

PARTICULAR SPECIFICATIONS ON SITE SAFETY

Note : Particular Specification clauses hereinafter referred to in this Appendix shall mean the Particular Specification clauses under this Appendix.

1 General

- (1) The Contractor shall ensure as a priority in all activities connected with the Works, the safety and health of all persons on or adjacent to the Site.
- (2) The Contractor shall provide and employ on the Site only such personnel who have received adequate training including safety and health training relevant to their tasks and adopt safe working practices at all times and shall ensure his subcontractors comply with this requirement.
- (3) The Contractor shall not allow any person to work on the Site who has repeatedly breached safety requirements. A notice of such sanction shall be displayed at a prominent place on the Site.

2 Legislation, Regulations and/or Codes of Practice

- (1) The Contractor shall keep one set each of the following legislation, regulations and/or codes of practice on the Site including, but not limited to :-

Legislation

- the Factories and Industrial Undertakings Ordinance
- the Construction Sites (Safety) Regulations
- the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations
- the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations
- the Factories and Industrial Undertakings (Woodworking Machinery) Regulations
- the Factories and Industrial Undertakings (Abrasive Wheels) Regulations

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- the Factories and Industrial Undertakings (Confined Spaces) Regulations
- the Factories and Industrial Undertakings (Dangerous Substances) Regulations
- the Factories and Industrial Undertakings (Protection of Eyes) Regulations
- the Factories and Industrial Undertakings (Cartridge-Operated Fixing Tools) Regulations
- the Factories and Industrial Undertakings (Electricity) Regulations
- the Factories and Industrial Undertakings (Suspended Working Platforms) Regulations
- the Factories and Industrial Undertakings (Noise at Work) Regulations
- the Dangerous Goods Ordinance (Section 6)
- the Electricity Ordinance (Part VII)
- the Electricity (Wiring) Regulations
- the Builders' Lifts and Tower Working Platforms (Safety) Ordinance
- the Occupational Safety and Health Ordinance
- the Occupational Safety and Health Regulations
- the Boiler and Pressure Vessel Ordinance
- Electricity Supply Lines (Protection) Regulations

Codes of Practice, Guides and others

- “Code of Practice for Bamboo Scaffolding Safety”, published by the Labour Department, where applicable
- “Code of Practice for Metal Scaffolding Safety”, published by the Labour Department, where applicable
- “Code of Practice for Safe Use of Mobile Cranes”, published by the

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Labour Department, where applicable

- “Code of Practice for Safe Use of Tower Cranes”, published by the Labour Department, where applicable
- "Code of Practice on Safety and Health at Work for Industrial Diving", published by the Labour Department, where applicable
- "Code of Practice on Safety at Work (Lift and Escalator)", published by the Labour Department, where applicable
- “Code of Practice for Safety and Health at Work in Confined Spaces”
- "A Guide to the Factories and Industrial Undertakings Ordinance (Section 6A & 6B) – Know Your General Duties" published by the Labour Department
- "A Guide to the Construction Sites (Safety) Regulations" published by the Labour Department
- “Code of Practice on Safety Management” published by the Labour Department
- “Guidance Notes for the Electrical Products(Safety) Regulation” published by the Electrical and Mechanical Services Department
- “Guidelines on Safe Use of Lifting Frames and Launching Girders for Bridge Construction” published by the Labour Department
- “Guidelines on Safety of Vehicles and Mobile Plant on Construction Site” published by the Construction Industry Council
- “Guidelines on Work-Above-Ground Safety” published by the Construction Industry Council
- other safety and health related legislations, codes of practice and guides relevant to the execution of the Works.

- (2) The Contractor shall display advisory and warning signs, labels and/or posters for the promotion and enhancement of safety and health and notices concerning the availability of the legislation and documents stated above at prominent locations around the Site including site offices, workshops and rest areas.

- (3) All legislations and documents referred to in this Clause shall be kept in both Chinese and English insofar as available.

3 Not Used

4 Safety Organisation

The Contractor shall provide to the Engineer's Representative at monthly intervals an updated safety organisation chart containing a complete list of all sub-contractors, whether directly employed by the Contractor or not, on the Site and the Works and the name of the Safety Supervisor for each such sub-contractor, insofar as the employment of a Safety Supervisor is expressly set out in the Contract or in the absence of such requirement then by any enactment or statutory requirement. The list shall also include the names of the Safety Officer and Safety Supervisors, and the names of Safety Representatives and the respective labour groups or team they belong. Telephone numbers of these safety staff shall also be shown on the chart.

5 Safety Officer

- (1) "Safety Officer" means a person registered as a safety officer in accordance with the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations (FIU(SO&SS)R) and employed by the Contractor to carry out the duties of a Safety Officer as specified in the Contract and duties specified in the FIU(SO&SS)R.
- (2) The Contractor shall appoint one Safety Officer who shall be approved by the Engineer or the Engineer's Representative. If the total number of workers employed in connection with the Contract whether in the employ of the Contractor or his sub-contractor is equal to or more than 50, the Safety Officer shall devote the whole of his time to this Contract in the discharge of his duties.
- (3) The Contractor shall not commence any construction work on the Site without the appointment and attendance of the Safety Officer unless expressly permitted by the Engineer or the Engineer's Representative in writing.
- (4) The duties of the Safety Officer shall be solely directed towards safety and

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health matters. In addition to the duties stipulated in the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations, the Safety Officer shall:

- (a) carry out safety inspections and prepare inspection reports,
 - (b) supervise and monitor implementation of the Contractor's site safety obligations set out in the Contract,
 - (c) ensure that sub-contractors and all persons working on the Site are made aware of and comply with the Contractor's site safety obligations set out in the Contract, and
 - (d) (not used)
- (5) The Safety Officer shall maintain a safety diary which shall record all matters related to safety Revision and health, including Safety Supervisors' reports, details of safety inspections and audits, accidents, dangerous occurrences, safety related incidents, etc. The Safety Officer shall check to ensure that all unsafe situations are promptly rectified and the dates of their completion duly recorded in the safety diary. The safety diary shall be made available for inspection by the Engineer or the Engineer's Representative upon request and copy thereof shall be submitted to the Engineer or the Engineer's Representative upon request.
- (6) The Contractor shall empower the Safety Officer to order any person working on the Site to suspend any unsafe operation or to take urgent action to make safe the Site or the Works or to disallow any practice which may infringe the Contractor's site safety obligations set out in the Contract or any statutory safety requirement.
- (7) The Safety Officer shall carry out comprehensive safety inspections on activities on the Site at weekly intervals. He shall prepare a written safety inspection report every week on the works for each Works Order with an estimated value in excess of \$100,000. These reports shall be provided in the form of a comprehensive checklist agreed by the Engineer's Representative and shall be submitted to the Engineer at the beginning of the following week.

Provided that nothing in this sub-clause shall prevent the Safety Officer from submitting reports or prevent the Engineer or the Engineer's

Representative from requesting additional reports on any job with any estimated value or requesting reports in any format as directed by the Engineer or the Engineer's Representative.

- (8) If the Safety Officer is unable to perform his duties for any reason, the Safety Officer shall be replaced as soon as practicable but in any case within 14 days. The Safety Officer shall not be replaced without consent by the Engineer or the Engineer's Representative.
- (9) The Safety Officer shall be clearly identified on the Site by wearing an armband or a safety helmet appropriately marked in Chinese and English.
- (10) When the nature of the Works of the relevant Contract is complex, or involves high risk operations, the proposed RSO should possess relevant engineering background and adequate experience meeting the requirements of the Contract.

6 Safety Supervisors

- (1) "Safety Supervisor" means a person employed by the Contractor or sub-contractors of all tiers on the Site to carry out the duties of a Safety Supervisor as stipulated in the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations. The Safety Supervisor shall carry out safety inspections on all active parts of the Site for which he is responsible at least at daily intervals using an appropriate comprehensive checklist agreed by the Engineer. All completed safety checklist shall be signed by the Safety Officer to ensure prompt follow-up actions have been taken on unsafe situations.
- (2) The Contractor shall employ at least one Safety Supervisor to be present full time on Site. Where the number of workers employed on the Works or in connection with the Contract whether in the employ of the Contractor or by his sub-contractor exceeds 50, the number of Safety Supervisors to be provided shall be increased by one for every additional 50 workers.
- (3) Notwithstanding the requirements stated in sub-clause no. 6(2) above, the Contractor shall provide at least one full-time Safety Supervisor at one work location where the workers engaged there exceeds 20.

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- (4) Safety Supervisor shall have at least three years' experience on construction work and have completed an appropriate training course provided for safety supervisors.
- (5) Safety Supervisors shall be clearly identified on the Site by wearing an armband or a safety helmet appropriately marked in Chinese and English.
- (6) The Safety Supervisor shall also be responsible for ensuring that the directives from the Contractor and the Safety Officer on safety and health matters are duly carried out, safety practices are adopted and protective clothing and equipment are used by the work force at all times on the Site. He shall be made aware of his responsibilities and the group of workers on the Site whose activities he is required to supervise. Every worker working on the Site shall be made aware of the roles of the Safety Supervisor from whom he may seek advice or receive instructions on safety and health matters.

7 Not Used

8 Safety Training

- (1) The Contractor shall regularly review the training needs of all persons employed on the Works or in connection with the Contract and prepare a long-term training programme.
- (2) All persons carrying out construction work including general workers, skilled workers, foremen, gangers, drivers and plant operators, who are employed on the Works or in connection with the Contract whether in the employ of the Contractor or sub-contractors of all tiers must have completed the mandatory basic safety training course for the construction industry under the Factories and Industrial Undertakings (Amendment) Ordinance 1999 and hold the relevant valid certificate which shall be referred to hereafter as the Labour Department Recognised Green Card (LDRGC).
 - (2)(A)(i) In addition to clause 8(2) above, skilled workers of specific trades set out below in this sub-clause who are employed on the Works or in connection with the Contract whether in the employ of the Contractor or sub-contractors of all tiers shall attend the relevant Safety Training Course for Construction Workers of Specified Trades (also known as the Silver Card course) organised by the

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Construction Industry Council (CIC) :

- painter and decorator
- carpenter
- demolition worker (building)
- plumber
- bar bender and fixer
- plasterer and tiler
- bamboo scaffolder and metal scaffolder
- curtain wall installer
- construction materials rigger
- lift mechanic (installation and maintenance)
- tower crane worker (erecting, dismantling, telescoping & climbing)
- tunnel worker

Any other recognised courses as notified by the Engineer.

- (2)(A)(ii) If the Contractor intends to employ or permit the employment of any skilled workers of trades specified in sub-clause (i) but do not possess the Silver Card that is relevant to the trade and work in which he/she is working on the Site for the execution of the Works, he shall arrange within 2 working days of such skilled workers commencing work on the Site to attend the course specific to the trade and work in which he/she is employed under the Contract. A skilled worker who passes the test at the end of the course will be awarded with a Construction Industry Silver Card (Silver Card). For the purpose of this Contract, this course shall be referred to hereafter as the "trade specific advanced safety training" course.

- (3) The Contractor shall also ensure that all card holders will carry their LDRGC and Silver Card, or their Construction Workers Registration Cards with record of valid LDRGC and/or Silver Cards information as equivalent document of the LDRGC and/or Silver Card as applicable, whilst working on the Site.

(4) (not used)

(5) (not used)

- (6) (a) All persons employed on the Works or in connection with the

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Contract whether in the employ of the Contractor or sub-contractors of all tiers shall receive "site specific induction training".

(b) Site specific induction training and its refresher shall take the form of an one-hour talk conducted by the Safety Officer in accordance with sub-clause 6(e) below.

(c) The talk shall be conducted as follows:

(i)	Safety Policy	10 mins
(ii)	General particulars of the Site	10 mins
(iii)	Special characteristics of the Works and inherent hazards on the Site, highlights of particular safety measures and use of personal protective equipment	15 mins
(iv)	Emergency procedures and first-aid facilities	10 mins
(v)	Reporting of accidents and injury compensation procedures	5 mins
(vi)	Questions and answers	<u>10 mins</u>
	total	60 mins

(d) The Safety Officer shall prepare the talk based on Part II of the "Site Safety & Health Induction Training Manual" published by the Hong Kong Construction Association Ltd.

(e) An outline of the talk and every update of it shall be provided to the Engineer's Representative for approval. The talk shall be carried out within 2 working days of any such employee commencing work on the Site. Thereafter, he/she shall be given refresher talks at intervals of 6 months depending on the amount of changes to the site condition.

(f) The Contractor shall ensure that "site specific induction training" talks are carried out by Safety Officers who are competent trainers and have received training on safety training techniques

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organised by the Hong Kong Construction Association Ltd. (HKCA), Construction Industry Council (CIC), Occupational Safety and Health Council (OSHC) or other approved training organisations.

- (7) (a) The Contractor shall provide tool box talks at a frequency of one talk per worker on Site every two weeks commencing from the date of commencement of the Contract Period subject otherwise to any change in frequency as may be approved by the Engineer. The Contractor shall also ensure that the topic of every talk given to a worker is relevant to his/her trade and the work that he/she will perform under the Contract and a worker shall attend no more than one talk on the same topic in any two-month period.
- (b) The Contractor shall propose the topics of the toolbox talks at a frequency specified in sub-clause (a) having regard to the activities of the Site and the prevailing safety concern at that time. They shall be submitted with the proposed monthly training programme to the Engineer for his approval. The Engineer has the right to disapprove the training programme when the proposed topic is considered not relevant to the trade of the workers or the prevailing work activities. Moreover, the Engineer can request the Contractor to review the topics to cater for special safety concern. For workers undertaking scaffolding work including truss-out bamboo scaffolds, demolition work and works in confined spaces, they should be provided with suitable tool box talks prior to the commencement of these works. Workers not having attended the concerned tool box talks shall not be allowed to undertake these works. For workers carrying out road works, they should be provided with specific tool-box talks, and be arranged to attend training course “Safety at Road Works” by OSHC or other equivalent training course by other approved training organisations, prior to the commencement of these works. Workers not having attended the relevant training shall not be allowed to carry out any road works with risk of exposing to the potential hazards of live vehicular traffic.
- (c) The content of the tool box talks shall be based on training kits published by the HKCA. Where such a proposed topic is not

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amongst one of those in the training kits published by the HKCA, the Contractor shall develop training kits to a similar standard for approval by the Engineer's Representative.

- (d) The Contractor shall ensure that "tool box talks" are conducted by Safety Officers or Safety Supervisors or gangers who are competent trainers and have received training on safety training techniques organised by the HKCA, CIC, OSHC or other approved training organisations.
- (e) (not used)
- (8) (not used)
- (9) (not used)
- (10) The Contractor shall prepare attendance records onsite specific induction training and tool box talks which shall include the topics and dates of the talks, the names of the trainers, names and trades of the persons receiving the talks and their signatures.
- (11) (not used)
- (12) The Contractor shall ensure that all site management and supervisory staff, who are employed on the Works whether employed by the Contractor or sub-contractors of all tiers, shall attend, if they have not done so, and complete the basic training commensurate with their duties, as follows:-
 - (a) The term "site management staff" means persons engaged in the senior or managerial posts such as project managers, site agents, sub-agents, superintendents and site engineers. The basic training required to be attended by site management staff shall include :-
 - (i) Appropriate training course such as the Safety Training Course for Management Staff run by OSHC/CICTA or other approved training organizations; or the corresponding revalidation course as appropriate. The course should cover amongst others: safety legislation and safety management techniques, risk assessment and safety inspection, accident investigation and accident prevention, Construction and Design Management (renamed as Design for Safety since

2016), work safe behaviour and safety climate index.

- (b) The term “supervisory staff” means gangers and foremen. The basic training required to be attended by supervisory staff shall include:-
 - (i) Appropriate training course such as the Safety and Health Supervisor (Construction) Course run by OSHC or the Construction Safety Supervisor Course run by CIC or other approved training organizations; or the corresponding revalidation course as appropriate, such as the Enhancement Course for Safety Supervisors (Construction) run by OSHC or the Construction Safety Supervisor Enhancement Course run by CIC. The course should cover amongst others: safety legislation, safety management & training techniques, principle of accident prevention, safety at work and safety inspection techniques on construction sites.
- (13) The Contractor shall keep on Site records of all safety training received by his staff including those on refresher training and make them available for inspection by the Engineer’s Representative upon request.

8A Risk Assessment

The Contractor shall carry out, review and submit to the Engineer risk assessments for works scheduled to start at least for the next two months. The works shall be broken down into jobs/tasks for hazard identification and evaluation of the level of risk by competent persons. The documentation shall contain the hazards identified, the likelihood and consequence of the hazards occurring, the level of risk thus evaluated, the proposed risk mitigation/control measures and the anticipated residual risks, and identify the respective risk controller. The results of such risk assessments and documentation shall be endorsed by the Safety Officer and the Site Agent. In addition, they shall be incorporated into relevant safety working procedures or method statements. In addition, the Contractor shall also maintain an updated register of all risk assessments carried out, and update the relevant safety checklist based on the safety measures recommended in each new risk assessment.

9 **Not Used**

10 **Not Used**

11 **Not Used**

12 **Sub-contractors**

- (1) The Contractor shall provide each sub-contractor with sets of site rules and regulations, safe working procedures and safety obligations to ensure compliance.
- (2) The Contractor shall, for contracts where more than two contractors are working in close proximity, establish a safety co-ordination system to liaise amongst the sub-contractors and to maintain a safe working environment.

13 **Reporting**

- (1) In addition to the requirements of the relevant clause in General Conditions of Contract, the Contractor shall complete any other forms as the Commissioner for Labour may require including, but not limited to, forms requesting supplementary information used by the Labour Department for the purpose of accident analysis. Copies of such forms should be made available for inspection by the Engineer upon request.
- (2) Further to sub-clause (1) above, the Contractor shall notify the Engineer immediately of any accident/incident occurring on the Site or related to the Works involving dangerous occurrence or death or serious personal injury or with worker(s) admitted to the hospital. The initial notification may be made verbally. A written notification with details shall be made within 24 hours of the occurrence of the accident.
- (3) The Contractor shall then investigate the incident/accident and complete any further report as may be required by the Engineer on the detailed cause of the accident or dangerous occurrences, measures to prevent recurrence and complete standard forms provided by the Engineer to enable the Employer to prepare an up-to-date database on site accident statistics.
- (4) The Contractor shall submit a monthly report for consideration at the monthly progress meeting with the Engineer. It shall be prepared by the

Safety Officer and duly endorsed by the Site Agent, to the Engineer containing the following information:

- (a) all accidents involving dangerous occurrence, death, personal injury irrespective of severity or damages to properties in or adjacent to the Site,
 - (b) results of any Labour Department's inspections, advice, warning, Improvement/Suspension Notices and prosecutions,
 - (c) proposed training programme for the next month and training carried out in the previous month,
 - (d) a list of all competent persons and a summary record of all examination and test certificates required by any legislation or the Contract, and
 - (e) Safety Officer's inspection reports, reports on follow up action taken on irregularities identified during safety inspections, and safety audit reports on the implementation of the Contractor's site safety obligations set out in the Contract.
- (5) Within 14 days from the request of the Engineer, the Contractor shall submit a written report to explain the high accident rates and to propose measures to improve the safety performance of the Site.
- (6) Further to sub-clause (2) above regarding incident/accident with hospitalization of worker(s), the Contractor shall notify the Engineer's representative immediately when the injured worker(s) has been discharged from the hospital, by provision of the relevant medical certificate or report with declaration detailed in paragraph 9.3.5 of Chapter 9 of the Construction Site Safety Manual.

14 Further Safety Measures

- (1) Safety, rescue and health matters shall be given a high degree of publicity on the Site. The Contractor's safety policy statement, emergency procedures and any rescue organisation shall be made known to all persons on the Site. Such information shall include an emergency telephone list including the names and contact telephone numbers (such as mobile phone number and pager number) of at least two key members

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of the Contractor's emergency organisation, and the telephone numbers of the appropriate divisional police, fire and ambulance stations, utility undertakers, Labour Department's Operation Division and Marine Department. Copies of the above information and safety posters, in Chinese and English languages, shall be displayed at prominent places on the Site. A notice board shall be erected near the entrance of the Site for the display of safety posters, up-to-date accident records and the names of the Safety Officer and the Site Agent.

- (2) The Contractor shall ensure that all tools, plant, equipment and temporary facilities and all other items used in carrying out the Works how-so-ever provided are in a safe, sound and good condition, are capable of performing the functions for which they are intended, and where required by the law or by the relevant codes of practice, are licensed and/or have been issued with the necessary permits for use.
- (3) Not used.
- (4) Not used.
- (5) Fences and/or nets of adequate strength shall be provided along all edges where workers may be liable to fall into water. If it is not possible to provide such fences and nets, persons working over or immediate adjacent to water shall wear a life jacket or a suitable buoyancy aid or a personal fall arrestor (as is appropriate) when so working. If there is a risk of the personnel becoming unconscious after falling into water, the life jacket shall be a self-inflatable type of the appropriate buoyance.
- (6) If required by the Contract, the Contractor shall provide a suitably equipped and dedicated rescue launch, manned and available whenever work is being carried out on or over water. Adequate rescue equipment and personal protection equipment (PPE) shall be provided and maintained according to the manufacturer's specifications and recommendations.
- (7) Alcoholic drinks and other substances which may impair judgement shall be prohibited from the Site. The Contractors shall remove any person under the influence of such substances from the Site immediately.
- (8) Personal protective equipment provided by the Contractor for use in confined spaces and for protection against falling from height shall be

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full-body type safety harnesses with suitable lanyards. Safety belts shall not be permitted except for use as a means of positioning to restrict horizontal movement. The Contractor shall also provide secure anchorages for the attachment of safety harnesses/safety belts.

- (9) Permit-to-work systems shall be implemented to control access to hazardous areas or the carrying out of any hazardous operations including, but not limited to, hot work, electrical work, work in confined space, maintenance of material hoist, area or operation liable to release of flammable or toxic liquid or gas, etc.
- (10) All lifting gear including slings, shackles and such like equipment shall be colour coded for identifying lifting gear which require re-inspection or disposal. Details of the colour coding system can be obtained from the Engineer or his Representative.
- (11) All material hoists installed shall be fitted with fail-safe interlocking hoistway gates such that the driving mechanism is operable only when all gates are closed and latched; and hoists shall not be operated manually when one gate is opened. A single channel communication from the user to the operator of the hoist shall also be provided.
- (12) All persons engaged in works with risks of receiving foot injuries including but not limited to pneumatic drilling work and manual handling work shall be provided with safety boots when they are engaged in such works. The cost of provision of safety boots shall be deemed to have been allowed in the Contract Rates. Safety boots shall comply with BS EN 345-Part1, BS 345-Part 2 or equivalent standards.
- (13) Further to the requirements under the Factories and Industrial Undertakings (Noise at Work) Regulations, the Contractor shall provide approved ear protectors to all persons working on the Site who are exposed to noise level of 90 dB(A) or above.
- (14) The Contractor shall keep a register of all dangerous substances including those hazardous to health which are delivered to and stored for use on the Works. The register shall include information on :
 - (a) their physical and chemical properties,
 - (b) hazards,

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- (c) safe handling and storage,
- (d) precautionary measures to be taken, and
- (e) first aid measures,

extracted from the manufacturers' material safety data sheets.

- (15) Receptacles with full containment on four sides to prevent the falling out of materials shall be used for the lifting and transportation of reinforcement links, stirrups, short pieces of splice or reinforcement U-bars, couplers and the like. The safe working load shall be marked on the receptacle after being tested by a competent examiner. The colour coding system for lifting gear shall also apply to these receptacles.
- (16) The lifting of reinforcement bars shall be by the use of wire slings. No cradles shall be used for the lifting of reinforcement bars unless they are properly designed and with their safe working load certified.
- (17) Roads and footways below suspended precast concrete/steel segments or the like, shall be closed until such time the segments are secured in their permanent locations unless measures are taken to the Engineer's satisfaction to prevent the segments from falling in the event of the failure of the equipment used to suspend the segments. The Contractor shall seek approval from the relevant authorities for the closure of the concerned sections of roads and footways. Adequate measures including the use of barricades and warnings shall be provided to ensure that no person shall inadvertently enter the area below any suspended segments.
- (18) Construction vehicles and plant used on Site shall be equipped with audible signals on reversing. Other form of warning signals and/or banksman shall be provided as necessary to guide such reversing movements if audible signals are causing nuisance to nearby residents particularly at night. For quarry operations, no person shall operate or drive any mechanical equipment at or near the edge of any face, side, tip or embankment in a quarry unless a banksman is in attendance.
- (19) Where there are more than one tower cranes operating within the Site and there is a possibility of overlapping crane movements, the

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Contractor shall develop, implement and maintain a safe system of work to prevent the overlapping of tower cranes lifting operation. The system shall include, but not limited to, the following:

- the provision of a warning system in the form of light and/or sound to alert the crane operator of the approach of cranes in the overlapping area;
- the appointment of Overlapping Area Lapping Supervisor (OALS) to co-ordinate and control the lifting operation in the overlapping area or the provision of an automatic control device to prevent the occurrence of overlapping situation;
- the provision of adequate buffer zone on both sides to slow down the slewing movement of cranes Revision so as to prevent a sudden stop which might induce an inertia to the moving load; and
- regular inspection and maintenance of the warning system and automatic control device.

Appropriate measures shall also be implemented to address the possible overlapping crane movement for a mobile crane movement and a tower crane operating within the Site.

- (20) The Contractor shall actively organise safety promotional activities to promote and enhance the standards of health and safety on the Site. In addition, the Contractor shall also participate in other territory-wide safety promotional campaigns as instructed by the Engineer.
- (21) Protection to protruding steel reinforcement

The Contractor shall provide protection to protruding steel reinforcements which may cause impalement injury. The protection can be by means of reinforcement caps; dowel bar sleeves; covering of the protruding steel reinforcement by wooden or metal troughs, steel planks and angles; or other means as agreed by the Engineer. Depending on the actual conditions of the site works, protection to the protruding steel reinforcements locating at the areas non-accessible to the workers may not be required subject to the approval of the Engineer's representative.

(22) Wearing of chin straps attached to safety helmets

The Contractor shall ensure all persons on site to fasten the chin straps attached to their safety helmets when performing works to avoid accidental detachment of the safety helmets. Safety helmets shall comply with the “Guidance Notes on the Selection, Use and Maintenance of Safety Helmets” published by the Labour Department.

15 Electrical Safety

- (1) A Registered Electrical Worker (REW) of the appropriate grade under the Electricity Ordinance (EO) shall be employed by the Contractor throughout the Contract to handle the entire temporary electrical systems and installations on the Site.
- (2) Upon completion of the temporary electrical system (TES) and after each alteration/repair to the existing TES, the Contractor shall arrange his REW/Registered Electrical Contractor (REC) under the EO to complete an individual Work Completion Certificate (WR1) as required by the Code of Practice for the Electricity (Wiring) Regulations (COP) issued by the Electrical and Mechanical Services Department. If a REC is not employed, the Contractor shall then assume the responsibilities of a REC and sign on the WR1 together with the REW employed by the Contractor as per Code No. 19B(d) of the COP. Each of such Certificates shall include a circuit diagram clearly indicating which portion(s) of the TES is/are covered, and, where appropriate, other necessary supporting documents.
- (3) Temporary electrical installations, such as lighting fittings, distribution boards, socket outlets, plugs and cable couplers in outdoor or damp environment shall be of splash-proof type to IP 54 or above.
- (4) The sheath of all electric portable cables shall be of heavy-duty type or otherwise adequately protected against mechanical damage if laid on ground. They shall be hung overhead as far as possible. Ordinary PVC cables, if employed, shall be enclosed in metallic conduits or trunkings and properly maintained.
- (5) The Contractor shall develop checklists for carrying out regular routine

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inspections and checking and monthly comprehensive checking of the TES. The checklists shall be developed by the Contractor and agreed by the Engineer's Representative. Comprehensive checking shall include, but not be limited to, checking of temporary generators, functional test of earth leakage circuit breakers, integrity of cables and connections, measurement of earthing resistance and those items listed in Checklists Nos. 3 and 4 of the COP where appropriate. The checklist should be signed by the REW after each inspection and/or checking.

- (6) Adequate precautionary measures shall be adopted to ensure safety during inspection, repair and maintenance of the temporary electrical installations including the use of permit-to-work system and/or lock-off system. The Contractor shall establish and review regularly the maintenance programme and logging system for the TES.
- (7) The Contractor shall keep and maintain updated circuit diagrams, WR1 (complete with supporting documents) and records of inspection and checking of the TES by REW/REC in a dedicated file for inspection by the Engineer's site supervisory staff upon request.
- (8) During weekly safety walks and when requested by the Engineer's site supervisory staff, the Contractor shall open the cover plates of temporary electricity distribution boards for inspection of the conditions of the internal wiring and/or carry out testing immediately. Updated schematic circuit diagram shall also be affixed inside the cover of the temporary distribution boards.
- (9) All temporary electrical distribution boards shall be kept locked and accessible only by authorized persons appointed by the Contractor, e.g. REW and/or general foreman. Legible warning notices (Danger-Electricity) in both Chinese and English, names and telephone numbers of such authorized persons shall be posted on the temporary distribution boards.
- (10) For work carried out in occupied buildings, unless prior approval has been obtained and proper and safe arrangement has been made, the Contractor shall not connect his fixed electric equipment directly to any existing permanent distribution boards. Such connection shall only be made through temporary distribution boards equipped with proper protective devices.

- (11) All arc welding machines and electrode holders shall comply with BS 638 : Part 7, IEC 60974 – 1 (or BSEN60974 – 1) and BS EN 60974 – 11 or equivalent standards. The welding machines should be fitted with no-load voltage reducing device for protection against electric shock at the output side. Welding machines shall be enclosed and the metal casing shall be effectively connected to earth. Cable terminals of the welding machines shall be effectively insulated.

- (12) All hand-held electrical tools and portable equipment (e.g. submersible pumps), whether they belong to the Contractor or sub-contractors of all tiers, Nominated Sub-contractor or Specialist Contractors under domestic sub-contract, shall be examined by the REW before they are used on Site. The examination shall include visual inspection for the general conditions of the tools and equipment and also tests for checking the functional, protective conductor continuity, polarity and insulation aspects. After passing the examination, all hand-held tools and equipment shall be registered and recorded. Identification labels showing the registration number, type of the tool, name of the owner and date of examination stamped with the Contractor's company chop shall be affixed to these tools and equipment. Re-examination of the registered hand-held tools shall be carried out at 3-month intervals or each time after repairs to damages.
 - (13) Voltage in excess of 110V shall only be used for heavy equipment such as hoists, tower cranes, etc. with an earth leakage circuit breaker installed and in proper function. Portable and hand-held tools and temporary site lighting shall be operated at a voltage of 110V or less supplied from a step-down transformer with its output winding centre-tapped to earth and comply with BS EN 61558-1 and BS EN 61558-2-23 or equivalent. All cables shall be terminated within the transformer enclosure of Class I and IP55 and the outgoing circuit shall be provided with short circuit protection. In confined and damp environment, the voltage of temporary lighting and hand-held tools shall not exceed 25V.

16 Workplace Amenity

Workplace Sheltered Rest Area

(Note: It is recognized that the feasibility of providing workplace sheltered rest area is dependent on the site conditions, such as site area available for the purpose, scattering of the sites, etc. It is therefore proposed that the project office should decide whether workplace sheltered rest area shall be provided based on the conditions of the particular contract. Nevertheless, project office is encouraged to provide workplace sheltered rest area as far as possible for the welfare of the workers. In this connection, if the project office decides not to provide sheltered rest area under the contract, exemption of the provision shall be approved by an officer of D2 level or above, and the reason(s) should be properly documented in file.

If workplace sheltered rest area is to be provided, the following particular specifications shall be included in the contract.)

- (1) The Contractor shall provide workplace sheltered rest areas for use by workers irrespective whether they are employed by the Contractor or his sub-contractors. The sheltered rest areas shall be able to provide sun shade and wind screen for the workers.
- (2) Workplace sheltered rest areas shall be located at convenient locations close to working places of workers for them to take rest break or meal break. The rest areas should be provided with seats and tables, hand-wash facilities, rubbish bins, drinking facilities (*other facilities to be specified by the project office*) and with proper ventilation. The Contractor shall be responsible for maintaining cleanliness and hygiene of the rest areas.
- (3) The Contractor shall provide adequate number of workplace sheltered rest areas taking into account the number of workers and their locations on the Site. The Contractor shall submit the proposal for these rest areas including their sizes, locations, layout, facilities to be provided for approval of the Engineer's Representative. The approved workplace sheltered rest area proposal shall be reviewed and updated by the Contractor as required by the Engineer's Representative.

17 Measures for Working in Hot Weather

- (1) The Contractor shall set up a hot weather safety and health system for workers in accordance with the latest version of the "Guidelines on Site Safety Measures for Working in Hot Weather" issued by the Construction Industry Council (current edition of the Guidelines is Version 2 published in April 2013).

18 Not used.

19 Safety Measures of Trenches and Excavation

- (1) The Contractor shall observe and comply with the relevant requirements under the Construction Sites (Safety) Regulations (Cap. 59I) and the Electricity Supply Lines (Protection) Regulation (Cap. 406H) when the works activities are carried out in the vicinity of electricity supply lines. He shall follow the practical guidance detailed in the Code of Practice which has been prepared by the Electrical and Mechanical Services Department (EMSD). Further to the requirements under the Electricity Supply Lines (Protection) Regulation, the Contractor shall comply in particular with the following safety measures with regard to trench and other excavation works:
 - (a) Before the commencement of any excavation work, sufficient information shall be obtained from the utility undertakings and by inspection pits or, if agreed by the Engineer, by other means including referring to the investigation data obtained from the Engineer to verify the locations of underground installations.
 - (b) A competent person approved by the Electrical and Mechanical Services Department shall be appointed to locate the alignment and depth profile of all underground cables in the areas irrespective of the excavation depth.
 - (c) Ensure that any underground cable alignment and depth profile as identified by the competent person in the area are clearly marked on the ground.
 - (d) Excavation shall be carried out by trained and experienced workers who shall be fully informed of the possible dangers and safety precautions, before work is commenced.
 - (e) Hand digging method shall always be employed as part of trench / open cut excavation where there are utilities adjacent to or within the trench / open cut excavation works. Portable mechanical tools may be used but shall be restricted to the breaking of the pavement surface. Due care shall be exercised to prevent damage to the underground cables, water pipes, gas pipes or other utility installations. The Contractor shall adopt his

own working method to overcome the obstruction encountered by utilities in trench /open cut excavation, including but not limited to the excavation by hand digging. The Contractor shall adopt hand digging or other method in trench excavation instead of awaiting diversion of utilities unless the obstruction is substantial which covers more than half width of a trench and extends more than 10 metres. Adequate utility support works shall be carried out so that safety of working underneath utilities can be achieved and the damage or disruption to utilities can be avoided. Safety measures shall be adopted for the hand digging work.

- (f) Exposed utility installations shall be adequately supported and protected from accidental damage. The requirement /recommendations by Joint Utilities Policy Group (JUPG) shall be followed. “Detailed Requirements on Support of Utility Services” published by JUPG shall be complied with. The Contractor shall be responsible for liaising with and seeking approval from the relevant utility undertakings in relation to the handling or supporting of utilities. The Contractor shall liaise and seek approval from relevant utility undertaking if any requirements are proposed to be relaxed or waived for the construction. The Contractor shall be entitled to no claim for extension of time or payment in any form for complying with such requirement / recommendation and/or delaying in making liaison or seeking approval.
- (g) Smoking and use of naked flames shall be prohibited if gas pipes are present.
- (h) The side of an excavation shall be properly shored and adequately supported so as to avoid dangers arising from dislodgement of earth or other materials and instability of adjacent buildings/structures/services.
- (i) Every excavation shall be examined by a competent person daily who shall submit to the Engineer’s Representative a report, in the format to be agreed by the Engineer, stating the safety and stability conditions of every excavation and its supporting structures. Work in the excavation shall not be carried out unless

the written report of the examination shows that the excavation and its supporting structures are safe and secure.

- (j) No materials, plant or other loads shall be placed or stacked close to the edges of an excavation.
- (k) Ready means of evacuation shall be provided for the workers to escape from an excavation in the event of emergency.
- (l) Suitable barriers shall be provided to the edges of an excavation.
- (m) When temporary covers/decking to the trenches and barriers at the edges of excavation are being installed, the Contractor shall ensure that they are safely and securely installed at all times, especially during adverse weather conditions, and shall be flush and continuous with the surrounding carriageway and pavement.
- (n) The site with excavated trenches or pits should be securely fenced off with notices posted to warn on danger and against trespassing. Should there be any possibility of ponding of water, life saving rings should be placed at the edge of excavation for emergency use.

20 Site Traffic Safety Management Plan

- (1) The Contractor shall prepare, update and submit to the Engineer the Site Traffic Safety Management Plan (STSMP) for the Works under the Contract. The STSMP shall be submitted within 42 days after the commencement of the Contract. They shall be updated monthly and whenever there are significant changes to the conditions of the Site. The STSMP shall be discussed in the Pre-work Exercise and Safety meetings, daily/weekly safety coordination meetings, where appropriate. The STSMP shall include the following:
 - (a) risk assessment associated with the site traffic;
 - (b) safe working procedures;
 - (c) safety training for site personnel;
 - (d) site traffic layout design and safety measures with due consideration to planning of traffic routes such as designing

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routes of traffic and ingress and egress points for vehicles; minimizing the movements of vehicles and mobile plant, and reversing movements of vehicles; designating loading and unloading areas; providing facilities such as segregation of pedestrian and vehicular traffic and pedestrian crossing points to facilitate safe movement of personnel within the Site; and imposing speed control measures;

- (e) site traffic layout plans which provides traffic layouts for the Site and related haul roads;
 - (f) an assessment on feasibility of installation of reversing video devices or other reversing safety devices, and preparation of implementation plan; and
 - (g) an inventory of vehicles and mobile plant which lists out the type, model and statutory certificates of the vehicles and plant being used in the Contract.
- (2) The Contractor shall display the site traffic layout and the safety measures on the safety bulletin board at the prominent location on the site.
- (3) The Contractor shall take note of the “Publication No. 3 – Guidelines on Safety of Vehicles and Mobile Plant on Construction Site” published by the CIC in preparing the STSMP.

21 Not used.

Amendment 5

22. Not used.