental Manager	10 Safety Engineer (Refer Note 4)
Upto 2	-	-	1	Refer Note 1	-	1	-	-	-	-
Upto 10	-	1	Refer Note 1		1	Refer Note 2	-	1 (PT)	1	-
Upto 25	1	Refer Note 1			1		1*	1 (PT)	1	-
Upto 100	1				1		1*	1 (FT)	1	-
Upto 250	1	Refer Note 1	Refer Note 1		1	Refer Note 2	1**	2(FT)	1	-
More than 250	1				1		1	2**	2(FT)	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.

Note 7: The Contractor appoints a person responsible for relations with external stakeholders for the site: local communities, administrative authorities, and representatives of economic activities located within one hour travel from the Worksite. This person will be based on the Worksite on a permanent basis. Administrations and local authorities will be informed of the existence of this person as of the start of works and will be provided with telephone contact details so as to be able to contact this person if a problem arises during the execution of works or concerning the behaviour of the Contractor's employees outside the Worksite.

 NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
<u>General Instruction: NMRCL/SHE/GI/002</u>	

MINIMUM QUALIFICATION AND EXPERIENCE FOR (SHE) SAFETY, ELECTRICAL, ENVIRONMENTAL, TRAFFIC ENGG. AND OCCUPATIONAL HEALTH PROFESSIONALS

SN	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 MepcoSchlenk 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 CLI / RLI Mumbai / Chennai / Kolkata and Kanpur. vi) B.E / B.Arch., with one year <u>Full Time</u> 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 SN1 and in addition the following categories:</p> <ul style="list-style-type: none"> i) B.Sc.(Physics/Chemistry/Maths) with one year Full Time advanced Safety diploma from NICMAR, Hyderabad ii) B.Sc. / Diploma in Engg with advanced Safety Management Diploma from CLI / RLI / Mumbai / Chennai / Kolkata and Kanpur. iii) B.Sc. (Physics/Chemistry/Maths) 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 a case to case basis 	2 {for category (i), (ii) and (iii) only}
3	Junior SHE Manager	<ul style="list-style-type: none"> 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 	2 (for category (i) only)


SN	Designation	Qualification	Experience (in years)
		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 to case basis	
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 Licence holder	2
6	Junior SHE (Electrical) Manager	Diploma in Electrical Engineering + Govt. recognized Electrical Licence 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) Engineer	Govt. recognized PG Degree / Degree / Diploma in Traffic/Transportation Engineering or Planning	1
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 any metro projects in India, they can be considered for the following posts:

- Senior SHE Manager
- Junior SHE Manager
- Safety Steward

depending upon the qualification and number 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 metro projects in India the candidates shall qualify as specified above.

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<u>General Instruction: NMRCL/SHE/GI/003</u>	

MINIMUM 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 equipments are a must for conducting periodical in-house safety presentations in the training programmes.
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.

SN	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) Noise Monitoring deleted	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
a)	Chalk piece for marking				

SN	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
b)	Measuring tape for measuring Flexible tape – 2m length Metal Foot long scale and 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				

 <p>महानगर मेट्रो NAGPUR METRO</p>	NAGPUR METRO RAIL CORPORATION LIMITED
<u>General Instruction: NMRCL/SHE/GI/004</u>	

Topics for First day at work SHE orientation training of Workmen**1. Hazard Identification Procedure**

Hazards on site:

- Falls
- Earthing work
- Electricity
- Machinery
- Handling materials
- Transport
- Site housekeeping
- Fire

2. Personal Protective Equipment

- What is available?
- How to obtain it?
- Correct use and care

3. Health


- Site welfare facilities
- Potential health hazards
- First Aid/Cardio-Pulmonary Resuscitation (CPR)

4. Duties of the Contractor

- Brief outline of the responsibilities of the Contractor by law
- Details of Contractor's accident prevention policy
- NMRCL's SHE manual
- Building and other Constructions Welfare Law

5. Employee's Duties

- Brief outline of responsibilities of employee under law
- Explanation of how new employees fit into the Contractor's plan for accident prevention. (Induction and orientation).

 <p>महानगर मेट्रो NAGPUR METRO</p>	<p>NAGPUR METRO RAIL CORPORATION LIMITED</p>
<p><u>General Instruction: NMRCL/SHE/GI/005</u></p>	

ID Card Format
(85 mm x 55mm)

Front side of ID card:

Nagpur Metro Rail Project


Company Logo	Name & Address of Main / Sub / Labour contractor
Name: Designation: Blood Group: Valid up to:	Photo
Authorised Signatory	

Backside of ID card:

Employee Address: _____

- 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
- 3 If found please return it to:


Main contractors' Address

 NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
<u>General Instruction: NMRCL/SHE/GI/006</u>	

SHE Training details for Managers and Supervisors


1. The Law and Safety Statutory requirement Appropriate regulations Duties of employer and employee	2. Policy and Administration Effect of incentive on accident prevention Human relations Consultation Safety Officer: duties, aims, objectives
3. Safety and the Supervisor Safety and efficient production go together Accidents affect morale and public relations	4. Principles of Accident Prevention Attitudes of management, supervision and operations Methods of achieving safe operations Accident and injury causes
5. Site Inspection The role of management Hazard Identification Procedure Records results Follow-up procedures Feedback	6. Human Behaviour Motivating agencies Individual behaviour Environmental effects Techniques of persuasion
7. Site housekeeping Site organization Relationship of site housekeeping to accident occurrence Site access Equipment storage Material stacking Materials handling	8. Health Medical examination Hazard to health on site Sanitation and welfare Protective clothing First Aid/CPR
9. Personal Protective Equipment Eye, face, hands, feet and legs Respiratory protective equipment Protection against ionizing radiation	10. Electricity Appreciation of electrical hazards Power tools Arc welding Low voltage system Lighting and power system on sites ELCB, RRCB, Grounding/Ground fault circuit interrupters (GFCIs)
11. Oxygen and Acetylene Equipment Cylinder storage and maintenance Condition and maintenance of valves, regulators, and gauges Condition and maintenance of hoses and fittings Pressures	12. Equipment Accidents related to moving parts of machinery Appreciation of principles of guarding Importance of regular maintenance
13. Transportation Transport to and from site Hazard connected with site transport Competent drivers Dumpers Tipping trucks Movement near excavations	14. Excavations Method of shoring Precautions while shoring Precautions at edge of excavations Removal of shoring Sheet steel piling
15. Working platforms, Ladders, and Scaffolding Hazards connected with the use of ladders Maintenance and inspection Type of scaffold	16. Cranes and other Lifting Machines Licensing, certification and training required for operation of cranes Slings methods

Overloading Work on roofs Fragile material Openings in walls and floors Use of safety belts and nets	Signalling Access to crane(s) Maintenance and examination Ground conditions Hazards and accident prevention methods connected with the use of different types of cranes/heavy equipment Crane Lift Plan for all lifts
17. Lifting Tackle	18. Fire Prevention and Control
Slings - single and multi-legged Safe working loads (SWLs) Safety hooks and eyebolts Cause of failure Maintenance and examination	Principle causes determining fire Understanding fire chemistry Fire fighting equipment Fire fighting training
19. Communications	20. Manual Handling
Effective methods of communication (particular interest to non-English speaking workers) Method and preparation of reports Safety committees Safety meeting	Body posture and procedure for lifting, pushing, pulling, dragging, sitting and walking Ergonomics Stretching exercises

 NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
General Instruction: NMRCL/SHE/GI/007	


SHE Training Matrix

Types of training	Management															Supervisor														
	SHE Orientation	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	Permit to work system	Confined space entry	Scaffolding	Waste Management	Environment Monitoring	Labour welfare measures	Behavioural Based Safety Management (BBSM)	Job/Task Safety Analysis (JSA)	Safety Training Observation Programme (STOP)	Industrial First Aid & CPR	Incident / Accident Investigation & Fire fighting	Confined Space Testing & Scaffolding Erection & Inspection	Rigging	Wire Rope Inspection	Crane Inspection	Electrical / Mechanical Isolation	Permit to Work System	
Project Manager	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Sr. Construction Managers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Quality Manager	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Planning engineer	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Construction Managers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Construction Supervisors	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Construction Foreman	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Machinery Operators	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Material Handlers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Station Building Workers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Steel workers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Mechanical workers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Other Civil workers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Electrical workers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Radiographers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Transportation Drivers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Security Officers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Clerical Staff	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Medical Doctor	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Sr. SHE Managers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Jr. SHE Managers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
SHE Supervisors	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								

 माझी मेट्रो NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
<u>General Instruction: NMRCL/SHE/GI/008</u>	

DAYS TO BE OBSERVED FOR CREATING SHE AWARENESS

1 st Monday to Sunday of January	Road Safety Week (Subjected to confirmation from Ministry of Road Transport, Govt. of India every year.)
16 th February	Kyoto Protocol Day
March	Red Cross Month
4 th March	National Safety Day
7 th April	World Health Day
14 th April	Fire Safety Day
April 18 to 22	Earth Week
20 th April	Earth Day
20 th April	Noise Awareness Day
28 th April	ILO World Day for Safety and Health at Work
May 1 to 7	Emergency Preparedness Week
5 th June	World Environmental Day
12 th June	World Day against Child Labours
9 th July	Occupational Health Day
17 th October	World Trauma Day
1 st December	World AIDS Day

 NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
General Instruction: NMRCL/SHE/GI/009	

Minimum Requirements of SHE Communication Posters / Signages / Video

1. For the purpose of Minimum requirements of SHE Communication Posters / Signages / Video 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 prepare a SHE Communication Plan as a part of site specific SHE Plan and shall include the following minimum requirement of Posters / Signages / 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 organisations 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 1: Minimum number of Posters

SN	SHE Poster Title	Min 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)	Signages 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-Vi Jacket	5	Each 25	Each 50	Each 75	Each 200
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 - Signages to display the messages like SAFE, UNSAFE, FIT FOR USE,	5 types of sizes made up of metal sheet to be mounted at different	Each 25	Each 50	Each 75	Each 200

SN	SHE Poster Title	Min No. of concepts in each title	No. of Posters / Signage / Video			
			Group A Contract	Group B Contract	Group C Contract	Group D Contract
	AVOID USE etc.	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.	Labour Welfare Measures (Payment of Minimum Wages, Avoidance of Child labour, 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 Hindi 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 2: Size of Posters / Signages

SN	Item	Size
1.	Posters – Standard	17”x22” –135 GSM 4 Colour 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.	Signages	Small : 12”x6” Big : 24”x12”
7.	Road Traffic Sign Boards	Strictly as per Indian Road Congress (IRC) specifications

Table 3: Safety Signage Colour (as per IS 9457)

SN	Type of signage	Colour
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1	Mandatory	Blue
2	Danger	Yellow
3	Prohibit	Red
4	Safe conditions	Green

 NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
<u>General Instruction: NMRCL/SHE/GI/010</u>	

Experts / Agencies for SHE Services

SN	Organisation	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 Labour Institute Post box no: 17851, NSMonkikarMarg Sion , Mumbai- 400 022 Tel.: 022- 4092203 Fax: 022 – 4071986 E-mail: cli@dgfasli.nic.in	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	SHE Management / Technical Training
4.	Delhi Productivity Council 1E/10, Swami Ramtirath Nagar New Delhi – 110 055 Tel.: 23522835	SHE Management / Technical Training
5.	Det Norske Veritas AS, 203, SavitriSadan 1, 11 PreetVihar 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 AV Baliga Memorial trust Link House, Bagadur Shah ZafarMarg Press Area New Delhi – 110 002 Phone: 011 – 23311119	HIV / AIDS awareness
7.	Dr.Cris Research Centre For Occupational Health & Safety 306, Guru ArjunaDevBhawan, 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, ArihantNitco Park 6th Floor, 90, Dr.RadhakrishnanSalai, Mylapore, Chennai-600 004 Phone: 044-2847 2800, 2847 3752	SHE Management Training

SN	Organisation	Services
	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, Jai Bharath Nagar, Bangalore-560 033 Phone: 080-2549 6782 E-mail: etgrangan@yahoo.com	SHE Management / Technical Training
11.	HSRTC, PENTASAFE, 201, 2nd Floor, Town Centre, AndheriKurla Road, Marol, Andheri (East), Mumbai-400 059 Phone: 022-2850 2210/20/50 Fax: 022-2850 2260 E-mail: training@penta-safe.com	SHE Practical Field Training for Height Safety
12.	Institute of Driving Training & Research, Wazirabad Road, Adjoining Loni Road flyover. New Delhi – 110 094 Phone: 011 – 22813474, 22815833 Fax: 011 - 22811131	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	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, SivajiMarg, New Delhi – 110 015 Phone: 011 - 51419538, 51419539 Fax: 011 - 51419600 Website: www.lnteutecticwelding.com	SHE Practical Field Training for Welding Safety
16.	Loss Prevention Association of India Ltd. Warden House, Sir P.M. Road, Mumbai – 400 001 Website: www.lpaindia.org	SHE Management / Technical Training
17.	MFA Crucial Moments Healthcare Pvt. Ltd., 42, Okhla Industrial Estate, Phase – II New Delhi – 110 020 Phone: 011 – 55624000 Fax: 011 – 55624010 E-mail: contact@crucialmoments.net	First-aid Training
18.	Modicare Foundation	HIV / AIDS awareness


SN	Organisation	Services
	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	
19.	National Safety Council HQ and Institute Building 98A, Sector 15, industrial Area C.B.D Belapur, Navi Mumbai – 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), KondliGharoli, MayurVihar-II, Delhi-110 096 Fax: 011-2262 5015 Mobile: 9811153873 E-mail: r_k_p@vsnl.net	SHE Management / Technical Training
24.	St. Johns' Ambulance Red Cross Road New Delhi – 110 001	First-aid Training
25.	Vexil Business Process Services Pvt. Ltd. 208, A/4, Savitri 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	SHE Practical Field Training for Welding Safety



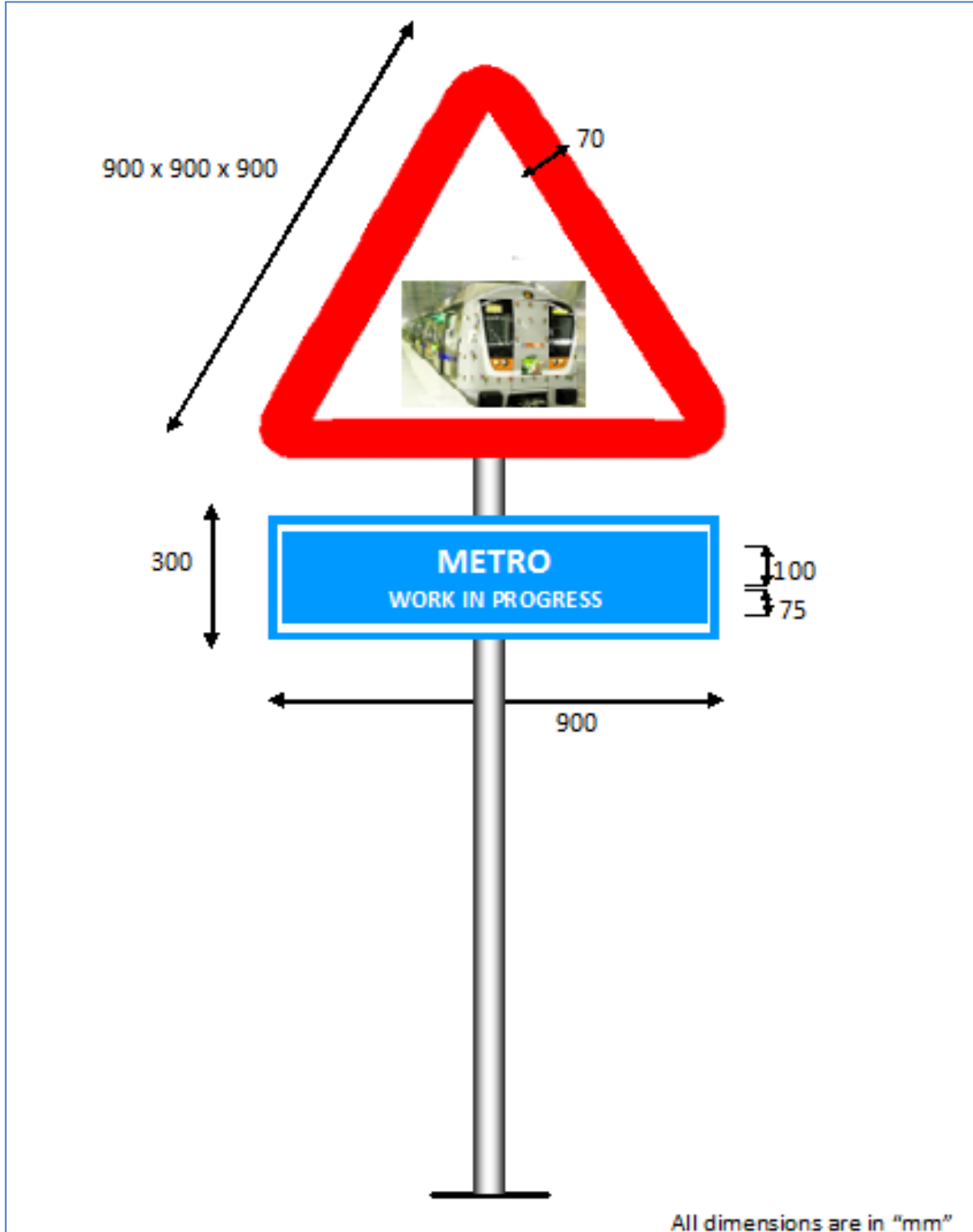
NAGPUR METRO RAIL CORPORATION LIMITED


General Instruction: NMRCL/SHE/GI/011**Minimum Lighting Requirements**

SN	Facility or Function	Luminance – lx (lm/ft ²)
1.	Administrative areas (offices, drafting and meeting rooms, etc.)	540 (50)
2.	Construction areas <ul style="list-style-type: none"> • general indoor • general outdoor • 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 <ul style="list-style-type: none"> • exit ways, walkways, ladders, stairs 	110 (10)
4.	Maintenance / Operating areas / shops <ul style="list-style-type: none"> • vehicle maintenance shop • carpentry shop • outdoors field maintenance area • refueling area, outdoors • shops, fine details work • shops, medium detail work • 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 <ul style="list-style-type: none"> • indoor stockroom, active/bulk storage • indoor rack storage • 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)

 <p>महानगर मेट्रो NAGPUR METRO</p>	<p>NAGPUR METRO RAIL CORPORATION LIMITED</p>
<p><u>General Instruction: NMRCL/SHE/GI/012</u></p>	


Warning Traffic Sign



 नागरी मेट्रो NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
<u>Form No. SF/001</u>	

<u>FORMATION OF SITE SHE COMMITTEE</u>	
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. 4. 5.
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 minuted in the standard format and circulated to the following under the signature of the secretary	
1. Chairman	3. NMRCL Representatives
2. Members	4. Others concerned
Date:	Signed By: -----
CHAIRMAN	

 नागरी मेट्रो NAGPUR METRO	NAGPUR METRO RAIL CORPORATION LIMITED
<u>Form No. SF/002</u>	

<u>MINUTES OF SHE COMMITTEE MEETING</u>			
Contract No.			
Contractor Name			
Contract Title			
Meeting No.		Date of Meeting	
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:	

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 /			

Item No.	Description of Discussion	Action By	Target	Remarks
	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)