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PART – I: SAFETY AND HEALTH MANAGEMENT

1.0 General

1.1 Scope
This document defines the Safety and Health associated with the Lessee/Licensee and any other agency to be practiced in works at all time. Licensee shall ensure the compliance and monitoring of Safety guideline at their level only and it shall not be liability of DMRC to monitor these guidelines on day to day basis.

1.2 Definition / languages
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) BOCWA means Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996
v) BOCWR means Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998
vi) DBOCWR means Delhi Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules, 2002
vii) DG means Director General of Ministry of Labour, Govt. of India.
viii) CIIBC means Chief Inspector of Inspection of Building and Other construction works of Govt. of Delhi.

1.3 Application of this document
This document applies to all aspects of the Lessee/Licensee scope of work, including all aspects conducted by sub-Lessee/Licensees/licensees and all other agencies. There shall be no activity associated to the contract, which is exempted from the purview of this document.

1.4 Purpose of this document
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 work.

2.0 ‘SHE’ Targets and Goals
The SHE targets, goals and aim for the Works are to achieve:
i) Zero total recordable injuries.
ii) Zero reportable environmental incidents
iii) 100% incident recording and reporting
iv) 100% adherence of usage of appropriate PPEs at work.
v) Executing work with least disturbance to the environment, adjoining road users / metro commuters and traffic.
3.0 Compliance

3.1 DMRC’s Safety and Health Policy and Management Systems
The works shall be undertaken in accordance with DMRC’s Safety and Health Policy and Management Systems as amended from time to time provided in Safety and Health Manual.

3.2 Indian statutory requirements
Lessee/Licensee shall develop thorough understanding about Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, Central Rules 1998, Delhi Govt. Rules 2002, Building and Other construction workers Welfare Cess Act, 1996 and Central Rules, 1998 and Delhi Building Workers’ Welfare Board Rules, not only to satisfy the Inspectors’ perspective but the use of legislation as the strong tool for effective SHE management at work place / places. Lessee/Licensee is strongly advised to practice the principle of voluntary compliance.
In addition, the 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
iii) Factories Act, 1948 and Delhi Factories Rules.
iv) Gas Cylinder Rules, 2003
vi) Employees Compensation Act, 1923 along with allied Rules
vii) Minimum Wages Act, 1948 and Rules 1950
ix) Child Labour (Prohibitions & Regulations) Act, 1986 and Rules 1950
x) Environment Protection Act, 1986 and Rules 1986
xi) Air (Prevention and control of Pollution) Act, 1981
xii) Water (Prevention and Control of Pollution) Act, 1974
xiii) The Noise Pollution (Regulation & Control) Rules, 2000
xiv) Notification on Control of Noise from Diesel Generator (DG) sets, 2002
xv) Recycled Plastic Usage Rules, 1998
xvi) Notification, Central Ground Water Board, Act January 1997
xvii) Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989
xviii) The Hazardous Waste (Management & Handling) Rules, 1989
xx) Batteries (Management and Handling) Rules

4.0 ID Card and First day at work, SHE orientation training
Identity card to each staff shall be issued by the Chief Security commissioner office of DMRC on payment of requisite fee for police verification and cost of card. The Lessee/Licensee should submit application for this in the prescribed format clearly providing basic details affixing photographs and finger prints of the concerned staff. In the absence of valid identity card, the staff shall not be permitted to enter into the station premises/work sites.
The Lessee/Licensee shall ensure that all personnel working in the premises receive an induction Safety and Health training explaining the nature of the work, the hazards that may be encountered during the work place work and the particular hazards attached to their own function within the operation.
5.0 Safety and Health Training

5.1 The Lessee/Licensee shall organise quality SHE training to engage staff, Managers, supervisors and other personnel in behavioural change and improve safety performance.

The Lessee/Licensee shall analyse the training requirements for all the employees and initiate a training program to demonstrate that all persons employed, including sub Lessee/Licensee, 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 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.

5.2 The Lessee/Licensee shall arrange behavioural-based training programmes for all the executives to identify recognise and eliminate unsafe act and unsafe conditions. If the work is still continuing, the refresher-training programme to all employees shall be conducted once in six months.

5.3 If the work is still continuing, Toolbox talk which shall also include information about minimum wages, PF and ESI benefits shall be conducted by site Engineer/Supervisor along with assistance of Safety & Health and Environment personnel to all workmen every day.

5.4 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 are associated to the concerned jobs.

5.5 All vehicle drivers including Hydra operators shall be trained on defensive driving at Delhi Govt. and Maruti Institute for Driver Training and Research at Wazirabad Road, Adjoining Loni Road Flyover, Delhi-110094. All vehicle drivers shall also undergo refresher training on defensive driving provided by the same institute once in 6 months.

5.6 The clause no. 5.1 to 5.4 shall not be applicable to contracts having annual value less than Rs. 1 Crore for the first year.

5.7 All above provisions shall only be applicable wherein large scale construction/fabrication works or hazardous activities such as working at heights/on track etc. are carried out.
6.0 Safety and Health Inspection

6.1 Routine Inspection

6.1.1 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 temporary structures including scaffold/trestle by competent scaffolder

iii) Monthly Inspection of electrical equipments, power and portable/handheld tools by competent electrical supervisor

iv) Monthly inspection of lifting gears, tools tackles and appliances.

v) Quarterly Inspection of temporary electrical systems by competent electrical in-charge and of Plant & machines by P&M In-charge.

vi) Wages, PF and ESI related records

Half-yearly inspection of lifting machinery, lifting appliances, equipment and gears by Govt. approved competent person empanelled by DMRC.

6.2 Specific Inspection

6.2.1 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; 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 Lessee/Licensee shall ensure that a competent supervisor inspects all high-risk processes and activities.

6.3 Other Inspection which includes the following:

i) Government Labour Department and other statutory agencies.

ii) DMRC management, Safety and Execution team.

7.0 Safety & Health Communication

The Lessee/Licensee shall take every effort to communicate the Safety and Occupational health management measures through posters campaigns / billboards / banners / glow signs being displayed around the work places as part of the effort to raise safety awareness amongst to the work force. Posters should be in Hindi and English.

The clause no.7 shall not be applicable to advertisement contracts and contracts having first year annual value less than Rs. 1 Crore for the first year. The above provisions shall only be applicable wherein large scale construction/fabrication works or hazardous activities such as working at heights/on track etc. are carried out.

8.0 Accident reporting and investigation
8.1 Reporting to DMRC
All accidents and dangerous occurrences shall immediately be informed verbally to the DMRC. Reports of all accidents (fatal / injury) and dangerous occurrences shall also be sent within 24 hours as per Appendix-4.
No accident / dangerous occurrences are exempted from reporting to DMRC. Any wilful delay in verbal and written reporting to the DMRC shall be penalised as per relevant clause.

8.2 Reporting to Govt. organisations
In addition to the above verbal and written reporting to the DMRC, a notice of any accident to a worker at the building or work place that causes loss of life; or disables a worker from working for a period of 48 hours or more immediately following the accident; shall forthwith be sent by telegram, telephone, fax, email or similar other means including special messenger within 24 hours in case of fatal accidents and 72 hours in case of other accidents, to
i) The Regional Labour Commissioner (central), wherein the Lessee/Licensee has registered the firm/work
ii) The board with which the worker involved was registered as a beneficiary;
iii) Director General and
iv) The next of kin or other relative of the worker involved in the accident.

8.3 Further, notice of accident shall be sent in respect of an accident which causes loss of life; or disables the injured worker from work for more than 10 days to:
i) the officer-in-charge of the nearest police station;
ii) the District Magistrate or, if the District Magistrate by order so desires, to
iii) the Sub-Divisional Magistrate
Employee Compensation Act form EE shall be sent within 7 days and Form XIV of BOCW Act within 24 hours of the accident. In case of an accident causing injury, first-aid shall be administered and the injured worker shall be immediately transferred to a super/multi-speciality hospital for medical treatment.

8.4 Where any accident causing disablement that subsequently results in death, notice in writing of such death, shall be sent to the authorities mentioned above within 24 hrs and not later than 72 hours of such death.

8.5 Reporting of dangerous occurrences:
All classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker. The same shall also be immediately reported to DMRC.

8.6 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.

8.7 Actions to be taken post incident/accident:
i) In case any incident/accident happens at site leading to injury to the worker, the worker/s is/are required to be taken to the nearest Super-speciality hospital immediately.
ii) Labour Welfare Officer / authorised person of Lessee/Licensee and responsible official from DMRC needs to report the incident to the labour welfare team of DMRC immediately without fail for all the death cases including natural deaths.
iii) In case of fatal accident, doctor from the nominated hospital is only authorised to declare the death of the worker and not to be decided suo-moto by any other person.
iv) FIR to be registered for all the fatal cases which happens at the site/Labour camp.
v) Post Mortem of the dead body is mandatory in all the death cases i.e. whether it is natural or due to any incident / accident.
vi) Family members of the injured / deceased worker are to be informed immediately.
vii) In case of fatal accident, the dead body is to be handed over to the family members. Arrangement of sending the dead body to native place has to be done and cash payment for meeting out last rites expenses has to be made to the family members of the deceased by the Lessee/Licensee as per rule.
viii) Fatal accident report is to be sent to State Labour Authority in Employee Compensation Act Form EE within seven days and to the Licensing Authority in Form XIV of BOCW Act within 24 hours of the incident/accident.
ix) Workmen’s Compensation dues are to be deposited with the Employee’s Compensation Commissioner within 30 days of the death or the period of notice served by the Employee’s Compensation Commissioner.
x) Copy of all the documents (deposited with any labour authority, FIR, Post Mortem, Medical Reports etc.) and duly approved LWF form are to be submitted with the labour welfare team of the DMRC.
xi) Lessee/Licensee shall be liable to get disbursement on Provident Fund benefits, compensation under Employee Compensation Act, benefits of ESI Act to the workman/dependents of the deceased workman. The Lessee/Licensee shall also provide accommodation and transportation to dependents of the deceased workman or to the disabled workman who comes for settlement of terminal claims.
xii) Compliance of statutory Reporting to compensation Authorities in case of incidents / accidents involving injuries or loss of life shall be the responsible of Lessee/Licensee.

8.8 Accident Review & Preventive Measures:
After each fatal accident and grievous injury accident report shall be submitted within 24hrs.

8.8.1 Accident investigation
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

8.8.2 DMRC’s independent incident investigation
In case of fatal / dangerous occurrence the DMRC shall also conduct independent investigation. Lessee/Licensee and his staff shall extend necessary co-operation and testify about the accident.

9.0 Emergency preparedness plan
i) The Lessee/Licensee shall prepare an Emergency Response Plan for leased out space. The Emergency Response Plan shall detail the 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 etc.
ii) 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 Lessee/Licensee with their telephone...
numbers and addresses for quick communication shall be adequately publicized and conspicuously displayed at the workplace.

iii) Lessee/Licensee shall conduct an onsite emergency mock drill for all his workers and his sub Lessee/Licensee workers. (if any).

iv) Emergency preparedness plan shall be submitted before the beginning of physical work at site.

10.0 Lessee/Licensee’s Safety & Health organisation

i) The lessee/licensee shall ensure that all personnel are competent to perform the job assigned to them. In the event that the Lessee/Licensee is unable to demonstrate the competency of any person whose activities can directly impact on the Works’ SHE performance, the DMRC shall remove that person from the site without any procedural formalities.

ii) No Safety personnel shall be required or permitted to do any work which is unconnected to, inconsistent with or detrimental to the performance of the Safety duties.

PART – II: SAFETY

11.0 Housekeeping

i) Lessee/Licensee shall understand and accept that proper housekeeping is must at any work place and ensure that a high degree of it is always maintained. Indeed “Cleanliness is indeed next to Godliness”

ii) General, Housekeeping shall be carried out by the Lessee/Licensee and ensured at all times at Work place, Labour Camp, Stores, Offices and toilets/urinals. (if required).

iii) All stairways, passageways and gangways shall be maintained without any blockages or obstructions. All emergency exits passageways, exits fire doors, break-glass alarm points, firefighting equipment, first aid stations, and other emergency stations shall be kept clean, unobstructed and in good working order.

iv) Water logging on work places shall not be allowed.

v) Proper and safe stacking of material needs to be ensured.

vi) All scrap, empty wooden cable drums and other combustible packing materials, shall be removed from work place to identified location(s).

vii) Some DO’s and DONT’s for Working Staff

viii) 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 Licensor i.e. DMRC. These shall be maintained in one line and level. Measures shall be adopted to ensure that seepage from site shall not go on road/public area.

ix) No parking of trucks/trolleys, cranes and trailers etc. shall be allowed on roads, which may obstruct the traffic movement.

x) 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.

xi) Flammable chemicals / compressed gas cylinders shall be safely stored.

xii) Material shall not be stacked or stored or placed so closed to any edges of a floor or platform which may endanger the safety of the person working in close vicinity of it.
11. Do's and don’ts for staff

11.1 Do’s

i) In case of fire / anything unusual on electric traction equipment or wires, inform the station controller/Manager.

ii) Extinguish fire by suitable fire extinguishers.

iii) Ensure no water jet to be directed at the electrical equipments under any circumstances.

iv) Special care should be taken to carry long pipes, poles or ladders so that it should not come in contact with or within 2 meters of live OHE.

v) Cleaning work other than that of surface (i.e. of beam, pillars etc.) should be done during block period only.

vi) Whenever washing or cleaning using water jets is done, take appropriate approval and site protection measure.

vii) Cases of electric shock arising out of contact with 25 KV A.C traction equipment shall be reported immediately to Traffic Power Control (TPC).

viii) Any loading /unloading of material / goods in the PD/PB areas which affect the public shall be done in non-revenue hours. No empty boxes, packing material should be kept outside the leased PD/PB area.

11.1.2 Don’ts

i) Do not approach within 2 meters of any traction wires or live equipment.

ii) Do not work on or near traction wires or any live equipment unless they are made dead, earthed and shut down notices/ permit to work obtained.

iii) Do not enter any switching station or remote control centre unless specially permitted.

iv) Do not touch a person in contact with live traction wires. Remove body only after power supply is switched off & earthed.

v) Do not touch any traction wire hanging from the mast or fallen on the ground and do not allow anyone else to touch it.

vi) Any work above or near the traction wires electrical panels should be avoided at all times when power block is not availed.

vii) Do not lift or raise your tools towards traction wires.

viii) Do not damage the plinth continuity, connection to Buried Earth Conductor (BEC), Overhead Protection Conductor (OPC) and handrail continuity.

ix) Do not use steel tape or metallic tape or tape with woven metal reinforcement in electrified area.

x) Do not forget to give artificial respiration to the victim as per the prescribed procedure laid down at shock treatment charts.

xi) Metallic telescopic rods are prohibited for use in the DMRC station.

xii) Do not throw garbage in haste. Dispose it properly at designated place.

xiii) Do not dispose dirty water.

12.0 Working at Height

The Lessee/Licensee 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.

iv) Where work is carried out at height more than 2 meters, the Lessee/Licensee 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.
12.1 Falling objects
i) The Lessee/Licensee 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.
ii) Every Lessee/Licensee 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.
iii) The Lessee/Licensee 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.
iv) Every Lessee/Licensee shall ensure that, every workplace where chances of fall of material or other may exist shall be properly barricaded or provided with suitable safety net as well as fall catch arrestors etc.

12.2 Danger areas
Every Lessee/Licensee 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 such area is clearly indicated.

12.3 Inspection of work equipment
The Lessee/Licensee shall ensure that, all work equipment used at workplace and exposed to conditions causing deterioration shall be inspected regularly and recorded.

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 mm.
iv) Every Lessee/Licensee shall ensure that handrail for protection of wall opening/edges shall be made up of sturdy material and fabricated by pipes or rebars of 32mm dia only. The handrail shall be of sufficient strength to withstand the impact fall load. The handrail shall be made in two layers i.e. mid rail and top rail along with provision of toe guard/board of minimum 150 mm in height from the level from where handrail is erected (Detailed drawing is enclosed as Sample Drawings 1, 2 and 3 for reference and compliance).
v) 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.

12.4 Requirements for all Working Platforms
The Lessee/Licensee shall ensure that whenever necessary proper, safe and adequate to the working requirement, working platforms is provided.

12.4.1 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.

12.4.2 Safety on working platforms
A working platform shall
(a) be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work being carried out there;
(b) possess a suitable surface and, in particular, be so constructed that the surface of the working platform has no gap
   i) through which a person could fall;
   ii) through which any material or object could fall and injure a person; or
   iii) giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk; and
(c) be so erected and used, and maintained in such condition, as to prevent, so far as is reasonably practicable
   i) the risk of slipping or tripping; or
   ii) any person being caught between the working platform and any adjacent structure.
(d) be fully decked to avoid any fall of material or person.
(e) be of min. 900 mm in width. Use of single challies/grating as working platform is prohibited. Specific size working Challis/Grating of Drop in type design is recommended. Oversize use as well as tying with binding wire is strictly prohibited.
(f) The platform shall be tied up properly with the structure in such a way that it cannot be displaced in any circumstances by its own.
(g) Collective fall protection in the form of two level of handrail of adequate strength to withstand the impact load shall be ensured.
(h) Proper and safe means of access/egress shall be ensured to these working platforms.

12.4.3 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 like provision of safety nets, safety harness etc. 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) Measures to ensure the stability like provision of diagonal/cross bracings, provision of base plate, sole plate, anchoring with wall with maximum gap of 3 metre between two anchoring point in any direction.
(g) ensuring no defects in the scaffold material like bending, damaged etc.
(h) prohibiting use of Re-bars instead of standard locking pins, pins shall be provided at both ends (top & bottom) of the standards while coupling/joining two standards with each other;
(i) ensuring stability of partially dismantled scaffold. The same shall be permitted only after safety of the remaining portion has been ensured;
(j) permitting openings in any working platform especially for allowing access only.
(k) in case of high tower scaffolds, the height of tower scaffold is not more than four times of least base dimension of such scaffold. Such scaffold shall be lashed/anchored to a building or a fixed structure before being used;
(l) construction of Mobile tower scaffold with regard to stability. These shall be used on plain & even surface, and have casters provided with positive locking devices;
(m) prohibiting presence of worker on board scaffold, tools, material when such is being shifted from one place to other;
(n) The underneath area of the erection/ dismantling shall be barricaded or guarded to prevent any unauthorised entry
(o) any other risks which the assembly, dismantling or alteration of the scaffolding may entail (Detailed drawing is enclosed as Sample Drawings 4 for reference and compliance).

12.4.4 Suspension scaffold shall be provided at each of its suspension point with secondary safety wire rope with automatic locking or similar safety device mounted on each of such rope so that secondary safety rope supports the platform in the event of failure of primary suspension wire ropes;

12.5 Temporary works
a) Work of erection, dismantling of structures or Temporary work or shoring or any other work shall be carried out by trained worker under competent supervision.

b) The completed/erected temporary work shall be inspected by the competent engineer/supervisor for its strength, stability, rigidity and safe for use before taken into use.

c) A site specific checklist to be developed including all the above mentioned items to ensure effective compliance. Checklist to be signed by competent scaffold supervisor, construction site in charge and site safety manager. A sample checklist is attached as Appendix 5.

d) All inspected temporary works, staging, scaffolding etc. shall be appropriately tagged for their safe worthiness or otherwise.

The Lessee/Licensee shall ensure that fall protection measures are provided for safety means of access as well as safe working.
12.5.1 Requirements for collective safeguards for arresting falls

i) Collective safeguard are safety net, airbag or other collective safeguard for arresting falls

ii) A safeguard shall always be used 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. To ensure this, thorough inspection of the arrangement installed shall be carried out by competent site personnel along with safety representative. Inspection procedure for the same is to be developed and submitted to DMRC for approval.

iv) 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.

12.5.2 Requirements for personal fall protection systems

i) A personal fall protection system shall be used only if
   (a) a risk assessment has demonstrated that
      a) the work can so far as is reasonably practicable be performed safely while using that system; and
      b) 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 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.

iii) Suitable and sufficient steps shall be taken to prevent any person falling or slipping by provisioning of personal fall protection system. In case due to site constraint, workers are exposed to working near open edges, a retractable fall arrestor device shall be mandatorily used at the work location. All workers to be provided with personalised safety harnesses and trained and supervised to ensure it's anchoring with the fall arrestor system at all time during working.

12.6 Requirements for Ladders

The Lessee/Licensee 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.

i) Only metal ladders shall be allowed. Bamboo ladders are prohibited.

ii) 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. A ladder shall be so positioned as to ensure its stability during use. Base to height ratio of 1:4 to be maintained.

iii) 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.
iv) 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.

v) No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.

vi) A mobile ladder shall be prevented from moving before it is stepped on.

vii) 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.

viii) 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.

ix) Every ladder shall be used in such a way that
   a) a secure handhold and secure support are always available to the user; and
   b) the user can maintain a safe handhold when carrying a load unless, in the case of a step ladder, the maintenance of a handhold is not practicable when a load is carried, and a risk assessment has demonstrated that the use of a stepladder is justified because of
      (i) the low risk; and
      (ii) the short duration of use.

12.7 Fragile surfaces
The Lessee/Licensee 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.
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 Lessee/Licensee shall,
   (a) ensure, so far as is reasonably practicable, that suitable and sufficient working platforms, coverings, guard rails or similar means of support or protection are provided and used so that any foreseeable loading is supported by such supports or borne by such protection;
   (b) Where a risk of a person at work falling remains despite the measures taken under the preceding provisions of this regulation, take suitable and sufficient measures to minimise the distances and consequences of his fall.
Where any person at work may pass across or near, or work on, from or near, a fragile surface, the Lessee/Licensee shall ensure that
   (a) prominent warning notices are so far as is reasonably practicable affixed at the approach to the place where the fragile surface is situated; or
   (b) where that is not reasonably practicable, such persons are made aware of it by other means.

12.8 Mobile Elevated Working Platforms (MEWP)

12.8.1 The Lessee/Licensee shall ensure that Mobile Elevated Working Platform (MEWPs) which includes provision of Sky Lifts/Scissor Lifts shall be used as means of access/egress wherein there is impossible to use safe & sturdy means of access/working platform in the form of stair tower/scaffold.

12.8.2 Truck Mounted Mobile Elevated Working Platforms (MEWP) are prohibited to be used on undulated construction sites, but can be used on levelled surface. Rough Terrain
types Mobile Elevated Working Platforms (MEWP) are to be used on undulated construction sites, but not suitable for long marching on levelled surface.

12.8.3 The use of Mobile Elevated Working Platforms shall only be conducted in presence of competent supervision.

12.8.4 All Safety measures as advised by OEM shall be strictly followed while use of such MEWP’s.

12.9 Overhead protection
i) All Lessee/Licensees shall provide overhead protections as per Rule 41 of BOCWR Overhead protection should be erected along the periphery of every building and other structures which is under construction and where the risk of falling objects from height exists during construction activity. Similar arrangement shall also be made during erection of OHE mast and signage’s poles on public road.

ii) Overhead protection shall be minimum 2m wide and the outer edge shall be 150mm higher than the inner edge and an angle not more than 20° to its horizontal sloping into the building.

iii) Areas of inadvertent hazard of falling of material shall be guarded or barricaded or roped-off thereby by the Lessee/Licensee.

13.0 Slipping, Tripping, Cutting and Falling Hazards
i) All places should be free from dust, debris or similar materials. 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.

ii) 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.

iii) Suitable safety net shall be provided at places of material / man falling is possible in accordance with national standards.

14.0 Lifting Appliances and Gear
i) The Lessee/Licensee shall ensure that a valid certificate of fitness is available for all lifting appliances, if used.

ii) The laminated photocopies of fitness certificate issued by competent person, 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.

iii) All lifting appliances and loose gears shall be clearly marked for its safe working load and identification by stamping or other suitable means.

14.1 Test and periodical examination of lifting appliances and gears
i) 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.

ii) All alarms and signals like Automatic Safe Load Indicators (ASLI), 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
14.2 **Automatic Safe Load Indicators (ASLI)**

As stipulated in Rule 57 of DBOCW Rules, every lifting appliances and gears like cranes, hydros 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.

14.3 **Mandatory rigging requirements**

i) Rigging shall be done under experienced and qualified rigger only.

ii) The primary requirement in rigging shall be to assess the weight of load before attempting any lift.

iii) 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.

iv) 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.

v) Hand spliced slings up to 32mm diameter shall not be used at site for any lifting purpose.

vi) No load shall be slewed over public areas without stopping the pedestrians and road traffic first.

vii) Requirements of outriggers

a) All outriggers shall be fully extended and at all tyres are clear of the ground

b) Heavy duty blocking having large bearing area shall be necessary to prevent sinking of floats

viii) All loads shall have tag-lines attached in order to ensure that the load can be controlled at all times.

ix) No close working to any live overhead power line is permitted without the operation of a strict Permit to Work.

x) Minimum lighting is to be ensured at all lifting operations.

14.4 **Pick & Carry Operation**

14.4.1 Prohibition on Use of “Tractor transmission type Pick and Carry Hydra Crane”:

Tractor transmission type Pick and Carry-1\textsuperscript{st} Generation model is prohibited at DMRC works. Lessee/Licensee shall mobilize “Truck transmission type” Pick and Carry (Hydra) Crane – minimum 2\textsuperscript{nd} Generation model only.

14.4.2 Pick & Carry cranes shall not be used for any lowering operation below the ground level.

14.5 **Moveable Lifting appliances**

All moveable tower cranes shall be checked and certified for their safe worthiness by the plant and machinery in charge of the Lessee/Licensee after its installation. All original equipment manufacturers (OEM) recommendation for installation and use shall be strictly complied.

14.6 **Winches**

Every Lessee/Licensee shall ensure that:

i) winches are not used if control levers operate with excessive friction or play.

ii) adequate protection is provided to winch operator against abnormal weather.
iii) control levers are secured in the neutral position and winches shall be power shut-off whenever winches are left unattended.

iv) No worker is authorised to transfer, alter or adjust electric control circuits except electrician along with winch operator.

v) apart from mechanical brakes, winches shall also have the provision of OEM fitted Electrically operated braking system.

vi) Anchoring and stability of the winches shall be ensured and certified by P&M team.

vii) Standard counter weight as per OEM recommendation shall be used.

14.7 Operation of Lifting Appliances
The Lessee/Licensee shall ensure that:

i) the complete lifting operation shall be governed by signals as per established standards.

ii) Adequate measures to be taken to ensure that no worker is allowed to stand or pass under the load.

iii) No lifting appliances shall be left by the operator while power is on or load is suspended.

iv) After completion of the lifting operation, all doors of the appliances shall be closed by the operator and ignition/operation key should be handed over to competent reliever operator or site In-charge.

v) No person shall be allowed to ride or sit on a suspended load.

vi) Every receptacle/material bucket used for hoisting bricks, tiles, or other material shall be enclosed from all side including bottom completely to prevent fall of any material. No wheel barrow shall be used to lift or lower the material. Such receptacle or bucket shall not be overloaded or the material shall not cross the top level of the bucket.

vii) No material shall be raised or lowered or slewed which can leads to sudden jerks to appliances.

viii) No load shall be slewed over public areas without stopping the pedestrians and road traffic first. Measures shall be adopted to divert the traffic during lifting/lowering operation requiring long duration traffic stoppage..

ix) All loads are provided with minimum two tag lines to ensure that the load can be controlled at all times.

x) No close working to any live overhead power line is permitted without system of a ‘Permit to Work’ and prior permission of the DMRC shall be obtained before performing such operation.

xi) During shifting of material near open edges, signalman and other workers shall not be allowed to lean out for communicating with ground staff unless they are provided with full body safety harness duly anchored with sturdy points.

xii) Danger zone shall be identified and cordoned off for all lifting appliances during their operation.

xiii) Appropriate measures shall be adopted to prevent foot of the derrick to lift out of its socket or support.

xiv) All guy ropes of the derrick shall be adequately anchored to rigid points and should in tension with the use of turn buckle without any sagging.

xv) A register shall be maintained for fitness of the derrick which shall include all elements like derrick setup, anchoring, lifting tools & tackles, means of access and should be filled & signed after every shifting of the derrick.

xvi) All lifting appliances, gears, tools & tackles shall be maintained in good condition at all times to avoid any damage to them. Slings shall be discarded once they get any sign of deterioration beyond permissible limit defined by OEM and authenticated by Plant & Machinery In-charge.
xvii) All lifting gears & slings shall be stamped or appropriate tags for their identification no & SWL.

xviii) Knotting/wrapping of chains & slings shall not be allowed at site.

xix) No person shall be allowed to be raised, lowered or carried by lifting appliances except on man hoist/elevator or on suspended platform or elevated working platforms. Prior permission of DMRC shall be obtained before permit to use.

xx) Lifting appliances shall not be used for any dragging or pulling purposes. Contract shall refer to 75% capacity load chart for ascertaining the suitability of crane for safe lifting of load.

xxi) During tandem lift, available capacity of crane in respect of SWL shall be considered after reduction of 15% for 75% (DIN) load chart respectively. In addition, additional derating as advised by third party testing and certified agency shall also apply

xxii) During hoisting of long material, use of suitable lifting beam is recommended.

xxiii) Lifting operation for handling load above one ton shall not be allowed without approval of lift plan/study and permit to work. The lift plan/study as well as checklist & work permit shall be signed by the nominated lifting engineer before performing any lifting operation.

xxiv) No person shall be allowed to rig or de-rig at height unless safe means of access is provided.

xxv) Only original equipment manufacturer (OEM) supplied/provided load chart shall be used during lifting operation.

xxvi) Before performing any lifting operation, all electronic devices, control levers, hydraulic oil, wind pressure etc. shall be checked and necessary spare parts to be kept in stock to handle any breakdown during time bound lifting operation.

xxvii) All underground utilities shall be identified and necessary measures shall be adopted before set up of cranes for lifting.

xxviii) Loose as well as long material shall be adequately tied up with each other before lifting.

xxix) All equipments including Electrical panels, Hoist if gantries etc shall only be lifted with the help of all lifting point/eye bolts as provided & recommended by the original equipment manufacturer. Safe slinging shall be ensured.

xxx) Lifting and lowering of the plant & machines like transit mixer, excavator, tractor etc shall be done as per recommendation from the Original Equipment Manufacturer.

xxxi) Certification from designer for the stability and load bearing of “A” frame used for lifting of the escalators shall be obtained before its use.

xxxii) All lifting activities shall be stopped in case of high speed wind and similar adverse whether condition or as prescribed by the crane manufacturer.

xxxiii) All cranes shall be provided with fail safe devices to avoid any hoist free fall in case of brake failure.

### 15.0 Work place machinery

Every work place equipment shall be in sound mechanical working condition and certified by either competent person under Factories Act or manufacturers’ warranty. 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 banksman.

### 15.1 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, any live overhead electrical cable etc.

ii) No passengers shall be carried, unless specific seating has been provided in accordance with the manufacturer’s recommendations.

iii) Working on gradients beyond OEM recommendation shall not be allowed.

iv) To prevent accidental falling of construction vehicle in the excavation, suitable wheel stopper at sufficient distance from the edge of excavation shall be ensured.

v) The manufacturer’s recommended bucket size must not be exceeded in excavators.

vi) No construction material, other than soil shall be carried in excavator buckets.

vii) If excavators operating on a gradient which cannot be avoided, it must be ensured that the working cycle is slowed down, that the bucket is not extended too far in the downhill direction, and that travel is undertaken with extreme caution. A large excavator must never be permitted to travel in a confined area, or around people, without a banksman to guide the driver, who should have the excavator attachment close in to the machine, with the bucket just clear of the ground. On wheeled excavators, it is essential that the tyres are in good condition and correctly inflated. If stabilizing devices are fitted, they should be employed when the machine is excavating.

viii) 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.

ix) 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.

x) 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.

xi) If a tractor dozer is employed on clearing scrub or felling trees, it shall be provided with adequate driver protection.

xii) When two or more scrapers are working on the same job, a minimum distance of at least 25m shall be kept between them.

xiii) In case of hydraulic breakers, hydraulic rams and hoses shall be in good working condition.

xiv) Every Lessee/Licensee shall ensure that Competency certificate for driver/operators shall be issued by their Plant and Machinery In-charge. The certificate shall be pasted on the machine body in such a way that drivers/operator vision is not hindered.

xv) Checklist shall be prepared for all construction machinery and be filled on daily basis by the operator and be counter signed by plant & machinery person.

xvi) All machines shall be fitted with head lights, tail lights, side indicators etc and maintained in good working condition.

xvii) Machines and Vehicles shall not be loaded beyond their safe carrying capacity/overloaded. Safe capacity shall also be marked on such machines and vehicles.

xviii) No unauthorised person shall drive/operate the machines except designated driver/operator. All doors of the machines shall be closed by the driver/operator and ignition key should be hand over to the Site In-charge in-case of leaving the machine or site.

xix) All machines and Vehicles shall be parked at levelled surfaces. However in case of inescapable parking on slope, appropriate wheel stoppers shall be provided at all four wheels location.

xx) Two wheel trolleys are prohibited at construction sites. Only four wheel trolleys shall be mobilised.
xx) Vehicle shall not move unless driver has satisfied himself that no one is beneath the vehicle and vehicle can move forward or backward without causing any harm to other worker.

xxi) Tailing units for trailers used for girder shifting shall have proper sitting arrangement for operator and his helper on the other side.

xxii) All tractors shall have roll over protection arrangement (ROP).

xxiii) Provision of Helper is mandatory for each construction appliances and vehicles during their movement inside and outside of site.

All material shifting Trolleys shall have braking arrangements properly designed and incorporated as mentioned in OEM manual. Each trolley shall have serial number, marked and got approved from DMRC engineer before loading/lowering.

16.0 Machine and General Area Guarding

The Lessee/Licensee shall ensure at the work place all dangerous and moving parts of machines are securely fenced. The fencing of dangerous part of machinery is not removed while such machinery is in motion or in use.

17.0 Manual lifting and carrying of excessive weight

The Lessee/Licensee shall ensure at his work place no staff, lifts by hand or carries overhead or over his back or shoulders any material, article, tool or appliances exceeding in weight as said below, unless aided by another staff or device.

<table>
<thead>
<tr>
<th>Person</th>
<th>Maximum weight in kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult man</td>
<td>55</td>
</tr>
<tr>
<td>Adult woman</td>
<td>30</td>
</tr>
</tbody>
</table>

18.0 Work place Electricity

i) The Lessee/Licensee shall ensure safe usage practices of power supply as well as safe electrical equipments fitted with protection devices.

ii) Cables shall be selected after full consideration of the condition to which they shall be exposed and the duties for which they are required.

iii) The Lessee/Licensee shall ensure plugs, socket-outlets, and couplers available in the work place as per IS/applicable standard.

iv) Every joint and connection in a system shall be mechanically and electrically suitable for use to prevent danger. Proper cable connectors as per standards shall only be used to connect cables.

v) No loose connections or tapped joints shall be allowed anywhere in the work place, office area, stores and other areas.

vi) The Lessee/Licensee shall take consideration, the requirements of the sub / petty Lessee/Licensee electric power supply and arrive at the capacity of main source of power supply from diesel generators.

vii) As the sub-Lessee/Licensee 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 agreement.

xiii) The Lessee/Licensee 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 DMRC for necessary approval. Failure to do so shall invite penalty as per relevant clause.
The Lessee/Licensee 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.

18.1 Distribution system:

18.1.1 The Lessee/Licensee shall provide distribution system for control and distribution of electricity from a main AC supply of 50Hz for different appliances of 3 phase 415 volt and single phase 230 volt at site.

18.2 Electrical protection circuits

18.2.1 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.

18.2.2 Rating of fuses and circuit breakers used for the protection of circuits should be coordinate with equipment power ratings.

18.3 Cables:

18.3.1 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.

18.3.2 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.

18.3.3 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.

18.3.4 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

18.3.5 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.
18.3.6 Cabling passing under the walkway and across way for transport and mobile equipment shall be laid in ducts at a minimum depth of 0.6 meters.

18.3.7 Cables that need to cross open areas, or where span of 3m or more are involved, a catenary wire on poles or other supports shall be provided for convenient means of suspension. Minimum height shall be 6 m above ground.

18.3.8 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 Lessee/Licensee. 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.

18.3.9 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.

18.3.10 Electrical cable of Five Core shall be used in all three phase equipments.

18.4 Plugs, socket-outlets and couplers:

18.4.1 The Lessee/Licensee 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 and IP 65 (in tunnels and in continuous exposure water areas) in accordance with BS EN 60529.

18.4.2 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:
   (a) 110 volts : Yellow.
   (b) 240 volts : Blue.
   (c) 415 volts : Red.

18.5 Connections

18.5.1 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.

18.5.2 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.

19.0 Work on or near live conductors

i) For working near OHE & other Electrical installation, power block is to be taken for which the rules/measures provided in the Safety Circular – 2 (As per Appendix 8) of O&M wing shall be followed.
ii) 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) Suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.

19.1 Inspection and Maintenance

All electrical equipment should be permanently numbered and a record kept of the date of issue, date of last inspection and recommended inspection period.

20.0 Hand Tools and Power Tools

i) The Lessee/Licensee is wholly responsible for the safe condition of plant and equipment used by his employees and that of his sub- Lessee/Licensee.

ii) Use of short / damaged hand tools shall be avoided and the Lessee/Licensee shall ensure all his hand tools used at his work place are safe to work with or stored and shall also train his employees (including his sub- Lessee/Licensee) for proper use thereby.

iii) All hand tools and power tools shall be duly inspected before use for safe operation.

iv) The Lessee/Licensee shall ensure that power tools (electric) are properly grounded or / and double insulated.

v) RCCBs shall be used with all portable electric tool operated especially outdoors or in wet condition.

vi) Before making any adjustments or changing attachments, his workers shall disconnect the tool from the power source.

vii) 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 this contract document.

viii) Tool is held firmly and the material is properly secured before turning on the tool.

ix) All drills shall have suitable attachments respective of the operations and powerful for ease of operation.

x) 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.

xi) Size of the drill shall be determined by the maximum opening of the chuck in case of drill bit.

xii) Attachments such as speed reducing screwdrivers and buffers shall be provided to prevent fatigue and undue muscle strain to his workers.

xiii) Stock should be clamped or otherwise secured firmly to prevent it from moving.

xiv) 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.

xv) Electric panels and DGs shall not be operated with loose clothing or long scarf or open jacket.

xvi) 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.
xvii) All power tools / hand tools shall have guards at their nip points.

xviii) 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”.

xix) Leather aprons and gloves shall be used as an additional personal protection auxiliary to withstand kickback.

xx) Push sticks shall be provided and properly used to hold the job down on the table while the heels move the stock forward and thus preventing kickbacks.

xxi) 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.

20.1 All hand tools shall be securely tie up or kept in such a way that fall of any tools shall not occurred especially while working at height.

21.0 Fire prevention, protection and fighting system

i) The Lessee/Licensee shall ensure that storage area is provided with fire extinguishing equipment sufficient to extinguish any small fire at work place.

ii) Recharging of fire extinguishers and their proper maintenance should be ensured and as a minimum should meet Indian National Standards

iii) Combustible scrap and other work place debris should be disposed of on a regular basis.

22.0 Corrosive substances

Corrosive substances including alkalis and acids shall be stored and used by a person dealing with such substances at a building / work place in a manner that it does not endanger the worker and suitable PPE shall be provided by the Lessee/Licensee to the worker during such handling and work. In case of spillage of such substances on worker, the Lessee/Licensee shall take immediate remedial measures.

23.0 Work Permit system

23.1 The Lessee/Licensee shall develop a Work Permit system, which is a formal written system used to control certain types of work that are potentially hazardous. A permit (Sample Formats are attached in Appendix:7) is needed 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:

a) Entry into confined spaces
b) Lifting/Lowering activity
c) Work in close proximity to overhead power lines and telecommunication cables.
d) Work with electrical equipment and operations closer to live power line
e) Working on track & operation rooms
i) Hot work
ii) To dig—where underground services may be located.

23.2 A Work Permit authorisation form shall be completed with the maximum duration period not exceeding one shift.

23.3 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.
23.4 All hot work above the material like escalator etc. shall be performed with Hot Work Permit. The whole activity shall be performed under the supervision of the Lessee/Licensee and DMRC. Fire Retardant covers is mandatory for all hot works above the materials like escalator etc.

23.5 Work permit shall be issued by the Station Manager/In-charge or by qualified & competent person as nominated by the station manager/in-charge. Permit shall be cancelled after the completion of the work activity or 12 hrs whichever is earlier. If any activity requires more than 12 hrs to complete, fresh permit shall be issued/signed.

23.6 Lifting permit shall only be signed by the nominated lifting engineer.

24.0 Work to adjacent track
Whenever work is to be conducted in close proximity to the live track then the following measures shall need to be addressed:

a) The rules/measures provided in the Safety Circular – 2 (As per Appendix 8) of O&M manual shall be followed.

b) No persons are allowed to work onto the track unless specific authority has been given by DMRC. Adequate protection in accordance with the O&M requirements shall be followed.

c) All persons shall wear high visibility clothing at all times.

d) Any induction training requirements of the Track shall be strictly observed.

24.1 Traffic Management

24.1.1 The basic objective of the following guidelines is to lay down procedures to be adopted by Lessee/Licensee to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at sites.

24.1.2 All workers should be provided with high visibility jackets with reflective tapes. The conspicuity of workmen at all times shall be increased so as to protect from speeding vehicular traffic.

24.1.3 The guiding principles to be adopted for safety in working 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.

24.2 Legal permission

24.2.1 In all cases, the Lessee/Licensee 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 Lessee/Licensee in consultation with the approval of local police authorities and/or the concerned metropolitan/civil authorities as the case may be.

24.2.2 Such traffic management plans shall include provision for traffic diversion and selection of alternative routes for transport of equipment. If necessary, the
Lessee/Licensee shall carry out road widening before commencement of works to accommodate the extra load.

24.2.3 The primary traffic control devices used in work zones shall include signs, delineators, barricades, cones, pylons, pavement markings and flashing lights.

24.3 Barricades

24.3.1 Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement. Same the way barricades protect the road users from the danger due to construction equipment and other temporary structures. Verticality of the barricades shall be ensured at all time.

24.3.2 The structure dimension of the barricade, material and composition (metal as well as reinforcement fibre plastic), its colour scheme, DMRC logo and other details shall be in accordance with specifications laid down in tender document/ approved by DMRC.

24.3.3 All barricades shall be erected as per the design requirements of the DMRC, numbered, painted and maintained in good condition and also Barricade in-charge maintains a barricade register in site.

24.3.4 All barricades shall be conspicuously seen in the dark/night time by the road users so that no vehicle hits the barricade. Conspicuity shall be ensured by affixing retro reflective stripes of required size and shape at appropriate angle at the bottom and middle portion of the barricade at a minimum gap of 1000mm. In addition, minimum one red light blinker or rope light should be placed at the top of each barricade.

24.4 Cleaning of roads

24.4.1 The Lessee/Licensee shall ensure the cleanliness of roads and footpaths during construction by deploying proper manpower for the same. The Lessee/Licensee shall have to ensure proper brooming, cleaning washing of roads and footpaths on all the time throughout the entire stretch during the construction period.

25.0 Lighting

The Lessee/Licensee 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.

26.0 Welding, Gouging and Cutting [For similar works outside/ new space licensee shall follow specified guides under safety circular -3 (As per Appendix 8)of DMRC]

i) 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.

ii) Hose clamp or clip shall be used to connect hoses firmly in both sides of cylinders and torches.

iii) All gas cylinders shall be fixed with pressure regulator and dial gauges
iv) Non-return valve and Flashback arrester shall be fixed at both end of cylinder and torch.

v) Domestic LPG cylinders shall not be used for Gas welding and Cutting purpose.

vi) 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.

vii) Use firewatchers if there is a possibility of ignition unobserved by the operator (e.g. on the other side of bulkheads).

viii) Oxygen cylinders and flammable gas cylinders shall be stored separately, at least 6.6 meters (20 feet) apart or separated by a fire proof, 1.6 meters (5 feet) high partition. Flammable substances shall not be stored within 50 feet of cylinder storage areas.

ix) Transformer used for electrical arc welding shall be fixed with Ammeter and Voltmeter and also fixed with separate main power switch.

x) 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.

xi) Use a low voltage open circuit relay device if welding with alternating current in constricted or damp places.

xii) 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.

xiii) Avoid being in contact with water or wet floors when welding. Use duckboards or rubber protection.

xiv) All electrical installations shall meet the IS: 5571: 1997 and NFPA 70 for gas cylinder storage area and other hazardous areas.

xv) The current for Electric arc welding shall not exceed 300 A on a hand welding operation.

### 27.0 Demolition

i) The Lessee/Licensee shall ensure that all demolition works be carried out in a controlled manner under the management of experienced and competent supervision.

ii) 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.

iii) 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.

iv) Debris / bricks and other materials or articles shall be removed by means of chutes buckets or hoists through openings through floors or any other safe means

v) 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.

vi) The concerned department of the Government or local authority be informed and permission obtained wherever required.

vii) 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.

viii) Examine the walls of all structures adjacent to the structure to be demolished to determine thickness, method of support to such adjacent structures
ix) No demolishing work be performed if the adjacent structure seems to be unsafe unless and until remedial measures life sheet piling, shoring, bracing or similar means be ensured for safety and stability for adjacent structure from collapsing.

x) 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

xi) 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 for cordonning of sufficient area as per Risk Assessment for protection falling objects.

xii) Barricades and warnings signs are erected along every side throughout the length and breadth of the building or work to be demolished to prevent unauthorised entry. Warning signs are displayed or erected at conspicuous places of work.

xiii) Sequence of Demolition shall be followed and stability of remaining structure after stage wise demolishing shall be vetted by the competent site person.

xiv) No wall, or other part of the structure is left unguarded or in such condition that it may fall, collapse or weaken due to wind pressure or vibration.

xv) Safe working platform shall be arranged for workers engaged in demolition work. Safe access or egress shall be arranged at all times in the course of demolition.

xvi) Material shall not be thrown or dropped from the building.

xvii) All material shall be stored or kept in such a way as it may not endanger the site personnel or not block any access, passageways etc. and suitable barricading shall be ensured to prevent materials from sliding or rebounding in to any space used by workers.

xviii) Appropriate PPE’s shall be provided to the workers engaged in Demolition work based upon nature of job and risk assessment like protection against noise, dust, vibration, falling objects etc.

xix) Use of Hydraulic Pile Head cutting machines to cut and remove pile head is desirable.

### 28.0 Excavation

i) Where any site 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 and other materials which may slide, roll or fall upon a site 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.

v) 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. When stability of any structure adjoining workplace or other area to be excavated is under doubt/danger, measures like
Underpinning, piling, shoring or other means to support such structure shall be arranged.

vi) Undercutting during excavation shall be avoided. Wherever it is inescapable and banks of an excavation are undercut, adequate shoring is provided to support the material or article overhanging such bank.

vii) excavated material is not stored at least 0.65 m from the edge of an open excavation or trench and banks of such excavation 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.

viii) Ladders with handrail 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.

ix) 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.

x) Excavation and its vicinity shall be checked after every rain, storm or other occurrences carrying hazards and adequate protection against slides and cave-in shall be adopted.

xi) Shores and braces are of adequate dimensions and are so placed as to be effective for their intended purposes. Earth supported shores or braces bear against a footing of sufficient area and stability to prevent the shifting of such shores or bracing.

xii) Identification of utilities and their diversion if requires shall be carried out prior to start of excavation. For safety of utility as well as personnel, a trail trench shall be excavated manually only after clearance from competent Electrical personnel in respect of Electrical cables subsequent to testing by a cable detector.

29.0 Personal Protective Equipments (PPEs)

The Lessee/Licensee 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, Shoulder Pads 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)

ix) Trousers restrainers’ (For workers, in vicinity of track/traction as well as Civil contract workers deployed on Lunching Girders, Deck slab casting and Parapet erection etc.)

x) Applicable National/International standards along with Vendor/Make for each type of Personal Protective Equipments (PPE’s) is attached as per Appendix 6. The list is not exhaustive and more PPE’s, Standards and Vendors may be included.

29.1 The PPEs and safety appliances provided by the Lessee/Licensee shall be of the standard as prescribed by Bureau of Indian Standards (BIS) or any international standard applicable.
29.2 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.

29.3 The Lessee/Licensee 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 construction work, loading/unloading of material, repair, maintenance or any other work involving worker/public safety under this contract as per the following requirement.

<table>
<thead>
<tr>
<th>All employees of the Lessee/Licensee including workmen</th>
<th>Traffic marshals</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Hard hat with company Logo and reflective tapes</td>
<td>i) Hard hat with company logo and reflective tape</td>
</tr>
<tr>
<td>ii) Safety boots</td>
<td>ii) Safety boots</td>
</tr>
<tr>
<td>iii) Hi-visibility waistcoat covering upper body and meeting the following requirements as per BS EN 471:1994:</td>
<td>iii) Hi-visibility jacket covering upper body and meeting the following requirements as per BS EN 471:1994:</td>
</tr>
<tr>
<td>a) Background in fluorescent orange-red in colour</td>
<td>a) Background in fluorescent orange-red in colour</td>
</tr>
<tr>
<td>b) Two vertical green strips of 5 cm wide on front side, covering the torso at least 500 cm²</td>
<td>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 5 cm from the bottom of the sleeve.</td>
</tr>
<tr>
<td>c) Two diagonal strips of 5 cm wide on back in an ‘X’ pattern covering at least 570 cm²</td>
<td>c) Two vertical green strips of 5 cm wide on front side, covering the torso at least 500 cm²</td>
</tr>
<tr>
<td>d) Horizontal strips not less than 5 cm wide running around the bottom of the vertical strip in front and ‘X’ pattern at back.</td>
<td>d) Two diagonal strips of 5 cm wide on back in an ‘X’ pattern covering at least 570 cm²</td>
</tr>
<tr>
<td>e) The bottom strip shall be at a distance of 5 cm from the bottom of the vest.</td>
<td>e) Horizontal strips not less than 5 cm wide running around the bottom of the vertical strip in front and ‘X’ pattern at back.</td>
</tr>
<tr>
<td>f) Strips must be retro reflective and fluorescent</td>
<td>f) The bottom strip shall be at a distance of 5 cm from the bottom of the vest.</td>
</tr>
<tr>
<td>g) Waistcoat shall have a side adjustable fit and a side and front tear-away feature on vests made of nylon.</td>
<td>g) Strips must be retro reflective and fluorescent.</td>
</tr>
</tbody>
</table>

29.3.1 Colour coding for helmets

<table>
<thead>
<tr>
<th>Safety Helmet Colour Code (Every Helmet should have the LOGO affixed / painted)</th>
<th>Person to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>DMRC staffs</td>
</tr>
<tr>
<td>Grey</td>
<td>All Designers, Architect, Consultants, etc.</td>
</tr>
<tr>
<td>Violet</td>
<td>Lessee/Licensee’s (Engineers / Supervisors)</td>
</tr>
<tr>
<td>Blue</td>
<td>Sub-Lessee/Licensee’s (Engineers / Supervisors)</td>
</tr>
</tbody>
</table>
### Conditions of Contract on Safety and Health for Property Business (PB) contracts

<table>
<thead>
<tr>
<th>Colour</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Electrical Staff (Both Lessee/Licensee and Sub-Lessee/Licensee)</td>
</tr>
<tr>
<td>Green</td>
<td>Safety Professionals (Both Lessee/Licensee and Sub-Lessee/Licensee)</td>
</tr>
<tr>
<td>Orange</td>
<td>Security Guards / Traffic marshals</td>
</tr>
<tr>
<td>Yellow</td>
<td>All workmen</td>
</tr>
<tr>
<td>White (with “VISITOR” sticker)</td>
<td>Visitors including trainee/interns</td>
</tr>
</tbody>
</table>

**Note:** LOGO*

1. Logo shall have its outer dimension 2”X2” and shall be conspicuous
2. Logo shall be either painted or affixed
3. No words shall come either on Top / Bottom of Logo
   Logo of the corresponding main contracting company for their employees and sub-contracting company for their employees shall only be used.

**29.4** In addition to the above any other PPE required for any specific jobs like, welding and cutting, working at height etc shall also be provided to all workmen and also ensure that all workmen use the PPEs properly while on the job. To avoid entanglement of loose trousers, restrainers’/leg strap shall be used.

**29.5** The Lessee/Licensee shall not pay any cash amount in lieu of PPE to the workers/sub-Lessee/Licensees and expect them to buy and use during work.

**29.6** The Lessee/Licensee shall at all time maintain a minimum of 10% spare PPEs and safety appliances and properly record and show to the DMRC during the inspections. Failing to do so shall invite appropriate penalty as per the provisions of the contract.

**29.7** It is always the duty of the Lessee/Licensee to provide required PPEs for all visitors. Towards this required quantity of PPEs shall be kept always at the security post.

**29.8 Visitors to site**

**29.8.1** Lessee/Licensee 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.

**29.8.2** All Visitors, Trainee/interns shall be accompanied at all times by a responsible member of the site personnel.

**29.8.3** The Lessee/Licensee shall be fully responsible for all visitors’ safety and health within the site.

### PART – III: OCCUPATIONAL HEALTH AND WELFARE

**30.0 Physical fitness of workmen**

The Lessee/Licensee 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.

The Lessee/Licensee shall not permit any employee/workmen to enter the work area under the influence of alcohol or any drugs.
31.0 Medical Facilities

31.1 Medical Examination
As per BOCW relevant rules, the Lessee/Licensee shall arrange a medical examination of all his employees including his sub- Lessee/Licensee employees employed 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.

31.2 First-aid boxes
The Lessee/Licensee shall ensure at a work place one First-aid box provided and maintained for providing First-aid to the workers. Every First-aid box is distinctly marked “First-aid” and is equipped with the articles specified in BOCWR.

32.0 Welfare measures for workers

32.1 Toilets and Urinals
Generally, facilities are available at Metro Station, Depots & other work places and maintained by agencies engaged by DMRC. Lessee/Licensee workers may utilise these facilities on payment basis.

32.2 Drinking water
As per relevant section of BOCWA the Lessee/Licensee shall make in every work place, 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.

33.0 Noise
The Lessee/Licensee shall take all appropriate measures to ensure that work carried out by the Lessee/Licensee and by his sub- Lessee/Licensee, whether on or off the Site, will not cause any unnecessary or excessive noise which may disturb DMRC commuters and the occupants of any nearby dwellings, schools, hospitals, or premises with similar sensitivity to noise.

Noise level reduction measures shall include the following:

i) Lessee/Licensee 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) Lessee/Licensee shall construct acoustic screens or enclosures around any parts of the works from which excessive noise may be generated.

Lessee/Licensee shall ensure that noise generated by work carried out by the Lessee/Licensee and his sub- Lessee/Licensee during daytime and night time shall not exceed the maximum permissible noise limits

34.0 Illumination
Lessee/Licensee shall take every effort to illuminate the work site as per the requirement. The Lessee/Licensee shall conduct a monthly illumination monitoring by lux meter for all the locations.
PART - IV: PENALTY AND AWARDS

35.0 Charges to be recovered from Lessee/Licensee for unsafe act or condition

35.1 DMRC has built an image of safety conscious organisation meticulously over a long period of operation. 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 DMRC. Most of the accidents are avoidable and caused preliminary due to Lessee/Licensee negligence. Hence DMRC shall recover the cost of damages from the Lessee/Licensee for every reportable incident (fatality / injury).

35.2 In addition sometimes our activities are exposed to public scrutiny as the work is executed on public places. Any unsafe act / unsafe condition observed by public further damage our reputation. Without limiting to the unsafe acts and or conditions, the DMRC 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.

35.3 The following table indicates the Safety, Health and Environment violation (unsafe act / unsafe condition) and charges to be recovered from contractors.

<table>
<thead>
<tr>
<th>S.NO</th>
<th>TOPIC</th>
<th>UNSAFE ACT/UNSAFE CONDITION</th>
<th>DEDUCTIBLE AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ID card</td>
<td>i) Non-adherence of clause 4.0</td>
<td>Rs.1,000 each for violation, maximum upto Rs. 5,000.</td>
</tr>
</tbody>
</table>
| 2.   | SHE Training        | i) 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  
   |      |                     | b) Supervisor/engineer/manager training not conducted as per clause 5.1  
   |      |                     | c) Refresher training as per clause 5.2 not conducted  
   |      |                     | d) Tool-box talk not conducted as per clause 5.3  
   |      |                     | e) Skill development training not conducted as clause 5.4 & 5.5  
   |      |                     |                                                                 | For item 1 a) to e)  
|      |                     |                                                                 | Rs. 5,000 for first violation on and Rs. 10,000 for subsequent violations |
| 3.   | Injury and Incidence reporting | i) Fatal accidents  
   |      |                     | ii) Injury accident  
   |      |                     | iii) Abnormal delay in reporting accidents or wilful suppression of information about any accidents / dangerous occurrence as per clause 8.0  
   |      |                     | iv) Delay in informing about any accidents / dangerous incidents.  
   |      |                     | v) Non-compliance of the clause 8.8  
   |      |                     |                                                                 | i. Rs.5,00,00,000 for first fatality and Rs.10,00,000 for every subsequent fatality.  
|      |                     |                                                                 | ii. Rs.1,00,000 for first grievously injured person and Rs.2,00,000 for every subsequent grievously injured person (Grievous
| 4. | Emergency preparedness Plan | Non-compliance of the clause 9.0 | (a) Rs. 50,000 for non-compliance of the clauses for the contract having first year annual revenue more than 1 cr.  
(b) Rs. 25,000 for non-compliance of the clauses for the contract having first year annual revenue less than 1 cr. |
|---|---|---|---|
| 5. | Housekeeping | i) Non-compliance of clause 12.0  
ii) Housekeeping maintenance register not properly maintained up to date  
iii) Surrounding areas of drinking water tanks / taps not hygienically cleaned / maintained  
iv) Office, stores, toilet / urinals not properly cleaned and maintained.  
v) Required dustbins at appropriate places not provided / not cleaned.  
vi) Stairways, gangways, passageways blocked.  
vii) Lumber with protruding nails left as such  
viii) Openings unprotected  
ix) Excavated earth not removed within a reasonable time.  
x) Truck carrying excavated earth not covered / tyres not cleaned.  
xi) Vehicles / equipments parked / placed on roads obstructing free flow of traffic  
xii) Unused surplus cables / steel | (a) Rs. 1,000 per single violation  
Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue more than 1 cr.  
(b) Rs. 500 per single violation  
Compounded to a maximum of Rs. 10,000 at any single instance for the contracts having first year annual revenue less than 1 cr. |
### Conditions of Contract on Safety and Health for Property Business (PB) contracts

| xiii) | Wooden scraps, empty wooden cable drums lying scattered |
| xiv) | Water stagnation leading to mosquito breeding |

#### 6. Working at Height / Ladders and Scaffolds

| i) | Non-compliance of clause 12.0 |
| ii) | Not using or anchoring Safety Belt |
| iii) | Not using Safety Net |
| iv) | Absence of life line or anchorage point to anchor safety belt |
| v) | Using Bamboo ladders |
| vi) | Painting of ladders |
| vii) | Improper usage (less than 1m extension above landing point, not maintaining 1:4 ratio) |
| viii) | Aluminium ladders without base rubber bush |
| ix) | Usage of broken / week ladders |
| x) | Usage of re-bar welded ladders |
| xi) | Improper guardrail, toe board, barriers and other means of collective protection |
| xii) | Improper working platform |
| xiii) | Working at unprotected fragile surface |
| xiv) | Working at unprotected edges |

- (a) Rs. 1,000 per single violation
- (b) Rs. 500 per single violation

#### 7. Lifting appliances and gear

| Non compliance of clause 14 to 17 |
| i) | Non availability of fitness certificate as per clause 14.0 (i) |
| ii) | Documents not displayed on the machine or not available with the operator |
| iii) | Maximum Safe Working Load not written on the machine as per clause 14.1 (ii) |
| iv) | Non-compliance of 14.2 |
| v) | Non-compliance of 14.3 |
| vi) | Automatic safe load indicator not provided or not in working condition |
| vii) | Age of the operator less than 28 years or without any licence and non-compliance of other item |
| viii) | Non-compliance |
| ix) | Non-compliance of any of the items mentioned regarding rigging requirements |
| x) | Failure to submit method statement in case of all critical lifting |

- (a) Rs. 10,000 per single violation
- (b) Rs. 5,000 per single violation
<table>
<thead>
<tr>
<th></th>
<th>Conditions of Contract on Safety and Health for Property Business (PB) contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>xi)</td>
<td>Person riding on crane.</td>
</tr>
<tr>
<td>xii)</td>
<td>Creating more noise and smoke</td>
</tr>
<tr>
<td>xiii)</td>
<td>Absence of portable fire extinguisher in driver cabin</td>
</tr>
<tr>
<td>xiv)</td>
<td>Fail to guard hoist platform</td>
</tr>
<tr>
<td>xv)</td>
<td>No fencing of hoist rope movement area</td>
</tr>
<tr>
<td>xvi)</td>
<td>Hoist platform not in the horizontal position</td>
</tr>
</tbody>
</table>

8. **Site Electrical safety**

<table>
<thead>
<tr>
<th>i)</th>
<th>Non-compliance of clause 18, 19 &amp; 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>ii)</td>
<td>Exposed electric lines (fermentative damage) and circuits in the workplace.</td>
</tr>
<tr>
<td>iii)</td>
<td>Inserting of bare wires into the socket</td>
</tr>
<tr>
<td>iv)</td>
<td>Improper grounding for the electrical appliances</td>
</tr>
<tr>
<td>v)</td>
<td>Electrical cables running on the ground</td>
</tr>
</tbody>
</table>

(a) Rs. 1,000 per single violation Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue more than 1 cr.

(b) Rs. 1,000 per single violation Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue less than 1 cr.

9. **Hand tools and Power tools**

| i) | Non-compliance of clause 20.0 |

(a) Rs. 1,000 per single violation Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue more than 1 cr.

(a) Rs. 500 per single violation Compounded to a maximum of Rs. 10,000 at any single instance for the contracts having first year annual revenue less than 1 cr.

10. **Gas Cutting**

| i) | Non-compliance of clause 26.0 |
| ii) | Wrong colour coding of cylinder. |
| iii) | Cylinders not stored in upright |

(a) Rs. 5,000 per single violation Compounded to a maximum of
### Conditions of Contract on Safety and Health for Property Business (PB) contracts

<table>
<thead>
<tr>
<th></th>
<th>Position.</th>
<th>Rs. 50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.</th>
<th>(b) Rs. 2,500 per single violation Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue less than 1 cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>Welding</td>
<td>i) Non-compliance of clause 26.0</td>
<td>(a) Rs. 5,000 per single violation Compounded to a maximum of Rs. 50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Voltmeter and Ammeter not working</td>
<td>(b) Rs. 2,500 per single violation Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue less than 1 cr.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Improper grounding and return path.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv) Damaged welding cable</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>v) Bare openings in the cable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>vi) Non-availability of separate switch in the transformer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>vii) Non-availability of main switch control to switch off power to the welding unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>viii) Usage of reinforcement rod as return conductor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ix) Damaged holder</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>x) Fire extinguisher not placed in the vicinity during operation</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Fire precaution</td>
<td>i) Non-compliance of clause 21.0</td>
<td>(a) Rs. 1,000 per single violation Compounded to a maximum of Rs. 50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smoking and open flames in fire prone area</td>
<td>(a) Rs. 1,000 per single violation Compounded to a maximum of Rs. 50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Using more than 24V portable electrical appliances in the fire prone area</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Not proper ventilation in cylinder storage area</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv) Absence of fire extinguishers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>v) Fire extinguishers not refilled once in a year</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>vi) Fire extinguisher placed in a not easily accessible location</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conditions of Contract on Safety and Health for Property Business (PB) contracts</td>
<td>maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue less than 1 cr.</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>
| 13. | Excavation, Tunnelling and confined space | (a) For Rs. 1,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.  
(a) For Rs. 500 per single violation Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue less than 1 cr. |
| 14. | Work permit system | (a)For Rs. 5,000 per first violation and Rs. 50,000 for subsequent violations for the contracts having first year annual revenue more than 1 cr.  
(a)For Rs. 2,500 per first violation and Rs. 25,000 for subsequent violations for the contracts having first year annual revenue less than 1 cr. |
<table>
<thead>
<tr>
<th>15. Traffic Management</th>
<th>Non-compliance of clause 24.1</th>
<th>(a)Rs. 50,000 per first violation and Rs. 1,00,000 for subsequent violations for the contracts having first year annual revenue more than 1 cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(a)Rs. 25,000 per first violation and Rs. 50,000 for subsequent violations for the contracts having first year annual revenue less than 1 cr.</td>
</tr>
<tr>
<td>a) Barricades</td>
<td></td>
<td>(a)Rs. 1,000 per single violation Compounded to a maximum of Rs. 50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.</td>
</tr>
<tr>
<td>i) Not Cleaned</td>
<td></td>
<td>(a)Rs. 500 per single violation Compounded to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue less than 1 cr.</td>
</tr>
<tr>
<td>ii) Not in alignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii) Not numbered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv) Not painted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>v) Red lights / reflectors not working</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi) Damages not repaired</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vii) Not secured properly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>viii) Barricade inspector not employed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ix) Protruding parts / portions repaired</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x) Barricades maintaining register not properly maintained up to date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>PPE</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>b) Licensee Vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Over loading of vehicles</td>
<td>(a) Rs. 5,000 per single violation</td>
<td></td>
</tr>
<tr>
<td>ii) Unfit drivers or operators</td>
<td>Compound to a maximum of Rs. 50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.</td>
<td></td>
</tr>
<tr>
<td>iii) Unlicensed vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv) Absence of traffic marshals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>v) Absence of reversing alarm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi) Absence of fog light (at winter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vii) Power / hand brakes not in working condition.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Rs. 5,000 per single violation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compounded to a maximum of Rs. 50,000 at any single instance for the contracts having first year annual revenue more than 1 cr.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Splashing of Bentonite on roads / non-cleaning of tyres of dumpers and transit mixers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Mishandling of bentonite like splashing of bentonite outside specified width of barricading</td>
<td>For item i) and ii)</td>
<td></td>
</tr>
<tr>
<td>ii) Non-cleaning of tyres of dumpers and transit mixers before leaving the site and thereby creating a traffic safety hazard to road users.</td>
<td>a) Rs. -50,000 on first observation.</td>
<td></td>
</tr>
<tr>
<td>(a) Rs. 2,500 per single violation</td>
<td>b) Rs. 1,00,000 on second observation</td>
<td></td>
</tr>
<tr>
<td>Compound to a maximum of Rs. 25,000 at any single instance for the contracts having first year annual revenue less than 1 cr.</td>
<td>c) Rs. 1,50,000 on third and subsequent observations</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>PPE</td>
<td></td>
</tr>
<tr>
<td>i) Not having</td>
<td>From item i) to vi).</td>
<td></td>
</tr>
<tr>
<td>ii) Not wearing (or) using and kept it elsewhere</td>
<td>Rs. 200 per single violation</td>
<td></td>
</tr>
<tr>
<td>iii) Using damaged one</td>
<td>For item vii)</td>
<td></td>
</tr>
<tr>
<td>iv) Using wrong type</td>
<td>Rs. 1,000 for first violation</td>
<td></td>
</tr>
<tr>
<td>v) Using wrong colour helmet or helmet without logo</td>
<td>and Rs. 50,000 for subsequent violations</td>
<td></td>
</tr>
<tr>
<td>vi) Using for other operation (e.g. Using safety helmet for storing materials or carrying water from one place to other)</td>
<td>For item viii)</td>
<td></td>
</tr>
<tr>
<td>vii) Not conforming to BIS standard</td>
<td>a) Rs. 5,000 for first violation and Rs. 50,000 for subsequent violations for the contracts having first year annual revenue more than 1 cr.</td>
<td></td>
</tr>
<tr>
<td>viii) Non-compliance of clause 29.1 to 29.8</td>
<td>(a) Rs. 2,500 for first violation and Rs. 25,000 for subsequent violations for the contracts</td>
<td></td>
</tr>
</tbody>
</table>
### Conditions of Contract on Safety and Health for Property Business (PB) contracts

| 17. | Occupational Health | i) Non-compliance of clause 30.0 to 34.0  
|     |                  | ii) Fall to conduct Medical examination to workers  
|     |                  | iii) Absence of ambulance van & room  
|     |                  | iv) Workers not having ID card  
|     |                  | v) Inadequate number of toilets  
|     |                  | vi) Toilets not cleaned properly  
|     |                  | vii) Absence of water facilities for toilets and washing places  
|     |                  | viii) Toilet placed more than 500m from the work site  
|     |                  | ix) Absence of drinking water  
|     |                  | x) Absence of first-aid person in work site.  
|     |                  | xi) Absence or inadequacy of first-aid box.  
|     |                  | xii) Misuse of first-aid box.  
|     |                  | xiii) First-aid box not satisfy the minimum Indian standard.  
|     |                  | xiv) Smoking inside the construction site  
|     |                  | xv) Drink and drive or work  
|     |                  | xvi) Excessive noise and vibration  
|     |                  | xvii) Canteen not provided  
|     |                  | xviii) Food stuff not served on no loss no profit basis  
|     |                  | xix) Creche not provided  
|     |                  | xx) Fumigation / insecticides not sprayed to prevent Mosquito breeding | having first year annual revenue less than 1 cr.  

(a) Rs. 1,000 per single violation

Compounded to a maximum of Rs. 50,000 at any single instance for all the contracts except contracts mentioned in (b)

(b) Clause no. (v) to (ix), (xvii) to (xxi) shall not be applicable for the Advertisement contracts and the contracts having first year annual value less than Rs. 1 Crore.

#### 35.4 Without limiting to the unsafe acts and or conditions mentioned above in clause 35.3 the DMRC 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 35.3.

#### 36.0 Stoppage of unsafe activity by Lessee/Licensee

#### 36.1 The DMRC 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 at specific work place. In such cases, the Lessee/Licensee shall be informed in writing about the nature of hazards and possible injury / accidents.

#### 36.2 The Lessee/Licensee shall not proceed with the work until he has complied with each direction to the satisfaction of DMRC
36.3 The Lessee/Licensee 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 moratorium period for Completion of the Facilities.
APPENDIX – 1

Topics for First day at work SHE orientation training of Workmen

1. Hazard Identification Procedure

Hazards on work place:
- Electricity
- Machinery
- Handling materials
- Work place
- Work at Height
- Fire

2. Personal Protective Equipment

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

3. Health

- Work place welfare facilities
- Potential health hazards
- First Aid/CPR

4. Duties of the Lessee/Licensee /Licensee

- Brief outline of the responsibilities of the Lessee/Licensee by law
- Details of Lessee/Licensee accident prevention policy
- Building and other construction worker Welfare Law

5. Employee’s Duties

- Brief outline of responsibilities of employee under law
- Explanation of how new employees fit into the Lessee/Licensee plan for accident prevention. (induction and orientation).
APPENDIX – 2

ID CARD FORMAT

(85 mm x 55 mm)

Front Side of ID Card

<table>
<thead>
<tr>
<th>DELHI MRTS Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Logo</td>
</tr>
<tr>
<td>Name &amp; Address of Lessee/Licensee/Sub-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designation:</td>
</tr>
<tr>
<td>Blood Group:</td>
</tr>
<tr>
<td>Valid Up to:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Authorised Signatory</th>
</tr>
</thead>
</table>

Back Side of ID Card

Employee Address:

________________________________________________________
________________________________________________________

1. This card is the property of “xx” (Licensee/Sub-Licensee) and must be returned on demand and on transfer/cancellation of employment
2. A change will be levied for replacement of the card due to loss or theft
3. If found please return to

Licensee/Sub-Licensee Address
SAFETY AND HEALTH POSTERS

The Lessee/Licensee shall prepare a SHE Communication Plan as a part of work place 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 safety related organisations they may procure the same and display it. In case the same is not available then the Lessee/Licensee shall make necessary arrangements to get the posters designed and printed on their own. The List of Posters:

1. Mandatory PPE Usage
2. Working at Height
3. Work place Electricity
4. Crane Safety & Lifting operation
5. Excavation
6. Confined Space
7. Hand tools & Power tools
8. Material Handling
9. First Aid
### Part A : Details of Injured Person

<table>
<thead>
<tr>
<th>Name : ___________________</th>
<th>Date of Birth : ___________</th>
<th>Male □  Female □</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address : ___________________</td>
<td>__________________________</td>
<td></td>
</tr>
<tr>
<td></td>
<td>__________________________</td>
<td></td>
</tr>
<tr>
<td>Job Title : ___________________</td>
<td>Name of Employer : ___________________</td>
<td></td>
</tr>
</tbody>
</table>

### Part B : Details of The Accident

- Date : ___________ Time : _______________ Location : _______________
- Describe the task the injured person was doing at the time of the accident:
- Describe in details how the accident happened (Attach, sketch, plan photographs etc.):
- Was any plant or machinery involved yes/no : if yes give details:
- Name of any Witnesses:

### Part C : Details of the Inquiry

What was the Injury ? (eg. Fracture, Lacerations)

What part of the body was injured?

- Was the injury : Fatal □  Major Injury □  Minor Injury □
- Was the injured person sent to ; First Aid □  Doctor □  Hospital □  Home □

### Part D : Certification

I have checked the above information and can confirm that it is a true record of the accident

Signed ___________________  Contract Workplace Incharge__________  Date

_________________________ __________________________
## SCAFFOLD CHECKLIST

<table>
<thead>
<tr>
<th>Contract No.</th>
<th>Contractor Name</th>
<th>Location</th>
<th>Tag No.</th>
<th>Date</th>
<th>Purpose</th>
</tr>
</thead>
</table>

### A. Check the Base of the Structure

<table>
<thead>
<tr>
<th>S. No</th>
<th>Description</th>
<th>Observation (Yes/No)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Has the scaffold been erected in accordance with the design of a qualified person?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Are base plates provided?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Has the maximum load capacity of the scaffold been communicated to all affected employees?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Is the ground level firm, or have proper supports been placed under the structure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Is the base away from all excavation, drain covers, man holes etc.?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### B. Check the Structure

<table>
<thead>
<tr>
<th>S. No</th>
<th>Description</th>
<th>Observation (Yes/No)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are the vertical tubes in plumb and correctly spaced?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Are the standards joints staggered?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Are adequate bracing provided?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Is the structure securely tied back?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Is there an access tower free standing without support?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### C. Check the Working Platform

<table>
<thead>
<tr>
<th>S. No</th>
<th>Description</th>
<th>Observation (Yes/No)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is the working platform closely i.e no gaps between the boards?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is the working platform at least 450 mm wide?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Is a guard-rail, knee-rail and toe board provided above the platform and securely fixed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Are all the material stored on the platforms properly secured or not?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Are openings in working platform kept safety covered/fenced?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Is there a provision of anchoring safety belts lanyards to be tied to guy ropes?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### D. Check the Access

<table>
<thead>
<tr>
<th>S. No</th>
<th>Description</th>
<th>Observation (Yes/No)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are existing access ways (stairs, walkways, ladders) etc. left clear?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Observation if any:

<table>
<thead>
<tr>
<th>Inspected &amp; Signed By</th>
<th>Inspected &amp; Signed By</th>
<th>Inspected &amp; Signed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Officer</td>
<td>Certified Scaffolder</td>
<td>Site In-charge</td>
</tr>
</tbody>
</table>
## LIST OF MANUFACTURERS FOR SAFETY PPEs

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Item</th>
<th>Relevant Standard (Shall Comply to any one of the Standard)</th>
<th>Vendor List</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Gumboots</td>
<td>IS: 15298 (Part-II)</td>
<td>Abrigo, Duckback, Acme &amp; Liberty</td>
</tr>
<tr>
<td>8.</td>
<td>Fall Arrester</td>
<td>EN: 353</td>
<td>Karam, Honneywell, 3M, Abrigo, UFS &amp; DBA Sala</td>
</tr>
<tr>
<td>9.</td>
<td>Retractable Block</td>
<td>EN: 360</td>
<td>Karam, Honneywell, 3M, Abrigo, UFS &amp; DBA Sala</td>
</tr>
<tr>
<td>10.</td>
<td>Safety Eye wear</td>
<td>EN: 166 &amp; IS: 5983</td>
<td>Karam, Abrigo, Venus, Udyogi, Honeywell, UFS &amp; 3M</td>
</tr>
<tr>
<td>12.</td>
<td>High Visibility Vest</td>
<td>EN: 471</td>
<td>Reflecto Safe, Udyogi, Acme, UFS &amp; Bright Eye</td>
</tr>
<tr>
<td>14.</td>
<td>Ear Plug</td>
<td>EN: 352</td>
<td>Venus, Karam, 3M &amp; Honeywell</td>
</tr>
<tr>
<td>16.</td>
<td>Traffic Cone</td>
<td></td>
<td>Dark Eye, Nikamal &amp; Acme, Aktion</td>
</tr>
<tr>
<td>17.</td>
<td>Breathing Apparatus</td>
<td>NFPA 1852</td>
<td>Honeywell, Joseph Leslie, Drager &amp; MSA</td>
</tr>
</tbody>
</table>
# WORK PERMIT FORMATS

## DELHI METRO RAIL CORPORATION LTD.

**FORM No. : SF/20**

## PERMIT TO WORK – CONFINED SPACES

<table>
<thead>
<tr>
<th>NAME OF CONTRACTOR</th>
<th>CONTRACT NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERMIT NO. …..</td>
<td>DATE / /</td>
</tr>
</tbody>
</table>

**PART 1: Initiator**

Issue to (Name of Person carried out work) ________________ Section ________________

Details of Confined Space ____________________________________________________________

Location ____________________________________________________________

Work to be carried out _______________________________________________________________

Results of Confined Space Testing: ________________________________________________

Oxygen Content _________ Explosive Gas _________ LEL

Toxic Gas 1: ___________________________ Toxic Gas 2: ____________________________

Date and Time Tests Conducted ___________________________________________________

Type and Model of Equipment used ________________________________________________

Precautions Required ____________________________________________________________

**PART 2: Receipt**

I hereby declare that work by myself, or by any person under my control in the above Confined Space shall be carried out in accordance with the conditions of this permit and the requirements of the company Safety Rules. All persons permitted to enter the Confined Space have been or will be informed of when the safe period for entry will expire.

Signed ____________________ Time ________ Date ______

**PART 3: Authorization**

I hereby declare that the above Confined Space is safe to enter without the use of breathing apparatus, provided the conditions of this permit and the requirements of the Company Safety Rules and observed.

Date: ___________ Time of Issue: ___________ Date: ___________ Time of Expiry ___________

Signed ____________________

**Counter signed by Safety Manager:**

Name: ____________________Signed ____________________ Time ________ Date ______

__________
### PART 3. Clearance Certificate
I declare that all persons under my charge have been withdrawn and warned that it is no longer safe to work in the Confined Space detailed above, and that all gear, tools and other equipment have been removed.

Signed ______________________________  Time __________________  Date _________________

### PART 4. Cancellation
I acknowledge receipt of the clearance of the Permit

**THIS PERMIT IS NOW CANCELLED**

Signed __________________ Date________________ Time__________________

NOTE: Kindly attached duly signed detailed checklist for Safety measures
## FORM No. : SF/23

### PERMIT TO WORK – LIFTING PERMIT

#### SECTION – A: Details of Lifting Crew, Crane Configuration & Load Calculation

<table>
<thead>
<tr>
<th>NAME OF CONTRACTOR</th>
<th>CONTRACT NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERMIT No.</td>
<td>Date</td>
</tr>
<tr>
<td>Location</td>
<td>Activity being performed</td>
</tr>
</tbody>
</table>

#### Part - 1: Details of Lifting Crew

- Name of Lifting Engineer: _______________________________________________________________
- Name of Operators: ___________________________________________________________________
- Names of Riggers: ______________________________________________________________________
- Name of Signalman: ________________________________________________________________

#### Part – 2: Crane Details

- Crane Make, Model & Year: __________________________ Max. Lifting Capacity: ______________
- Maximum Boom Length: ______________ Maximum Radius: __________________________
- Outrigger full extension (in mtr.): ______ Percentage of deration in crane capacity: _____________
- Automatic Safe Load Indicator: ______________ Over Hoist Cut-off Limit Switch: ______________

#### Part – 3: Load Details

- Description of the Load: __________________________ Lifting points on Load: ______________
- Rigging Manner of load: __________________________ Dimension of Load: ______________

#### Part – 4: Load Calculation (____________% of Load chart referred/followed)

- a) Crane Boom Length:________, b)Crane Boom Radius:________, c) Rope Diameter(mm): _______
- d) No. of falls: ____________, e) Deration in capacity: ____________, f) Counter weight: ________
- g) SWL (after deration):_______, h) Weight of Load: ______________, h) Rigging Weight: ________ i) Hook Block Weight: ________, j) Total Weight to be lift: ________.
- k) Safety margin in crane capacity: (SWL of crane on lifting configuration – Load to be lifted) ________
- l) Outriggers extension (in mtrs) __________________________
### Part 5: Receipt

I (Name of Lifting Engineer) hereby declare that the load calculation as mentioned in Part – 4 of this permit shall not exceed in any circumstances and work shall be carried out in safe manners. In addition, the checklist along with lifting sketches as mentioned in section B of this permit shall be followed and also attached. All measures have been adopted to ensure the stability & rigidity of the cranes as well as rigging. All safety devices of the crane are in proper working order. Section A shall be treated as invalid without section B.

Name: _____________________ Signed ___________________ Time _______ Date ____________

### Part 6: Clearance from Safety Department

I (Name of Safety In-charge) also checked the above load calculation which is within the crane lifting configuration for safe lifting operation.

Name: _____________________ Signed ___________________ Time _______ Date ____________

### SECTION – B: Safety Checklist & Sketch
## Part - 7: Safety Measures Checklist

<table>
<thead>
<tr>
<th>S No.</th>
<th>Measures/particulars</th>
<th>Yes/No/Avl/other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crane use for lifting is suitable as per site condition and type of lifting</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Are lifting crew trained for lifting operation</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Is crane set up on compacted and firm ground condition</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Are crane outriggers fully extended and placed on metal plate</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Are condition of lifting gears free from any type of defects</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Is condition of lifting appliance operator cabin in good condition and not no hindrance to any thing</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Is adequate means of communication between lifting crew arranged</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Is underground utilities presents, if yes, mentioned measures to overcome &amp; crane stability (mentioned in Method Statement)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Is any power cable/OHE cable available, if yes, then measures to encounter that (mentioned in Method Statement)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Safe means of access arranged</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Safe working platform arranged</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Measures for working at height adopted</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Traffic diversion alongwith provision of traffic marshal arranged</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Is wind velocity check and under acceptable limit as recommended by manufacturer</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Is copy of approved method statement available</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Is Automatic Safe Load Indicator working and cut-off switch provided &amp; working</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>All certificate &amp; document like TPI, Load chart etc. available</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Is proper arrangement of illumination done &amp; level of lux maintained</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Is rigging done by taking consideration of CG of load w.r.t crane hook</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Swing area of crane properly barricaded</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Other system of crane like control lever, fail safe device, boom, winch etc. are in good condition or working properly</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Is tag line to control the load is provided</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any other measures</td>
<td></td>
</tr>
</tbody>
</table>
Part – 8: Lifting Sketch

(this sketch shall be site specific and reflects all hazards/obstruction along with dimension)

Part 9: Final Authorization

I (Name of Lifting Engineer) hereby declare that the load calculation as mentioned in Part – 4 of section A and measures as mentioned in part 7 of section B shall be ensured. In addition, arrangement for safe lifting, public safety, traffic diversion, working at height, means of access etc has been adopted.

Name: ___________________________ Signed ________________ Time ______ Date ______________

Part – 10: Clearance from Safety Department

I (Name of Safety In-charge) certify that, measures for safe lifting have been adopted at site.

Name: ___________________________ Signed ________________ Time ______ Date ______________

PART 11: Clearance Certificate (By Lifting Engineer)

I declare that all persons under my charge have been withdrawn and warned that it is no longer safe to work at site, and that all gear, tools and other equipment have been removed.

Name: ___________________________ Signed ________________ Time ______________ Date ______________

Part 12: Cancellation (Being the Authorized Person)

I acknowledge receipt of the clearance of this Permit

This permit is now cancelled

Name: ___________________________ Signed ________________ Time ______________ Date ______________

55
## FORM No. : SF/24

### PERMIT TO WORK – TANDEM LIFTING PERMIT

**SECTION – A: Details of Lifting Crew, crane configuration & Load calculation**

<table>
<thead>
<tr>
<th>NAME OF CONTRACTOR</th>
<th>CONTRACT NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERMIT No.</td>
<td>Date</td>
</tr>
<tr>
<td>Location</td>
<td>Time</td>
</tr>
</tbody>
</table>

### Part - 1: Details of Lifting Crew

- Name of Lifting Engineer: ____________________________
- Name of Operators: ____________________________
- Names of Riggers: ____________________________
- Name of Signalman: ____________________________

### Part – 2: Crane Details

**Crane – 1:**

- Crane Make, Model & Year: ____________________________
- Max. Lifting Capacity: ____________________________
- Maximum Boom Length: ____________________________
- Maximum Radius: ____________________________
- Outrigger full extension (in mtr.): ______________
- Percentage of deration in crane capacity: ______
- Automatic Safe Load Indicator: ______________
- Over Hoist Cut-off Limit Switch: ______________

**Crane – 2:**

- Crane Make, Model & Year: ____________________________
- Max. Lifting Capacity: ____________________________
- Maximum Boom Length: ____________________________
- Maximum Radius: ____________________________
- Outrigger full extension (in mtr.): ______________
- Percentage of deration in crane capacity: ______
- Automatic Safe Load Indicator: ______________
- Over Hoist Cut-off Limit Switch: ______________

### Part – 3: Load Details

- Description of the Load: ____________________________
- Lifting points on Load: ____________________________
- Rigging Manner of load: ____________________________
- Dimension of Load: ____________________________

### Part – 4: Load Calculation
### Conditions of Contract on Safety and Health for Property Business (PB) contracts

<table>
<thead>
<tr>
<th>Crane – 1:</th>
<th>Crane – 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Crane Boom Length: ____________________</td>
<td>a) Crane Boom Length: ____________________</td>
</tr>
<tr>
<td>b) Crane Boom Radius: ____________________</td>
<td>b) Crane Boom Radius: ____________________</td>
</tr>
<tr>
<td>c) Rope Diameter(mm): ____________________</td>
<td>c) Rope Diameter(mm): ____________________</td>
</tr>
<tr>
<td>d) No. of falls: __________________________</td>
<td>d) No. of falls: __________________________</td>
</tr>
<tr>
<td>e) f) Counter weight: ______________________</td>
<td>e) f) Counter weight: ______________________</td>
</tr>
<tr>
<td>f) Weight of Load: ________________________</td>
<td>f) Weight of Load: ________________________</td>
</tr>
<tr>
<td>g) Rigging Weight: ________________________</td>
<td>g) Rigging Weight: ________________________</td>
</tr>
<tr>
<td>h) Hook Block Weight: _____________________</td>
<td>h) Hook Block Weight: _____________________</td>
</tr>
<tr>
<td>i) Total Weight to be lift: __________________</td>
<td>i) Total Weight to be lift: __________________</td>
</tr>
<tr>
<td>j) Total weight to be lift on crane 1: ___________</td>
<td>j) Total weight to be lift on crane 2: ___________</td>
</tr>
</tbody>
</table>

k) SWL (as per 75% of Load Chart): __________
k) SWL (as per 75% of Load Chart): __________
l) SWL (after deduction of 15% on 75% chart): __________l) SWL (after deduction of 15% on 75% chart): __________m) Safety margin in crane capacity: (j – l) __________m) Safety margin in crane capacity: (j – l) __________n) Outriggers extension (in mtrs): __________n) Outriggers extension (in mtrs): __________

### Part 5: Receipt

I (Name of lifting engineer) hereby declare that the load calculation as mentioned in Part – 4 of this permit shall not exceed in any circumstances and work shall be carried out in safe manners. In addition, the checklist along with lifting sketch as mentioned in section B of this permit shall be followed and also attached. All measures have been adopted to ensure the stability & rigidity of the cranes as well as rigging. All safety devices of the crane are in proper working order. Section A shall be treated as invalid without section B.

Name: __________________________ Signed __________________ Time ________ Date ______________

### Part 6: Clearance from Safety Department

I (Name of Safety In-charge) also checked the above load calculation which is within the crane lifting configuration for safe lifting operation.

Name: __________________________ Signed __________________ Time ________ Date ______________
APPENDIX No. 8

SAFETY CIRCULARS
SAFETY CIRCULAR No. SC-02(Rev.02)

Sub: Safety Circular No. SC-02(Rev.02)

Find enclosed Safety Circular No. SC-02(Rev.02) regarding Procedure Order for granting and cancellation of power blocks and permit to work during non revenue hours. All concerned are to ensure that staff working under them have read and understood the procedure order and assurance is taken.

This issue with the approval of the competent authority.

Note: Safety circular nos. 2, 3, 18 & 19 have been merged to formulate single safety circular No. 02 (Rev.02). This safety circular supersedes SC-02 (Rev.01), SC-03(Rev.00), SC-18(Rev.00) and SC-19(Rev.01).

(Amit Kumar Jain)
DGM/O & TO

All HODs (O&M)
All Dy HODs (O&M)
OCC/SHPK & OCC/Metro Bhawan,
All DCC, All Crew Controls, All stations & Training Institute
Copy to:
DE, DF, DO, DP, DRS, DW & DBD for kind information please.
SAFETY CIRCULAR No. SC – 02

PROCEDURE ORDER FOR GRANTING & CANCELLATION OF POWER BLOCKS AND PERMIT TO WORK DURING NON-REVENUE HOURS

Note: Safety circular Nos.2,3,18&19 have been merged to formulate single safety circular No.SC-02 (Rev.02). This Safety Circular Supersedes SC-02 (rev.01), SC-03 (rev.00), SC-18 (rev.00) & SC-19 (rev.01).

1. SCOPE:

This Procedure Order covers the Methodology for obtaining Permission for Engineer’s Possession & Integrated Blocks including Power Blocks and Shadow Power Blocks during Non-Revenue Hours, required for Inspection, Repair, Testing, Maintenance and Construction of Signalling, Communication, Track & Structure, Over-Head Equipment, Line Side Structures and Tunnel Equipment in a manner that shall ascertain complete Safety of all concerned, while ensuring that the Metro Rail Assets and Safety Equipments are not adversely affected during Working. The Procedure Order also lists out the Responsibilities of Metro Staff and that of Contractor’s Authorised Representatives during their Testing, Maintenance & Repairs, and Construction Activities.

This Procedure Order is applicable to all Lines.

This Document should be read in conjunction with the General Rules of DMRC, AC Traction Manual of DMRC, Station Working Orders in vogue and other related Statutory Provisions.

2. GENERAL:

OHE Power Block and Shadow Power Block shall be required in case the Working zone is within a radius of ‘2‘ m from OHE.

3. DEFINITIONS:

Engineer's Possession (EP):

Engineer’s Possession is an Authority given to an Agency or Department within an Organization to have access to the portion of the Track or Tracks or a Line Segment for a specified period of time for the purpose of Inspection, Repair, Maintenance, Construction, Re-habilitation and Testing of Equipments etc.

EP shall normally be granted during Non-revenue Hours.

Engineer’s Possession In-charge (EPIC):

The Person-in-Charge of Engineer’s Possession shall be termed as ‘EPIC’. Only DMRC Staff, not below the Rank of Sr. Maintainer having Competency, shall be EPIC.
EPIC shall be properly trained and certified in the Duties and Responsibilities of the Role. Responsibility to ensure Competency of the EPIC shall be of the concerned Department nominating EPIC.

Sub Engineer’s Possession In-charge (Sub-EPIC):

If more than one Maintenance Agency are required to work within the limits of the same Engineer’s Possession, the EPIC can permit other DMRC Official to work as Sub-EPIC, if so notified in advance in the Weekly General Order. Only DMRC Staff, not below the Rank of Sr. Maintainer having Competency, shall be the Sub-EPIC.

EPIC of a Section may also be the Sub-EPIC of the other Section. However, an Area under Engineer’s Possession shall be the sole Responsibility of EPIC. Sub-EPIC shall be responsible for the Issues of Safe Working pertaining to the Nature of Work being undertaken by the Maintenance Agency working under Sub-engineer’s Possession.

Responsibility to ensure Competency of the Sub-EPIC shall be of the concerned department nominating Sub-EPIC.

Sub-EPIC cannot authorize further Sub-EPIC.

Integrated Block (IB):

Integrated Blocks are such Blocks, where the Maintenance Staff of different Disciplines, viz. Signalling, Telecommunication, Civil, Traction, and Track etc can work simultaneously in a portion of Track or Tracks or on a Line Segment for a specified period of time for the purposes of Inspection, Repairs, Maintenance & Testing and Construction Activities, without affecting the Integrity of Track and other Commissioned and Working Assets.

Integrated Blocks shall be granted during Non-revenue Hours with / without Power Block.

Traction Staff:
Not below the rank of Sr. Maintainer (OHE or PSI), who has been issued Competency by appropriate Authority to avail Power Block & give Shadow Power Blocks to others.

Power Block:

Power Block means Switching off Power Supply in a particular Section. On demand of Traction Staff, the TPC at OCC in consultation with TC make a Line / OHE Section de-energized electrically and confirm the same to the Traction Staff, who has placed such a demand.

The Messages exchanged between Traction Staff and TPC shall be recorded in the Power Block Message Book / Register.

The Line / OHE Section, which is under the Power Block shall remain under the Control of only one Traction Staff who has taken the Power Block from TPC. The same Traction staff is only authorized to cancel the Power Block, as per laid down Procedures. Cancellation Messages shall also be recorded in the Power Block Message Book / Register.
Shadow Power Block:

Shadow Power Block is further extension of the Power Block, granted by the Traction Staff to other Authorized Person to permit to work in the part area covered by the ‘Power Block’, under the provisions of Discharge Rods as per extant Procedures. The Authorized Person could be the Station Controller, PSI Supervisor or the Supervisor of other Departments.

While granting and cancelling the Shadow Power Block, all the formalities of Power Block shall be complied with.

Shadow Power Block shall be required when the Working Zone is within 2 m of OHE.

In no case, a Shadow OHE Power Block can be granted to the Contractor, directly by the Traction Wing.

4,  
PREPARATION OF WEEKLY GENERAL ORDER:

Granting of EP/IB/Power Block/Shadow Power Block shall be in the form of a 'Weekly General Order' to be issued by OCM on every Saturday, for the ensuing Week commencing from Saturday Night till Friday Night.

Requirements for OHE Power Block, Shadow Power Block & Permit to Work during Non-revenue Hours shall be submitted by the all concerned, as per the Format given in Annexure ‘A’, until 1500 Hrs. of every Friday to the Chief Controller (CHC) / OCC.

All Submissions shall be scrutinized by CHC and CTPC.

OCM & Mgr/AM (Traction) of the concerned Line shall check the Requisitions for the following:

(i) The Department seeking Track Access & Possession.
(ii) Location (Section), Date, Time of Commencement & Expected Duration.
(iii) Nature of Work to be carried out.
(iv) Details of Equipments to be used (relevant from Track Access & other Departments working point of view).
(v) Points of Entry & Exit of Men & Materials, Equipments and Tools & Plants.
(vi) Engineers Possession In-charge (EPIC) along with Nos. of accompanying Gang Members.
(vii) Description & movement of Self-propelled / Non-self-propelled (Non motorized)/ Vehicle or Rolling Stock required.
(viii) Movement of Maintenance Vehicles (Tower Wagon / CTMC / OMV / Ladder Trolleys / other Maintenance Vehicles) on the Section.
(ix) Feasibility & Process of De-energisation of the OHE of the Section.
(x) Feasibility of this Power Block with other Power & Traffic Block Demands.
(xi) Compatibility of this Power Block with ‘No Power Block Section’ in case of required Train Movement.
(xii) Longitudinal, Transverse or Cross Protections, as per SWO.
(xiii) Means to protect the Area under Engineer’s Possession / Integrated Block.
During Non-revenue Hours Power Block can be allowed in following manner:

(i) Neutral Section (NS) - Neutral Section (NS).
(ii) Neutral Section (NS) - Dead End
(iii) Sectioning Post to Dead End, if no Feeding Post is present towards the Dead End.

Based on the above, OCM shall issue a 'Weekly General Order' comprising EP/IB/OHE/P Power Block/Shadow Power Block/PTW Programs and convey the same to CTPC and Chief Controller.

No Variation from the Weekly General Order, issued by OCM, shall ordinarily be allowed. Only in cases of extreme emergency, the Unscheduled Requests shall be considered by the OCM. Care shall, however, be taken to ensure that already granted EPs are not cancelled to accommodate such requests.

5. GENERAL PRECAUTIONS:

(i) No Maintenance Staff shall enter on to the Track of any Running Line without the Permission of the Traffic Controller.

(ii) Metro Employees and Authorized Contractor’s Representatives, when on the Right of Way - Shall be responsible for their own Safety and observe all Safety Rules and Regulations during the course of Work.

    Shall look in each Direction before entering upon and standing close to the Tracks.

    Shall not cross Track, immediately after a Train/Vehicle has passed but shall wait until adjacent Track can be observed for a Safe Distance in both Directions.

    Shall not walk, stand, step or sit on Running Rails, Points, Cover Boards, TVC Conduit, Guard Rails, Interlocking Apparatus or Wayside Equipments.

(iii) Employees and Authorized Contractor’s Representatives shall use Safety Walkway, whenever possible.

(iv) Under any circumstance, Metro Employees and Authorized Contractor’s Representatives - Shall not go in front of any Moving Vehicle.

    -Shall not go under or between Vehicles unless authorized by the Supervisor, who will make it certain that it is safe to do so.

(v) Metro Employees and Authorized Contractor’s Representatives –

    Shall not hang upon or lean on the sides of Moving Vehicles.

    Shall not lean against the Standing Vehicle or Equipment

    Shall not board or alight on / from any Moving Vehicle.
(vi) In IB, Movement of any Self-propelled (OHE / Non-OHE) or Non- self-propelled Vehicle (including Lorry, Trolley. Etc.) is strictly prohibited.

6. POWER BLOCK:

(A) Granting Power Block:

On the basis of ‘Weekly General Order’, the TPC shall grant the Power Block to the authorized DMRC Staff, as per Procedure in vogue. In any case, the Power Block shall be granted by TPC only after obtaining Confirmation from the Traffic Controller, duly obtaining his Signature in the Register meant for the purpose. Traction Power Controller shall thereafter confirm the same, under Acknowledgement, to TC.

(B) Power Block Coordination between Traction Power Controller & Traffic Controller:

The Traction Power Controller shall maintain a Register & shall obtain the Signature from the Traffic Controller, as Acknowledgement:

(i) Before granting the Power Block.
(ii) After granting the Power Block.
(iii) Before cancelling the Power Block.
(iv) After cancelling the Power Block.

Any alteration in the Power Block or any contemplated Train Movement, prior to the grant of Power Block, shall be advised by Traffic Controller to the Traction Power Controller, by duly signing in the Traction Power Controller Register.

Only after obtaining Confirmation from the Traffic Controller, duly obtaining his Signature in the Register, the Traction Power Controller shall grant Power Block & confirm the same, under Acknowledgement, to TC/OCC.

If, because of any reason, the Traction Power Controller is not in a position to grant ‘Power Block’, he shall cancel the ‘Power Block’ and accordingly intimate to the Traffic Controller, duly taking his Signature for Acknowledgement.

(C) Cancellation of Power Block:

Power Block is to be cancelled by Traction Staff after ensuring that all Shadow Power Blocks, authorized by him are cancelled.

Traction Staff shall inform the Traction Power Controller by a Message duly exchanging Private Numbers that all Shadow Power Blocks have been cancelled, all Men, Materials, Equipments, Tools & Plants and temporary Earths have been removed & all the working parties have been informed that OHE is now going to be energized, OHE is fit for the Restoration of the Power Supply & fit for the Electric Traffic.

After obtaining the Message for Cancellation of Power Block from the Traction Staff to whom the Power Block was granted by Traction Power Controller, the Traction Power Controller shall inform the Traffic Controller that the concerned Power Block has now been cancelled & OHE is going to be energized as per Procedure, duly obtaining the Signature of the Traffic Controller as Acknowledgement in the Register meant for the purpose.
Before giving Acknowledgement to TPC, the TC shall ensure that all PTWs, issued for work under the Provision of Power Block / Shadow Power Block have been cancelled.

After the energisation of the OHE, the Traction Power Controller shall confirm the same immediately to the Traffic Controller in writing and take his Acknowledgment in the Register.

7. **SHADOW POWER BLOCK:**

For any kind of work where exists a possibility that Men, Material, Equipment or Tools & Plants may infringe ‘2’ m radius from OHE, the same must be undertaken under the Provision of ‘Shadow Power Block’.

It must be noted & ensured by all concerned that no work shall be undertaken by any Staff with in ‘2’ m of OHE without ensuring the implementation of ‘Shadow Power Block’.

A ‘Check List’ to be filled by the Station Controller every time of taking / cancelling a ‘Shadow Power Block’ is placed at Annexure ‘E’.

A ‘Check List’ to be filled by Traction Staff every time of granting / cancellation of ‘Shadow Power Block’ is placed at Annexure ‘F’.

Procedure for award of Competency Certificate to Station Controller for applying Discharge Rods & the Procedure for Maintenance of Discharge Rods is placed at Annexure ‘L’.

**Types of Shadow Power Block:**

(i) **Shadow Power Block to Station Controller:**

Shadow Power Block to Station Controller can be given by the Traction Staff (who has already taken the Power Block), as per approved Schedule of Shadow Power Block, for Activities such as Roof Cleaning, PD Work, Telecom. Work, E&M Work or Protection of any other Maintenance / Project Activity in Platform Area within the Working Zone of ‘2’ m from OHE. Station Controller, having valid Competency Certificate, shall provide the Discharge Rods as per prescribed Procedure in vogue and confirm the same to Traction Staff.

(ii) **Shadow Power Block to PSI Supervisor:**

Shadow Power Block to PSI Supervisor can be given by the Traction Staff (who has already taken the Power Block). PSI Supervisor shall provide the Discharge Rods as per prescribed Procedure in vogue and confirm the same to Traction Staff.

(iii) **Shadow Power Block to Supervisors of Other Departments:**

Shadow Power Block to Supervisors of other Departments can be given by Traction Staff (who has already taken the Power Block). Discharge Rods, in this case, shall be provided by the OHE Team, as per prescribed Procedure in vogue.
8. **STATUS OF THE ‘OHE’ IN SHADOW POWER BLOCK:**

Status of Electrically De-energized OHE shall be ensured in the following manner:

**By TPC:**

After switching off the OHE, TPC shall check the status of OHE on his Monitor. The Voltage at PT shall be indicated as 0.2 to 0.5 KV. After the provision of Discharge Rods on the OHE, it shall be shown as 0.0 KV on the Monitor. TPC, in this way, can re-confirm the assertion of Traction Staff in regard to the provision of Discharge Rods on the OHE.

The Elementary Section /Line is shown in ‘Green’ Colour on TPC’s Monitor, when the OHE is in charged condition with 25 KV. After switching off the OHE, it becomes ‘Red’.

**By Traction Staff:**

On confirmation of the status of electrically de-energized OHE from the TPC, the Traction Staff shall put the Discharge Rods on the OHE and confirm the same to TPC.

**By Station Controller & PSI Supervisor taking Shadow Power Block:**

On confirmation of status of electrically de-energized OHE from the Traction Staff (who has taken power block), Station Controller & PSI Supervisor shall provide Discharge Rods on the OHE and inform accordingly to the Traction Staff, who in turn shall confirm the same to TPC.

**By Other Supervisors taking Shadow Power Block:**

The Supervisors of other departments taking Shadow Power Block shall inform the traction staff who has taken power block to provide Discharge Rods on the OHE. Concerned traction staff shall arrange to provide Discharge Rods on the OHE, confirm from TPC regarding 0.0 Kv voltage and inform accordingly to the concerned supervisor availing shadow power block under exchange of private numbers.

9. **PROCEDURE OF GRANTING & CANCELLING ‘SHADOW POWER BLOCK’:**

(A) **Granting of Shadow Power Block to EPIC / Sub-EPIC (other than SC):**

Supervisors nominated as EPIC in the weekly general order to get the ‘Shadow Power Block’ shall contact the Traction Staff, nominated for handling the ‘Power Block’. On getting confirmation of the status of electrically de-energized OHE from TPC / Traction Official who has taken the ‘Power Block’, the Traction staff shall put the Discharge Rods on OHE and intimate the same, under the exchange of Private Numbers / in writing, to the EPIC / Sub-EPIC, taking the ‘Shadow Power Block’.

Station Controller (SC), before granting the PTW to these Supervisors, shall reconfirm from the Traction Staff who has taken power block, under the exchange of Private Numbers, that the OHE is de-energized electrically and that the requisite Discharge Rods have been put by him on the OHE.
(B) Granting of Shadow Power Block to SC:

After obtaining OHE Power Block from Traction Power Controller and confirming the Status of Electrically Dé-energized OHE, the Traction Staff who has been granted the Power Block by TPC shall inform on duty Station Controller, under exchange of Private Numbers, that ‘UP & DN’ Main Line OHE From -------------- to -------------- Section has been made de-energized. He shall permit him to provide Discharge Rods on ‘UP & DN’ Main Lines at either end of -------------- Station Platform for carrying out his Work.

Traction Staff shall also direct the Station Controller to confirm the provision of Discharge Rods on the OHE, prior to starting of the Work.

SC shall confirm the following to Traction Staff, under the exchange of Private Numbers:

‘Your Message regarding electrically de-energized OHE of ‘UP & DN’ Main Lines From -------------- to -------------- Section has been noted. I am going to provide Discharge Rods on UP & DN Main Lines at either end of -------------- Station Platform. Entry to this effect shall also be made in Message Sent / Received Book by each party in the requisite Format (Annexure ‘H’).

After providing the Discharge Rods, SC shall confirm the same to Traction Staff who after reconfirming the OHE Status from TPC, shall grant ‘Shadow Power Block’ to SC, mentioning the Time Duration thereof, under the exchange of Private Numbers / in writing.

Only after obtaining the ‘Shadow Power Block’ from the Traction Staff, the on duty Station Controller shall grant ‘Permit to Work’ to EPIC/IC as per extant procedure for any Activity within the Platform Area, such as PD Work./ Telecom Work / E&M Work.

In case of Roof Cleaning at the Station, on duty Station Controller shall be the EPIC, who after obtaining the ‘Shadow Power Block’ from Traction Staff shall grant the ‘Permit to Work’ to Cleaning Contractor’s Representative, ensuring the following:

(i) An Experienced Supervisor has been deployed by the Cleaning Contractor or a Supervisor from DMRC is available to supervise the Cleaning Work.

(ii) In the vicinity of OHE, only 4-leg Ladder in good condition shall be used, which has to be secured well before the commencement of the Work. In no case, Ladder shall fall over the OHE. In case of Wheeled Ladder, the Wheels shall be disabled before the commencement of the Work.

(iii) High-rise Telescopic Mops shall not be used in the vicinity of OHE.

(iv) PPE, where applicable, shall be used.

SC shall also obtain an Acknowledgement of the concerned Supervisor of the Cleaning Contractor / DMRC to ensure the above, before the commencement & during the process of Work.
(C) Cancellation of Shadow Power Block by EPIC / Sub-EPIC (other than SC):

On completion of the Work, EPIC shall remove all Men, Materials, Equipments, Tools & Plants from the work place and inform the same under exchange of Private Numbers to the Traction Staff who has granted the 'Shadow Power Block'. Traction Staff shall ascertain that no further need exists for Discharge Rods and then deploy the same person who provided the Discharge Rods, to remove them. This Person shall reconfirm that all Men, Materials, Equipments, Tools & Plants have been removed from the work place, and there are no infringements to OHE and then only remove the Discharge Rods from the OHE and intimate the same, under the exchange of Private Numbers to the Traction Staff who had taken the Power Block from TPC. This shall be treated as the Cancellation of the 'Shadow OHE Power Block'.

(D) Cancellation of Shadow Power Block by SC:

In case of Roof Cleaning at Station, on completing the work, the Authorized Representative of the Cleaning Contractor shall remove all Men, Materials, Equipments, Tools & Plants and inform the same to the on duty Station Controller. On duty Station Controller shall obtain the Acknowledgement of the Authorized Representative of the Cleaning Contractor in that regard. On duty Station Controller shall reconfirm that all Men, Materials, Equipments, Tools & Plants have been removed from the work place.

On duty Station Controller shall also ensure that all PTWs issued by him for work under the provisions of 'Shadow Power Block' have been cancelled. This shall be treated as Cancellation of 'Permit to Work' granted to the Cleaning Contractor or other Contractor or the DMRC Staff.

After cancelling all the PTWs, on duty Station Controller shall inform the Traction Staff who had granted the 'Shadow Power Block' that he is ready to remove the Discharge Rods from the OHE and on getting confirmation from the Traction Staff, he shall remove the Discharge Rods. Station Controller shall then inform the Traction Staff, under the exchange of Private Numbers that all Men, Material, Equipments, Tools & Plants have been withdrawn from the work place & the Discharge Rods have been removed from the OHE. Entry to this effect shall also be made in the Message Sent / Received Book by each party as per the Format placed at Annexure 'H'. This shall be treated as Cancellation of the 'Shadow OHE Power Block'. Thereafter, the Station Controller shall cancel the 'Permit to Work', taken for Roof Cleaning, to the Traffic Controller.


(i) EPIC / Sub-EPIC along with Gang Members will contact the Station Controllers of the concerned Stations at least 30 minutes in advance for taking possession. They shall enter the Station from the designated Entrance, making entry in the Station Access Register meant for the purpose. Gang Members who have to enter from the Stations, other than that of EPIC / Sub-EPIC shall be accompanied by authorized DMRC Staff (if all the Gang Members are Contractor's Personnel) of the concerned Department. For the purpose of entry / exit, only one manned Access Point will be provided for all concerned during Non-revenue Hours at a Station. The Security Guard deployed at the Access Point shall check the Photo ID Cards of all the Entrants.
(ii) Station Controller shall confirm from 'Weekly General Order' as well as OCC, under the 
Exchange of Private Numbers, about the planned EP. If OCC/TC approves the said EP, 
Station Controller shall issue the 'Permit-to-Work (PTW)' to the EPIC / Sub-EPIC. 
OCC/TC shall coordinate with different Stations and approve first PTW, under the 
exchange of Private numbers with the concerned SC. Subsequent PTWs under similar 
conditions i.e. under Power Block / Shadow Power Block or without Power Block, strictly 
as per 'Weekly General Order', may be permitted by the SC. PTW Format is placed at 
Annexure – ‘A’. In the PTW, the Nature of Work, Location and Name of Gang Members 
shall be clearly mentioned.

(iii) EPIC / Sub-EPIC will provide in advance a list of the Gang Members, duly furnishing the 
details as per Annexure – ‘A1’, their Names & Designations and their Equipment to all 
the Stations from where the Gang has to enter the Section for the EP & also from where 
they have to exit in the Proforma at Annexure-‘G’ along with Permit to Work Request. 
Before entry into the Section, EPIC / Sub-EPIC shall ensure that all the Gang Members 
including him are protected with Personal Protection Equipments (PPE) & have the 
requisite equipment for Mobile Communication. After getting confirmation in writing on the 
'Permit to Work' by EPIC / Sub-EPIC, entry will be permitted by the respective Station 
Controller. The entry / exit of EPIC / Sub-EPIC along with all other Gang Members will be 
recorded in a Register maintained for the purpose of Station Access during Non-revenue 
Hours. All Gang Members along with EPIC / Sub-EPIC will be responsible for their Safety 
& observe all the prescribed Safety Rules & Regulations during the course of work.

(iv) If some of the Gang Members are entering from the Station other than that of EPIC / Sub-
EPIC, the Station Controllers of other Stations from where the remaining Gang Members 
intend to enter the Section shall contact the SC of PTW issuing Station and seek details 
under the exchange of Private Numbers regarding Names of Gang Members furnished by 
the EPIC / Sub-EPIC and record these details in the Possession Register. SC shall then 
allow them to enter the desired Section conveying the same to OCC, and maintaining a 
Name & Time-wise Record.

(v) Permit to Work (Performa at Annexure – ‘A’) will only be granted to EPIC / Sub-EPIC 
from the Station from where he is entering the Section. For other Gang Members entering 
from other Stations for the same EP, no separate Permit to Work shall be issued. 
However, Station Controller of other Stations will verify from OCC about the approval of 
the EP under the Exchange of Private Numbers.

(vi) Normally, the Exit Station for the Gang Members will be from the Station mentioned in the 
'Permit to Work'. However, in emergent circumstances, the Exit Point may vary. The 
responsibility of ensuring that all the Gang Members have exited should be with the 
concerned EPIC / Sub-EPIC. The Gang Members shall speak to EPIC / Sub-EPIC on 
phone from the Station & confirm the same. The Station Controller will permit the use of 
Station Phone for this purpose.

(vii) An Area under the Engineer's Possession shall be the sole Responsibility of the 
Engineering Official-in-Charge and all Issues of Safe Working within that Area, including 
the Movement of Trains, if any, shall be his Responsibility.

(viii) If more than one Maintenance Agency is working within the same EP, the EPIC shall be 
responsible for coordination of the Work of all Units. During the Work, Granting &
Cancellation of Shadow Block shall be with the EPIC & Sub-EPICs. However, they will be assisted by their respective Controllers, within the said EP. This will be notified in the 'Weekly General Order', issued by OCM specifying the EPIC & Sub-EPICs, with the approval of the Executives of their Departments. However, for the purpose of Permission at Site, the EPIC will be overall responsible & give this Permission to the Sub-EPICs (i.e. other Maintenance Agencies) for the work. Authorisation Performa for the Sub-EPIC is at Annexure - 'I'.

(ix) For the Permit to Work, requiring Discharge of OHE (Power / Shadow Power Block) (to be issued by OHE Wing of O&M), further 'Authorisation / Permission' shall be issued by the competent Traction Staff availing the Power Block from TPC at nominated Places / Stations of each Line to the concerned EPIC, duly indicating the OHE Mast Numbers between which the concerned Wing is permitted to work. Station Controllers only after verifying the said 'Authorisation / Permission' shall permit them as EPIC / Sub-EPIC.

(x) For Permit to work requiring issuing of 'Point Machine Manual Operation Key (EKT- Key) along with Crank Handle' to EPIC / Sub-EPIC (to be issued by on Duty Station Controller), the request to issue such Point Machine Manual Operation Key (EKT- Key) along with Crank Handle shall be given in writing by EPIC / Sub-EPIC in the requisite Performa at Annexure – 'A'.

The on Duty Station Controller, on receiving such a request from EPIC / Sub-EPIC, shall make necessary entries for issuing of Key and Crank Handle in the Possession Register of the Station. Before actually issuing the Key and Crank Handle to EPIC / Sub-EPIC, he shall also make an endorsement in the (Performa at Annexure – 'A') about making of the entry in the Possession Register and the issuing of Key and Crank Handle to the EPIC / Sub-EPIC.

When the EPIC / Sub-EPIC cancels the 'Permit to Work', Point Machine Manual Operation Key (EKT- Key) along with Crank Handle shall be returned to the Station Controller of issuing Station by him. The same shall be acknowledged by the on Duty Station Controller by making an endorsement in the Performa for Cancellation of Engineer's Possession / Permit to Work (Annexure – 'B') and making corresponding entry in the Possession Register of the Station.

(xi) Only for the movement of OHE Vehicles, the TPC of the concerned Line will be EPIC / Sub-EPIC, in case Sr. Maintainer / JE / Senior Supervisor is not available on the Vehicle. 'Permit to Work' shall be granted to the TPC of the respective Line at the OCC by the TC of the concerned Line (if TPC is EPIC / Sub-EPIC) only for movement of vehicle in mainline. For Test Trains / Trial Runs, EPIC / Sub-EPIC shall be JE or of higher Rank from the concerned department and shall be mentioned in the 'Weekly General Order'. The OCC shall advise the SCs of the Section accordingly.

(xii) Station Controllers shall maintain a Record of the Timings at which various EPICs / Sub-EPICs along with their respective Gang Members have entered the Sections for availing of the EP. All the details of the Work Team along with the Timings of their entry / exit shall be recorded in the Possession Register.

(xiv) Any abnormality, which requires the extension of EP, is to be immediately informed by EPIC / Sub-EPIC to the OCC & Station Controller concerned for further necessary action in advance.
(xv) After the completion of work, the EPIC / Sub-EPIC shall clear the Section of Men & Materials, Tools & Plants, Equipments and all the Infringements and cancel the EP by submitting a Request Form (Annexure – ‘B’) for Cancellation to the concerned Station Controller. The EPIC / Sub-EPIC will also undertake the Responsibility of Clearance of all the Gang Members mentioned in his request while entering the Section (irrespective of their Entry and Exit Points). In case where the TPC is EPIC / Sub-EPIC, the same will cancel the EP with the TC of the concerned Line. Sub-EPIC, if any, has to cancel his Sub-EPIC Authorisation to the EPIC in the Performa at Annexure – ‘J’. Sub-EPIC shall cancel the PTW only after cancelling the Sub-EPIC Authorisation with the EPIC. EPIC shall finally cancel the EP, after receiving the Confirmation from the Sub-EPIC.

(xvi) PTW Issuing and Cancellation Stations may be different. However, the same shall be mentioned by EPIC/Sub EPIC in the PTW at the time of issuing of PTW. PTW Issuing SC shall inform SC of Station where PTW is intended to be cancelled giving complete details. Both the SCs shall make corresponding entries in Engineers Possession Register. After the PTW has been cancelled, the SC of PTW Cancellation Station shall inform the SC of PTW Issuing Station giving complete details, under the exchange of Private Numbers. In this case PTW Cancellation to the OCC/TC shall be given by the PTW Issuing station SC.

(xvii) No EP will be treated as cancelled until the Cancellation request in the requisite Performa (Annexure – ‘B’) is submitted at the concerned Station / OCC by EPIC / Sub-EPIC. PTW (Annexure – ‘A’) must be produced in original to on duty SC at the time of PTW Cancellation. Only the same Person to whom the PTW was issued is authorised to cancel the PTW. However, in unavoidable circumstances the Person, authorized as per Procedure and having Written Authorization from the EPIC/Sub EPIC to whom the PTW was issued, may cancel the PTW with the coordination of concerned Controller in OCC.

(xviii) Station Controller, after acknowledging the Cancellation Forms (Annexure – ‘B’) for all PTWs issued at his Station shall inform the OCC/TC, under the exchange of Private Numbers, regarding Cancellation of EP. This shall be treated as Cancellation of EP.

(xix) OCC, before acknowledging the Cancellation of Power Block with TPC, must ensure that all the EPICs / Sub-EPICs have submitted their Cancellation Forms at their respective exiting Stations and all the concerned Station Controllers have confirmed the same.

(xx) Movement of other than Self-propelled Vehicles like Dip Lorry, which don’t have efficient Brakes & may go out of control shall be accompanied by sufficient number of persons, so that an eventuality is handled properly. Even the Section of such a Block, where Dip Lorry has to work shall be a longer one i.e. between at least two Stations.

(xxii) It must be ensured that no Staff is permitted to work in an Area, where a Vehicle has been permitted to move / operate to avoid possibility of any Staff being hit by the Moving Vehicle.

(xxii) Other than Metro Employees, no one shall not be permitted to enter the Right of Way, unless they have been:

a) Authorized by the Competent Authority.

b) They have signed an Indemnity Bond in the Performa (Annexure – ‘G’).
c) All O&M Contractors' Staff, who are required to enter the Right of Way, shall need to be covered by a general Indemnity Bond or a general provision in the Contract indemnifying DMRC of all consequences during such visits.

11. Management of Integrated Block (IB):

(i) Integrated Block (IB) shall be notified in the 'Weekly General Order' issued by OCM. Only in case of extreme Emergency, the request for an un-scheduled IB shall be considered and while accommodating such Requests, every Care shall be taken to ensure that IB already granted is not cancelled.

(ii) The period & the Area of the IB shall be so earmarked that there is no concurrent Engineer's Possession to cause conflict & affect the Safety of Persons.

(iii) In IB, movement of any Self-propelled Vehicle (OHE/Non OHE) or Non-self-propelled Vehicle (including Lorry, Trolley etc.) is strictly prohibited.

(iv) EPIC / Sub-EPIC along with Gang Members will contact the Station Controllers of the concerned Stations at least 30 minutes in advance for taking Possession. They shall enter the Station from the designated Entrance making entry in the Station Access Register meant for the purpose. Gang Members who have to enter from the Stations, other than that of EPIC / Sub-EPIC shall be accompanied by authorized DMRC Staff (if all the Gang Members are Contractor's Personnel) of the concerned Department. For the purpose of entry / exit, only one manned Access Point will be provided for all concerned during Non-revenue Hours at a Station. The Security Guard deployed at the Access Point shall check the Photo I/Cards of all the Entrants.

(v) Station Controller shall confirm from 'Weekly General Order' as well as OCC, under the Exchange of Private Numbers, about the planned IB. If OCC/TC approves the said IB, Station Controller shall issue the 'Permit-to-Work (PTW)’ to the EPIC / Sub-EPIC. OCC/TC shall coordinate with different Stations and approve first PTW, under the exchange of Private numbers with the concerned SC. Subsequent PTWs under similar conditions i.e. under Power Block / Shadow Power Block or without Power Block, strictly as per 'Weekly General Order', may be permitted by the SC. PTW Format is placed at Annexure – ‘A’. In the PTW, the Nature of Work, Location and Name of Gang Members shall be clearly mentioned.

(vi) EPIC / Sub-EPIC will provide in advance a list of the Gang Members, duly furnishing the details as per Annexure – ‘A1’, their Names & Designations and their Equipment to all the Stations from where the Gang has to enter the Section for the IB & also from where they have to exit in the Performa at Annexure-'G' along with Permit to Work Request. Before entry into the Section, EPIC / Sub-EPIC shall ensure that all the Gang Members including him are protected with Personal Protection Equipments (PPE) & have the requisite equipment for Mobile Communication. After getting confirmation in writing on the 'Permit to Work' by EPIC / Sub-EPIC, entry will be permitted by the respective Station Controller. The entry / exit of EPIC / Sub-EPIC along with all other Gang Members will be recorded in a Register maintained for the purpose of Station Access during Non-revenue Hours. All Gang Members along with EPIC / Sub-EPIC will be responsible for their Safety & observe all the prescribed Safety Rules & Regulations during the course of work.

(vii) If some of the Gang Members are entering from the Station other than that of EPIC / Sub-EPIC, the Station Controllers of other Stations from where the remaining Gang Members
intend to enter the Section shall contact the SC of PTW issuing Station and seek details
under the exchange of Private Numbers regarding Names of Gang Members furnished by
the EPIC / Sub-EPIC and record these details in the Possession Register. SC shall then
allow them to enter the desired Section conveying the same to OCC, and maintaining a
Name & Time-wise Record.

(viii) Permit to Work (Performa at Annexure – ‘A’) will only be granted to EPIC / Sub-EPIC
from the Station from where he is entering the Section. For other Gang Members entering
from other Stations for the same IB, no separate Permit to Work shall be issued. However, Station Controller of other Stations will verify from OCC about the approval of
the IB under the Exchange of Private Numbers.

(ix) Normally, the Exit Station for the Gang Members will be from the Station mentioned in the
‘Permit to Work’. However, in emergent circumstances, the Exit Point may vary. The
responsibility of ensuring that all the Gang Members have exited should be with the
corresponded EPIC / Sub-EPIC. The Gang Members shall speak to EPIC / Sub-EPIC on
phone from the Station & confirm the same. The Station Controller will permit the use of
Station Phone for this purpose.

(x) No OHE Power Block / Shadow Power Block shall be required for any Maintenance Work
on Signals, Points, Track Circuits, PIDS, PAS, Clocks or any other S&T Equipments on
Station / Outdoor / Viaduct if either they do not come within a radius of ‘2’ m from OHE or,
are well protected by protective Earthed Mesh (Screen). However, dismantling of
complete Signal Unit from the Signal Post, if protected by Earthed Mesh (Screen), shall
require Power / Shadow Block.

(xi) If one Department requires Power / Shadow Power Block in the same direction where
other(s) do not require it, the granting of PTW to the Departments which do not require
Power / Shadow Power Block shall not be delayed on account of the Last Train not
reaching its final Destination or for OHE Shutdown (Power Block) in the Section. It shall
be granted as soon as the Last Train clears the Section, mentioned in the PTW.

(xii) The EPIC applying for the PTW to work in ‘OHE Charged’ condition shall give his / her
request in writing to the SC of the Station where he / she intends to work, specifically
mentioning that his / her work does not require the OHE to be in ‘Discharged’ Condition
and that he / she is having the Competency to carry out the intended work in ‘OHE
Charged’ Condition. The SC shall ensure the receipt of such a request in writing, shall
verify the same from ‘Weekly General Order’, and then only grant the PTW in ‘OHE
Charged’ Condition, to the said EPIC, with the permission from OCC.

(xiii) For the Permit to Work, requiring Discharge of OHE (Power / Shadow Power Block) (to
be issued by OHE Wing of O&M), Permission shall be issued by the competent Traction
Staff availing the Power Block from TPC at nominated Places / Stations of each Line to
the concerned EPIC/Sub-EPIC, duly indicating the OHE Mast Numbers between which
the concerned Wing is permitted to work. Station Controllers only after verifying the said
Permission shall permit them as EPIC / Sub-EPIC.

(xiv) For Permit to work requiring issuing of ‘Point Machine Manual Operation Key (EKT- Key)
along with Crank Handle’ to EPIC / Sub-EPIC (to be issued by on Duty Station
Controller), the request to issue such Point Machine Manual Operation Key (EKT- Key)
along with Crank Handle shall be given in writing by EPIC / Sub-EPIC in the requisite Performa at Annexure – ‘A’.

The on Duty Station Controller, on receiving such a request from EPIC / Sub-EPIC, shall make necessary entries for issuing of Key and Crank Handle in the Possession Register of the Station. Before actually issuing the Key and Crank Handle to EPIC / Sub-EPIC, he shall also make an endorsement in the (Performa at Annexure – ‘A’) about making of the entry in the Possession Register and the issuing of Key and Crank Handle to the EPIC / Sub-EPIC.

When the EPIC / Sub-EPIC cancels the ‘Permit to Work’, Point Machine Manual Operation Key (EKT- Key) along with Crank Handle shall be returned to the Station Controller of issuing Station by him. The same shall be acknowledged by the on Duty Station Controller by making an endorsement in the Performa for Cancellation of Permit to Work (Annexure – ‘B’) and making corresponding entry in the Possession Register of the Station.

(xv) OCC/TC shall also maintain a Record of the Timings at which various EPICs / Sub-EPICs along with their respective Gang Members have entered the Sections for availing the IB. A Control Chart may be used for recording all Entries / Exits, Area of Work and Duration & Timings thereof. Recording may be done in different colours for clarity for each Department, viz. Signalling & Telecommunications, Civil, Track & Structures and Traction & OHE etc.

(xvi) Station Controllers shall maintain a Record of the Timings at which various EPICs / Sub-EPICs along with their respective Gang Members have entered the adjoining Sections for availing the IB. All the details of the Work Team along with the Timings of their entry / exit shall be recorded in the Possession Register.

(xvii) Any abnormality, which requires the extension of IB, is to be immediately informed by EPIC / Sub-EPIC to the OCC & Station Controller concerned for further necessary action in advance.

(xviii) After the completion of work, the EPIC / Sub-EPIC shall clear the Section of Men & Materials, Tools & Plants, Equipments and all the Infringements and cancel the PTW by submitting a Request Form (Annexure – ‘B’) for Cancellation to the concerned Station Controller. The EPIC / Sub-EPIC will also undertake the Responsibility of Clearance of all the Gang Members mentioned in his request while entering the Section (irrespective of their Entry and Exit Points). In case where the TPC is EPIC / Sub-EPIC, the same will cancel the PTW with the TC of the concerned Line. Sub-EPIC, if any, has to cancel his Sub-EPIC Authorisation to the EPIC in the Performa at Annexure – ‘J’. Sub-EPIC shall cancel the PTW only after cancelling the Sub-EPIC Authorisation with the EPIC. EPIC shall finally cancel the PTW, after receiving the Confirmation from the Sub-EPIC.

(xix) PTW Issuing and Cancellation Stations may be different. However, the same shall be mentioned by EPIC/Sub EPIC in the PTW at the time of issuing of PTW. PTW Issuing SC shall inform SC of Station where PTW is intended to be cancelled giving complete details. Both the SCs shall make corresponding entries in Engineers Possession Register. After the PTW has been cancelled, the SC of PTW Cancelling Station shall inform the SC of PTW Issuing Station giving complete details, under the exchange of Private Numbers. In this case PTW Cancellation to the OCC/TC shall be given by the PTW issuing station SC.
(xx) No PTW will be treated as cancelled until the Cancellation Request in the requisite Performa (Annexure – ‘B’) is submitted at the concerned Station / OCC by EPIC / Sub-EPIC. PTW (Annexure – ‘A’) must be returned in original to on duty SC at the time of PTW Cancellation. Only the same Person to whom the PTW was issued is authorised to cancel the PTW. However, in unavoidable circumstances the Person, authorized as per Procedure and having Written Authorization from the EPIC/Sub EPIC to whom the PTW was issued, may cancel the PTW with the coordination of concerned Controller in OCC.

(xxii) Station Controller, after acknowledging the Cancellation Forms (Annexure – ‘B’) for all PTWs issued at his Station shall inform the OCC/TC, under the exchange of Private Numbers, regarding Cancellation of IB.

(xxii) OCC, before acknowledging the Cancellation of Power Block with TPC, if any, must ensure that all the SCs have confirmed that all the EPICs / Sub-EPICs have submitted their Cancellation Forms at their respective exiting Stations.

(xxiii) No IB shall be treated as ‘Cancelled’ until every EPIC of the Section or Sections where in the IB had been granted, has submitted his Cancellation Form at the concerned Station and the said Station Controller has confirmed the same.

(xxiv) OCC, before the Onset of Revenue Services, must ensure that all the EPICs have submitted their respective Cancellation Forms at their Exiting Stations and all the SCs have confirmed the same. He will tally the same with his Control Chart as well.

(xxv) Other than Metro Employees, no one shall not be permitted to enter the Right of Way, unless they have been:

(a) Authorized by the Competent Authority.
(b) They have signed an Indemnity Bond in the Performa (Annexure – ‘G’).
(c) All O&M Contractors’ Staff, who are required to enter the Right of Way, shall need to be covered by a general Indemnity Bond or a general provision in the Contract indemnifying DMRC of all consequences during such visits.

12. MANAGEMENT OF MAINTENANCE WORK AT STATION OR VIADUCT:

(A) GENERAL:

(i) Maintenance Work at the Stations or in the Viaducts may be executed / supervised, by the Project Wing or the O&M Wing of DMRC.

(ii) Executives of the concerned Departments shall forward to OCM through concerned Controllers CTPC/TPC/FMC/CSS for Weekly Permissions for the Work to be carried out, duly mentioning the urgency and details of the Work including the Location, Duration & Time of Start, and the Name & Designation of the Authorized DMRC Staff leading the Gang for Supervising / Carrying out the Work.

(iii) OHE Power Block will only be required in case the Working zone is within a radius of 2 m from the OHE. Shadow Power Block in such cases shall also be provided to other Departments, on the request of concerned EPICs.

(iv) In the Permit-to-Work (PTW), the Numbers of DMRC / Contractor Staff to be permitted shall be indicated by the Authorized DMRC Staff.
During the Non-Revenue Hours, the PTW shall be issued after the Clearance of all Trains from that Section. OHE Shutdown shall be given, if so required.

The Working Party headed by the Authorized Supervisor / Sr. Maintainer of the O&M Wing, as the case may be, shall report to the concerned Station and apply for PTW in the requisite Performa (Annexure – ‘A’). SC under the advice of OCC / TC shall approve the same, duly exchanging Private Numbers.

If PTW is granted to the Supervisor from the Station, where he is entering the Section, no separate PTW will be issued for other Members entering from other Stations for the same Work but the Supervisor will remain within the Jurisdiction mentioned in the PTW along with means of Communication & shall also remain in touch with the respective Control at OCC. However, Station Controllers of other Stations, where other Members intend to enter, shall contact the SC of PTW Issuing Station and seek details, under the exchange of Private Numbers, regarding the Names of the Members furnished by the Supervisor, as per Format provided at Annexure – ‘A1’, PTW Number, Location, Duration of the Work, and Name & Designation of the Supervisor and record these details in the Possession Register. He shall also verify from the OCC about the Approval of Work and only thereafter allow the Members of the Work Team to enter the Station, maintaining Name & Time-wise Record.

As far as possible, the Works are to be carried out and completed in Non-revenue Hours. However, if it is in-escapable to carry out or extend the Work during Revenue Hours, then the concerned DGM of the O&M Wing shall confirm to OCM/OCC in writing that the Work can be done during Revenue Hours, does not have any Implication on the Passenger Services & Safety of Passengers and that the Safety of Working Party is not compromised. On receipt of such Certificate, the OCC shall permit the extension of Work Duration in to Revenue Hours. However, all such Works in Public Area shall be securely cordoned off, by the Supervisor handling the Work.

After Completion of the Work, Supervisor concerned shall ensure that the Work Area / Equipment has been secured properly and the Work Site, where applicable, is safe for Passenger Movement. He shall then cancel the PTW by submitting a Form of Cancellation to the concerned SC. Supervisor concerned shall also undertake the responsibility of clearance of all the Members mentioned in his request while entering the Station (irrespective of their Entry and Exit Points).

**For the Works to be done by the Contractor:**

Permission to Work at Stations, without affecting Train Operation during Revenue Hours, will be given with the Approval of the concerned DGM of the O&M Wing on the Request Letter of the Contractor.

Permission to undertake such Works at Station / Equipment Room, which are likely to affect the Train Operation shall be given only during Non-revenue Hrs. Contractor’s Request Letter for PTW should be endorsed by the Project Officer indicating the Name & Designation of the Project Supervisor in whose presence the Work shall be carried out. Such Requests should reach the concerned Controller up to 1500 Hrs. of the Day and the concerned Controller, before granting PTW shall obtain the Approval of the concerned DGM of O&M Wing.
(iii) PTW shall not be handed over directly to the Contractor's Personnel and instead shall be
given, under Acknowledgement, by the concerned Station Controller to the Supervisor / Sr.
Maintainer of the O&M Wing / JE (Project) only.

(iv) The planned Work shall be carried out in the presence of the respective wing Supervisors
of Project or O&M Wings.

(v) Changes in the Hardware / Software in the existing System Versions, if any, carried out
during the Work, required to remain in Operation must be tested for Normal Working of
the System and a Report thereof duly signed by both the Supervisors of the Project and
O&M Wings shall be submitted to the concerned Controller, before the start of Revenue
Trains.

(vi) In cases of the New Version of Hardware / Software, installed only for the purpose of
Testing and Observation, the System shall be tested for Normal Working after reverting
back to the Old Version & a Report thereof duly signed by both the Supervisors of the
Project and O&M Wings shall be submitted to the concerned Controller, before the Start
of Revenue Trains.

(C) For the Works to be done by DMRC Staff:

(i) E&M, S&T and Civil Works of general nature i.e. Maintenance / Repair Works on AC
Units, Lighting System, Fans (other than on the Platforms within a radius of 2 m from
the OHE or Track), Electrical Distribution System, Fire Fighting Equipment, Clocks, PAS,
and Drainage & Sewage etc. can be carried out in Revenue hours. As far as possible, the
Supervisor supervising the Work shall ensure that the Public Amenities are not affected
and the Barricading / Diversion done shall cause minimum inconvenience to the Public.
No PTW shall be required to carry out such Works at Stations.

(ii) In case of the In-house Maintenance at the Platforms within a radius of 2 m from
the OHE, the Authorized O&M Supervisor / Sr. Maintainer shall take the PTW from the
Station Controllers of the individual Stations. Concerned Station Controllers shall issue
the PTW after ensuring that Shadow Power Block is available for such Works.

(iii) All Staff working at the Site shall be responsible for their own Safety and observe all
Safety Rules and Regulations during the Course of Work.

(iv) After Completion of the Work, DMRC / Project Staff shall cancel the PTW in the requisite
Performa with the SC, who in turn will inform OCC, under the Exchange of Private
Numbers.

(v) For the purpose of Maintenance, Repairs, Inspection or Testing of Lifts and Escalators,
A/C Units, Lighting System & Fans (other than on Platforms within a radius of 2 m from
the OHE or Track), Electric Distribution System, Fire Fighting Equipment, a list of
Authorized Contractors Personnel to carry out above Works will be made available to the
OCC by the concerned Mgr./AM/E&M.

(vi) OCC/TPC shall inform the concerned SC before the Authorized Contractor's Staff
reaches the Station to carry out the Work specified in the PTW. SC will note down the
details including the Location, Duration, Time of Start and the Name of the Authorized
Supervisor, and Number of Workers etc. in the Station Controller's Diary. In the
Underground Section, the Contractor's Staff shall be accompanied by the DMRC Staff

DGM/O/I DGM/TO DGM/S&T/III DGM/Track DGM/Traction DGM/C&S DGM/R S DGM/E&M
who will be responsible for Verification of their Identity and the Work to be done by them. In case of any doubt about the Identity of the Contractor's Staff, the same shall be got verified from OCC / TPC. When the concerned Working Party reports to SC, SC will verify their Identity and other details given by OCC / TPC / Supervisor, inform OCC / TC and then only allow the Contractor's Staff to carry out the Work. After Completion of the Work, SC will again inform OCC / TPC about the same.

However, in case the Contractor's Staff is required to visit one Station for once or twice only for a very specific / non-repetitive nature of Work, they need not be issued I. Card by the DMRC, to avoid the misuse later. Such Contractor's Staff shall be accompanied by the DMRC Staff. The Contractor's Staff shall only be allowed to enter the Station by the Station Controller after the Identification of their Identity by the said DMRC Staff accompanying them, either during Non-revenue / Revenue Hours, as the case may be.

(vii) For regular Maintenance in the Equipment Rooms, the concerned Departmental In-charges shall be responsible & no PTW shall be required for the same. Regular Maintenance can be done in Revenue Hours only, if it does not affect the Train Operations / Public Amenities.

(viii) In addition to the above, following Safety Precautions shall always be observed, when the Work is required to be carried out at the Platform Level:

(a) The Work will be carried out maximum up to Hand Railing Level on the Platform Periphery.
(b) No Ladder or Tool more than 45 cm. long (other than Pick-up Rod & Point Machine Rod) shall be used. At all times, a minimum clearance of 2 m shall be ensured from the Live OHE.
(c) All Workmen will remain clear of the Yellow Line on the Platform, towards the Platform Edge.
(d) Concerned Supervisors & all Workmen shall be responsible for their own Safety in case of any eventuality.

(ix) Contractor's Party shall always be accompanied by the DMRC Staff during the period of imposition of Red Alert and heightened Security Situations.

(x) Specimen of ID card to be carried by the Contractor's authorized Working Party is enclosed at Annexure – 'D'.

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Page 19 of 20
Enclosures:

Annexure ‘A’: Permit to work.
Annexure ‘A1’: Gang Members Details (to be filled with PTW).
Annexure ‘B’: Cancellation of PTW.
Annexure ‘C’: Possession Register.
Annexure ‘D’: ID card for Contractor’s Staff.
Annexure ‘E’: Check List for Station Controller (for Taking / Cancellation of Shadow Power Block).
Annexure ‘F’: Check List for Traction Staff (for Shadow Power Block).
Annexure ‘G’: Indemnity Bond (To be filled by the Contractual Staff, before entering the Right of Way).
Annexure ‘H’: Format for Message Sent / Received (for Power Block).
Annexure ‘I’: Sub-EPIC Authorization.
Annexure ‘J’: Sub-EPIC Cancellation.
Annexure ‘K’: Procedure for award of Competency to SC for applying Discharge Rods & Procedure for Maintenance thereof.
PERMIT TO WORK

Station:

Date: ..................  Time: ..................

I  ----- (Name of the Authorised Person)  -----------, Emp. No.  -----------,
Designation  ------------, Department  -------------, along with  -------- Number of
DMRC / Contractor Staff want to Inspect / Maintain the Area / Equipment  ------------
---------- Hrs. for  --------------------------------- from  -------- Hrs. To

-----------------------------------------------

Entry Point: --------------------------  Exit Point: --------------------------

It is certified that all the Staff including myself are equipped with Personal Protection Equipment (PPE).

Point Machine Manual Operation Key (EKV Key) for Point Nos. ............... along with Crank Handle is Needed / Not Needed and may be Issued / Not Issued to me.

Signature of the EPIC / Sub-EPIC
Designation:  ------------
Date:  -------------
Time:  -------------

1.  The Request for above Work is Approved / Not Approved.
2.  Point Machine Manual Operation Key (EKV Key) for Point Nos. ............... along with Crank Handle Issued to EPIC / Sub-EPIC: Yes/No.
3.  The corresponding Entry for Issuing of Point Machine EKV Key for Point Nos. ............... along with Crank Handle has been made In the Possession Register of Station on Page No. ........ at Serial No. -----.

Private Number –
     OCC / Station:  -------- EPIC / Sub-EPIC:  ---------

Signature of the Station Controller / Station Manager
Name:  -------------------
Date:  --------------
Time:  -------------

Important to Note:
1.  Take all the Safety Precautions during the Work.
2.  Keep Sharp Look-out on the Track and of the Train Movements.
3.  Only the same person to whom the PTW was issued is authorised to cancel PTW. Only in emergent cases person having written authority by EPIC/SUB EPIC/ may cancel PTW.
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<tr>
<th>Sl. No.</th>
<th>Name of Members</th>
<th>Gang</th>
<th>Contractor/DMRC staff</th>
<th>Desg &amp; Emp No. (for DMRC staff) / ID details (for Contractor staff)</th>
<th>Entry Station</th>
<th>Exit Station</th>
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PTW Form No.:--

Date:--

Time:--

Signature of EPIC/Sub EPIC
PROFORMA FOR THE CANCELLATION OF
ENGINEER'S POSSESSION / PERMIT TO WORK / TRAFFIC BLOCK
WITH RESPECT TO PTW NO. ----------------------

(To be filled in Duplicate)

1. Name of EPIC/Sub-EPIC: ____________________________
2. Designation: ____________________________
3. Department: ____________________________
4. Date of Cancellation: ____________________________
5. Time of Cancellation: ____________________________
6. Section: From (Station) _________ Kms. ______ To (Station) _________ Kms. _______

I hereby certify that:

(i) All Men & Materials, Tools & Plants and Equipment etc. have been taken out of the section.
(ii) There are no Infringements caused to the Schedule of Dimensions.
(iii) Power Block has been Cancelled, OHE is in the Charged Condition & OHE is also ‘Fit’ for the movement of Traffic.
(iv) Track is 'Fit' for movement of Traffic.
(v) All S&T Gears/Installations are 'Fit' for movement of Traffic.
(vi) The Point Machine EKT Key for Point Nos. ____________ along with Crank Handle is hereby returned/was not issued to me.

(Strike out whichever is not applicable)

Signature of EPIC /Sub-EPIC
Name: ____________________________
Designation: ____________________________

ACKNOWLEDGEMENT OF CANCELLATION:

1. Station: ____________________________
2. Name of the Station Controller: ____________________________
3. Date of Cancellation: ____________________________
4. Time of Cancellation: ____________________________
5. Private Number of the Station Controller: ____________________________
6. Private Number of Other Station Controller: ____________________________
7. Point Machine EKT Key for Point Nos. ____________ along with Crank Handle received back/was not issued.
8. Entry in Possession Register for return of Point Machine EKT Key with Crank Handle is made/not needed.

(Strike out whichever is not applicable)

Date: ____________
Time: ____________

Signature of Station Controller
Name: ____________________________

Note: One copy is to be returned to the EPIC / Sub-EPIC for Record.
<table>
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<tr>
<th>SN</th>
<th>Date</th>
<th>Name of the Person</th>
<th>Designation</th>
<th>Address</th>
<th>Contact No.</th>
<th>Time Entry</th>
<th>Exit</th>
<th>Purpose of Entry</th>
<th>Signatures</th>
<th>Remarks</th>
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PHOTO ID CARD FOR CONTRACTOR'S STAFF

NOT FOR TRAVEL

Name: 
Designation: 
Employee No.: 
Company Name: 
Address: 


Mobile No. of Company's Sup.: 

Place of Work (Line/Station): Line: Station: 
Valid From: To: 
Physical Identification Mark: 

Signature of Employee: 

Signature of Company's Authorized Officer
Name & Designation 

Mobile No.: 

Company's Seal 

Counter Signature
(DMRC) Officer-in-Charge
Name & Designation 

Mobile No.: 

DGM/T DGM/0/T DGM/S&T/III DGM/Track JGM/Traction DGM/C&S JGM/RS DGM/E&M
CHECK LIST FOR STATION CONTROLLER
(To be filled by Station Controller every time of
Taking / Cancellation of Shadow Power Block)

*Note: Traction Staff should not be below the rank of senior maintainer having competency

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<tr>
<td>1</td>
<td>Name of the Station:</td>
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<tr>
<td>2</td>
<td>Name of the Station Controller (SC):</td>
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<td>3</td>
<td>Name of Traction Staff*:</td>
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<td>4</td>
<td>Shadow Power Block required for: (Tick which ever is applicable)</td>
<td>House Keeping / Telecom. Work / Signal Work / PD Cell / Others (Specify)</td>
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For Taking Shadow Power Block:

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<td>5</td>
<td>Shadow Power Block demanded at (Date &amp; Time):</td>
<td>Date: ------- Time: ----- Hrs. ----- Min.</td>
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<tr>
<td>6</td>
<td>Private Numbers exchanged between Traction Staff* &amp; SC for permitting to provide Discharge Rods on OHE by the SC:</td>
<td>Private Number of SC:</td>
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<tr>
<td>7</td>
<td>Confirmations by SC that Four Discharge Rods have been provided by him on the OHE:</td>
<td>UP Line: 1. ------- 2. -------</td>
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<td>DN line: 1. ------- 2. -------</td>
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<td>8</td>
<td>Private Numbers exchanged between Traction Staff* &amp; SC after providing Discharge Rods on the OHE:</td>
<td>Private Number of SC:</td>
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<td>Date: ------- Time: ----- Hrs. ----- Min.</td>
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<td>9</td>
<td>Date &amp; Time Duration of Shadow Power Block:</td>
<td>From Date: ------- Time: ----- Hrs. ----- Min. To Date: ------- Time: ----- Hrs. ----- Min.</td>
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<td>10</td>
<td>Permit to Work (PTW) given by SC to:</td>
<td>1.</td>
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For Cancelling Shadow Power Block:

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<td>11</td>
<td>All PTWs issued by SC Cancelled:</td>
<td>1. Yes / No 2. Yes / No 3. Yes / No</td>
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<tr>
<td>12</td>
<td>All Men, Materials &amp; Tools Removed:</td>
<td>1. Yes / No 2. Yes / No 3. Yes / No</td>
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<td>13</td>
<td>All Discharge Rods from OHE at the Station Removed by the SC:</td>
<td>Yes / No</td>
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<td>14</td>
<td>Private Numbers exchanged between Traction Staff* &amp; SC for cancellation of Shadow Power Block:</td>
<td>Private Number of SC:</td>
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<td>Date: ------- Time: ----- Hrs. ----- Min.</td>
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(Signature of Station Controller)
CHECK LIST FOR TRACTION STAFF*
(To be filled by Traction Staff* every time of 
Granting & Cancellation of Shadow Power Block)

Name of the Traction Staff*: ____________________________  Designation: ____________________  Emp. No.: ____________  Date: ____________

*Note: Traction Staff should not be below the rank of senior maintainer having competency.

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Date: ____________________

(Signature of Traction Staff*)
INDEMNITY BOND

I, __________________________, hereby indemnify Delhi Metro Rail Corporation, its Contractors, Representatives and Officials of DMRC from any claim for damages including any loss, injury, fatality or any other risks incidental / arising out of my visit to ________________________ for (purpose) __________________________.

I hereby further state that no claims / damages, whatsoever, shall be made by myself or my representatives against DMRC on the aforesaid context before any Court / Statutory Authorities.

Signed __________________________
Name of the Visitor: __________________________
Address: __________________________

Witnessed by:

1. Signature of the Witness: __________________________
Name: __________________________
Address: __________________________
Proof of Identification: __________________________

2. Signature of the Witness: __________________________
Name: __________________________
Address: __________________________
Proof of Identification: __________________________

Time & Date of Entry: __________________________
Time & Date of Exit: __________________________

(To be filled in by DMRC Official)

__________________________  __________________________  __________________________  __________________________  __________________________  __________________________  __________________________  __________________________
PROFORMA FOR EXCHANGE OF MESSAGES

Message Sent / Received

<table>
<thead>
<tr>
<th>Sender's Name:</th>
<th>Receiver's Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designation:</td>
<td>Designation:</td>
</tr>
<tr>
<td>Private No.:</td>
<td>Private No.:</td>
</tr>
<tr>
<td>Date &amp; Time:</td>
<td>Date &amp; Time:</td>
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</tbody>
</table>

Message: ..........................................................................................................................................................................................

Message Book No.: --------------------------
Annexure – 'I' (SC-02)

AUTHORISATION PROFORMA FOR SUB-EPIC

Date: ------------------------------
Location: -----------------------------
Time: -------------------------------

I __________________________ (Name of the EPIC) ______________________, Emp. No. _____________
Designation __________________________ Department ________________ Authorise ________________
(Name of the Sub-EPIC) along with __________ Number of DMRC / Contractor Staff to work at the above mentioned Location / Site up to __________ Hrs. of __________________
(Date).

Signature of the EPIC
Designation: ______________
Date: ______________
Time: ______________

DGM/70 DGM/10/7 DGM/8&11D III DGM/Track JGM/Traffic DGM/C&S JGM/RS DGM/E&M
ANNEXURE - 'J' (SC-02)

CANCELLATION PROFORMA BY SUB-EPIC TO EPIC

Date: ---------------------------------

Location: ---------------------------------

Time: ---------------------------------

I hereby certify that:

(i) All Men & Materials, Tools & Plants and Equipment etc. have been taken out of the section.
(ii) There are no Infringements caused to the Schedule of Dimensions.
(iii) Power Block has been Cancelled, OHE is in the Charged Condition & OHE is also 'Fit' for the movement of Traffic.
(iv) Track is 'Fit' for movement of Traffic.
(v) All S&T Gears/Installations are 'Fit' for movement of Traffic.
(vi) The Point Machine EKT Key for Point Nos. -----------------along with Crank Handle is hereby returned/was not issued to me.

(Strike out whichever is not applicable)

Signature of the Sub-EPIC
Name: -----------------------------
Designation: -------------------------

ACKNOWLEDGEMENT OF CANCELLATION:

1. Name of the EPIC: -----------------------------
2. Date of Cancellation: -----------------------------
3. Time of Cancellation: -----------------------------

Signature of the EPIC
Name: -----------------------------
Designation: -------------------------

DGM/TQ  DGM/C&S  DGM/S&T/III  DGM/Track  JGM/Traction  DGM/C&S  JGM/TS  DGM/C&M
PROCEDURE FOR AWARD OF COMPETENCY TO SC FOR APPLYING
DISCHARGE RODS & MAINTENANCE OF DISCHARGE RODS

A. Procedure for award of Competency to SC for applying discharge Rods
   1. Station Controllers, during their Initial Training shall be trained to put and remove
      Discharge Rod on OHE. Competency Certificate, after their successful Training
      shall be issued by AM/Manager (Traction) & AM/Manager (Operations) jointly.

   2. Refresher Training for this work shall be included in every refresher Training of
      Station Controllers.

B. Maintenance of discharge rods

   1. Discharge Rods shall be handed over to respective Station Controllers, who shall be
      responsible for their safe Custody. Physical Condition of Discharge Rods shall be
      monthly checked by OHE Wing.

   2. Documentation of the proper upkeep of Discharge Rods shall be kept by OHE Wing,
      duly counter-signed by respective Station Controllers.

   3. Station Controllers shall report for any defect noticed in Discharge Rods to TPC / OHE
      Wing of respective Lines.

   4. Record of Maintenance of Discharge Rods shall be periodically audited by Safety
      Wing.

   5. Following Check List shall be observed for Maintenance of Discharge Rods:

      (i) Check the continuity of Cable connection between the top Clamp and
      Earthing Clamps.

      (ii) Replace the Cable, if more than 20% Strands are broken.

      (iii) Check the end connections of the Clamps for firmness. Rectify the
            connection, if so required.

      (iv) Examine the Spring Tension of top Clamp & adjust the same as per
            requirement.

      (v) Tighten all Nuts & Bolts of Earthing Clamp.

      (vi) Check the Insulation of Cable.

   6. SSE / SE / ASE / JE PSI or OHE of respective Lines shall examine the Discharge
      Rods as per the Check List, given in Para ‘5’ above and maintain the Records in a
      Register in Token of above Checks.
CORRECTION SLIP NO. 01 TO SAFETY CIRCULAR NO. SC-2 (REV.02)

Sub: Correction Slip No. 1 to Safety Circular No. SC-2 (Rev.02)

Find enclosed Correction Slip No. 1 to Safety Circular No. SC-2 (Rev.02) regarding 'Procedure Order for granting and cancellation of Power Blocks and Permit to work during non-revenue hours', due to enforcement of Metro Railways General Rules, 2013. This correction slip is to be read in conjunction with SC-2 (Rev. 02). All concerned are to ensure that staff working under them have read and understood the procedure order and assurance is taken.

This issues with the approval of the competent authority.

(Amit Kumar Jain)
DGM/TO

All HODs (O&M)
All Dy HODs (O&M)
OCC/SHPK & OCC/Metro Bhawan,
All DCC, All Crew Controls, All stations & Training Institute
Copy to:
DE, DF, DO, DP, DRS, DW & DBD for kind information please.
Correction Slip No.01 to the Safety Circular (SC) - 02 (Rev.02)

Sub: Correction Slip No.01 to the Safety Circular (SC) - 02(Rev.02) regarding ‘Procedure Order for granting and cancellation of power blocks and permit to work during non revenue hours’ due to enforcement of Metro Railways General Rules, 2013.

1. This correction slip is to be read in conjunction with Safety Circular 02(Rev.02) regarding ‘Procedure Order for granting and cancellation of power blocks and permit to work during non revenue hours’.

2. This Correction Slip has been prepared in view of notification of Metro Railways General Rules, 2013. The references made in terms of Delhi Metro General Rules, 2002 in Safety Circular(SC)-02(Rev.02) regarding ‘Procedure Order for granting and cancellation of power blocks and permit to work during non revenue hours,’ where applicable, to be read and referred in terms of relevant rules and sub rules of Metro Railways General Rules, 2013.
CORRECTION SLIP No.- 02 TO SAFETY CIRCULAR – 02 (Rev. - 02)

Sub: - Correction slip No. - 02 to SC - 02 (Rev. - 02) regarding Procedure Order for granting and cancellation of power blocks and permit to work during non-revenue hours

Find enclosed Correction slip No. - 02 to SC - 02 (Rev. - 02) regarding Procedure Order for granting and cancellation of power blocks and permit to work during non-revenue hours.

All concerned are to ensure that staff working under them have read and understood the procedure and assurance regarding the same is taken.

This issues with the approval of the competent authority.

(Raman Goyal)
JGM/Ops/8

All EDs/ HODs (O&M) and Dean/DMRA
All Dy. HODs (O&M)
OCM/SHPK, OCM/MB-I and OCM/MB-II, Mgr/AM All Lines
All stations, All Crew Controls, All DCC & DMRA

Copy to:-
DO, DP, DE, DF, DRS, DW & DBD for kind information please.
CORRECTION SLIP-02 TO SAFETY CIRCULAR-02 (REV-02)

PROCEDURE ORDER FOR GRANTING & CANCELLATION OF POWER BLOCKS AND PERMIT TO WORK DURING NON-REVENUE HOURS

1. This correction slip is to be read in conjunction with Safety Circular-02 (Rev -02).
2. This correction slip has been prepared to incorporate the necessary changes in the SC-02 (Rev-02).
3. The following Para & Annexure of SC-02 (Rev-02) to be read as under:-

<table>
<thead>
<tr>
<th>Para</th>
<th>Existing Para</th>
<th>Revised Para</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td><strong>Engineer's Possession In-charge (EPIC):</strong> The Person-in-Charge of Engineer's Possession shall be termed as 'EPIC'. Only DMRC Staff, not below the Rank of Sr. Maintainer having Competency, shall be EPIC.</td>
<td><strong>Engineer's Possession In-charge (EPIC):</strong> The Person-in-Charge of Engineer's Possession shall be termed as 'EPIC'. (i) For E&amp;M and Civil departments:- Only DMRC Staff, not below the Rank of Maintainer with minimum 03 years of service having valid Competency shall be EPIC. (ii) For all other departments except E&amp;M and Civil departments:- Only DMRC Staff, not below the Rank of Sr. Maintainer having valid Competency shall be EPIC.</td>
</tr>
</tbody>
</table>
SAFETY CIRCULAR - 03 (Rev.-02)

Sub: Joint Procedure Order for Movement of CMV/CTMC on Mainline During Non-Traffic Hours on All Lines.

Find enclosed Safety Circular - 03 (Rev.-02) regarding joint procedure order for movement of CMV/CTMC on mainline during non-traffic hours on all lines.

All concerned are to ensure that staff working under them have read and understood the changes and assurance regarding the same is taken.

This issue with the approval of the competent authority.

(Manish Yadav)
Sr.DGM/O/57

All HODs (O&M)
All Dy. HODs(O&M)
OCC/SHPK & OCC/MB, Mgr/AM Line concerned
All stations, All Crew Controls, All DCC & Training Institute

Copy to:-

DO, DP, DE, DF, DRS, DW & DBD for kind information please.
SAFETY CIRCULAR-03 (Rev. 02)

JOINT PROCEDURE ORDER FOR MOVEMENT OF CMV/CTMC ON MAIN LINE
DURING NON-TRAFFIC HOURS ON ALL LINES

This JPO should be read in conjunction with Metro Railways General Rule, 2013 and other relevant rules and procedures in vogue.

1.0 Purpose

The purpose of these instructions is to ensure smooth and safe movement of CMV/CTMC on all main lines and optimise duration of OHE/ROCS maintenance activities during Non-revenue hours.

2.0 Scope:

These instructions are applicable to all O&M staff of DMRC associated with movement of CMV/CTMC and OHE/ROCS maintenance activities.

3.0 General:

All the CMVs/CTMCs (Phooltas & BEML Make) of Line-2, Line-3/4, Line-6, Line-7, Line-8 and APL (where U/G sections are present) are suitable for movement in elevated as well as U/G section with OHE (FOCS/ROCS) in charged condition. In Line-1 & Line-5, no underground section are present. CTMC (Phooltas Make of Line-1) & CMV (BEML make of Line-5) are suitable for movement in charged condition of FOCS.

4.0 Instructions:

The following instructions are issued in continuation with Safety Circulars SC-20 (JPO for movement of various non ATP rail vehicles):

i. CMV/CTMC will be allowed to enter mainline from Depot after ensuring that the last train has cleared the exit signal in direction of intended induction (UP or DN Line) of Depot connecting station and continuing its journey. The last train mentioned here does not refer to the last revenue train but to the last train to traverse on the line which may be a Rusty movement train, defective train moving out of stabling location or a test/trial train.

ii. TC/OCC will protect the Engineers Possession’s area by adopting appropriate available means such as applying maintenance blocks, blocking of the relevant routes and locking of relevant signals.

iii. PTW for OHE maintenance work will be issued to TPC of the concerned line by the TC of that line. No separate PTW will be required to be taken from SC for the staff on board CMV/CTMC. However, OHE staff entering from station/s will be required to obtain PTW from the concerned SC as per the procedure in vogue.

iv. Movement of CMV/CTMC from designated siding, if stabled as per para-5 (Night stabling of CMV/CTMC in main line) of this JPO, will be allowed in main line after ensuring that the last train has cleared the exit signal of concerned interlocking station in direction of intended induction. The last train mentioned here does not refer to the last revenue train but the last train to traverse on the line which may be
a Rusty movement train, defective train moving out of stabling location or a test/trial train. The CMV/CTMC In-charge shall ensure that CMV/CTMC is fit to run.

v. An authority to proceed will be issued on Tetra under exchange of Private no. to the authorized person in-charge of the CMV/CTMC by TC/OCC or SC of the concerned interlocking station after ensuring point (i) to (iv) above and after having set proper route for CMV/CTMC. However, CMV/CTMC can be allowed to move up to the foot of concerned depot exit signal, provided no other movement from/to mainlines on the route/track is planned.

vi. After obtaining Authority to Proceed, authorized person in-charge of the CMV/CTMC will ensure that none of the staff gets down from the CMV/CTMC before it reaches the defined section under its Engineers Possession in accordance with the Weekly General Order of the day.

vii. EPIC/CMV in charge will protect the area under EP by appropriate means of protection as per extant procedure & rules. EPIC/CMV in charge will place red banner flags/red lamp on both tracks in both direction at not less than 100 meters from the work site. Red banner flags must have 3-4 inch wide reflective tape stitched diagonally making X mark in centre and along the borders. TC/OCC will also protect the EP area by adopting appropriate available means mentioned at Para 5 (vii) below. The same will also be ensured by TPC in writing from TC. In case TPC is EPIC, TPC will ensure protection through CMV in-charge under exchange of private nos.

viii. Only for the movement of OHE Vehicles, the TPC of the concerned Line may be EPIC / Sub-EPIC. ‘Permit to Work’ shall be granted to the TPC of the respective Line at the OCC by the TC of the concerned Line (if TPC is nominated as EPIC / Sub-EPIC by concerned wing) only for movement of vehicle in mainline. Until all the conditions for granting PTWs (CMV / patrolling) is not fulfilled, PTW will not be issued.

ix. PTW can be issued if, section lies under jurisdiction of one single traffic controller only. If CMV section/maintenance section lies separately in jurisdiction of two Traffic Controllers, then PTW are required to be issued by Traffic Controllers as per their jurisdiction duly ensuring positive communication and co-ordination amongst themselves. Communication between TPC and SSE/ASE/JE - OHE regarding particulars to be filled in PTW Performa is to be made on Tetra Set.

x. The person in charge of CMV/CTMC shall inform SC of the first station of the defined block section as per Weekly General Order at the time of entering in and exiting out the section under exchange of private number on radio giving details of PTW.

xi. After completion of work TPC will cancel the PTW to concerned TC/s of the line. TC will set the route for CMV/CTMC to enter into depot/designated siding after ensuring that all other blocks of section en-route have been cancelled.

xii. Subject to cancellation of PTWs and clearance of CMV/CTMC from section as mentioned in Para- 3.0 (exceptions) above TPC can charge the OHE/ROCS.

5.0 Night stabling of CMV/CTMC in mainline.

To increase effective maintenance time during block it is desirable to stable CMV/CTMC in the mainline during night.

i. Request for night stabling of CMV will be included in the requisition for Weekly General Order submitted by TPC to Chief Controller.
ii. Night stabling of CMV/CTMC will be planned at siding nearest to EP section granted to CMV/CTMC.

iii. CMV/CTMC will be stabled at designated siding on mainline only a day prior to its approved work as per Weekly General Order.

iv. To vacate sidings for night stabling of CMV/CTMC if required then night stabling trains will be sent to depot, if feasible.

v. After stabling of CMV at siding, CMV/CTMC in-charge will ensure that all mechanical/parking brakes are fully applied. He will secure the CMV/CTMC by putting scotch blocks at both sides of wheels at all four end wheels and chain must be tied around scotch blocks on wheels and must be tied with fixed object at track side. A red coloured retro reflective tape not less than (10 cm X 10 cm) – 2 nos shall be pasted at both side of CMV/CTMC and Red banner flags, as described under point (vii) of Para – 4 should be placed from stabled CMV/CTMC at both sides or at entry side in one way sidings.

vi. CMV/CTMC in charge is responsible for securing the CMV and Station Controller of the concerned station will reconfirm that CMV has been properly secured by placing scotch blocks at both sides of wheels at all four end wheels and chain must be tied around scotch blocks on wheels and must be tied with fixed object at track side. CMV/CTMC in-charge will exchange private number with TPC and SC will exchange private number with TC to confirm that CMV/CTMC has been properly secured at siding. AT OCC, TPC will inform TC in writing that CMV has properly secured.

vii. Traffic Controller (TC) or (Station Controller, if control is at local level) will block all possible routes towards siding where CMV/CTMC has been stabled and apply maintenance block in the siding.

viii. Only after ensuring above steps train movement will be permitted in the mainline.

ix. Concerned SC and TC will maintain the log of CMV/CTMC stabling in designated siding.

x. The night stabling of CMV/CTMC should only be considered on terminal sidings or stations where alternate vacant sidings are available (wherever feasible).
Flow Chart SC-03 (Rev.-02)

JPO for Movement of CMV/CTMC on Main Line during Non-Traffic hours on All Lines

Has the last train on traverse has cleared the exit signal in direction of intended action (UP/DN) of Depot connecting station?

YES
Induct the CMV as per the extant procedure (SC-03 & SC-20)

NO
Wait for the last train to clear the exit signal

Entry of CMV to Main Line
LIFT WALL OPENING – FALL PROTECTION DESIGN

Door openable outside, stoppers provided in order to prevent door moving inside the shaft.
Sample Drawing -2
Fall Protection arrangement for Edges
Sample Drawing -3
Fall Protection arrangement for Staircases
Sample Drawing -4
Essential components of Scaffold Working Platform