

## ENVIRONMENTAL, HEALTH AND SAFETY (EHS) CONSIDERATIONS

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## ENVIRONMENTAL, HEALTH AND SAFETY (EHS) CONSIDERATIONS

### 1. General

- 1.1. The supplier shall comply with all applicable legislative environmental, health and safety (EHS) requirements of Singapore including any new acts and regulations which may be gazetted during the period of the Contract including any amendments or re-enactments thereto.
- 1.2. The supplier shall comply with all the EHS requirements contained in this Specifications and supporting documentation, even where these impose a higher standard than that required by current Singapore legislation.
- 1.3. Tool-Box Meetings shall be carried out for each work shift to ensure that involved person who may be exposed to a risk to his or her safety and health due to the work is informed of the nature of the risk involved and any measure or safe work procedure required during that specific work shift.
- 1.4. The supplier shall instruct all its employees and sub-suppliers to recite Client's EHS policy statement at every tool-box meetings. The EHS policy Statement is as follows:

We are committed to environmental, health & safety through the followings:

**I**NTERVENE to pre-empt and prevent ill-health and injury

**C**OMPLY with applicable legislations

**A**DOPT best practices and continually improve the environmental, health & safety standards

**R**ESPONSIBLE for caring for the environment, guests, staff and anyone who may be affected by our work

**E**DUcate on environmental protection and occupational health & safety

- 1.5. The supplier shall be responsible for the EHS of all operations in connection with the Contract and shall take all necessary actions to ensure the safety and health of all persons who may be on or adjacent to the work location.
- 1.6. The supplier shall be responsible for ensuring that its suppliers and all persons entitled to be on the workplace in connection with the Contract to comply with all relevant legal and contractual requirements and shall enforce its compliance.

### 2. Method Statement, Risk Assessment and Safe Work Procedures

- 2.1. The supplier shall identify all safety and health critical activities and ensure that a method statement is prepared for each activity and submitted to Client before commencement of such activities. Risk assessments and safe work procedures conforming to the Risk Management (RM) 2.0 guidelines shall be submitted with all method statements.
- 2.2. The supplier shall address all comments on the method statement arising from Client's review. The Supplier shall fully comply with the method statement approved by Client. If there is any intention to change the method of work, the Supplier shall seek approval from Client.
- 2.3. The supplier shall maintain a record of risk assessments conducted, including any control measures taken or to be taken and any safe work procedures.

2.4. The supplier shall ensure all risk assessments and safe work procedures to be adequately briefed in relevant languages and disseminated to all relevant person prior to the work commencement. Records of such briefings shall be submitted to the Client person-in-charge prior to the work commencement.

### **3. Permit-to-Work (PTW)**

3.1. The supplier shall implement a permit-to-work (PTW) system as required by legislation or Governmental Authorities and the Law, in compliance with the industry best practices.

3.2. The PTW shall be valid only for the work shift unless otherwise agreed upon by client. No work shall be carried out without a valid PTW issued by designated manager who has control over the work.

3.3. The supplier shall ensure all risks and risk control measures addressed in the PTW to be adequately briefed in relevant languages and disseminated to all relevant person prior to work commencement.

### **4. EHS Training**

4.1. The supplier shall ensure provision of necessary EHS training under the statutory regulations and requirements, including training mandated by the Workplace Safety and Health Act and subsidiary legislations to its employees and suppliers, or as directed by client. The Supplier shall keep records of all training conducted and submit the same to Client when so requested.

4.2. The supplier shall ensure that no person, including its sub-suppliers, carry out works prior to the completion of necessary EHS training and obtaining a security pass. The Supplier shall ensure that training information is given in languages understood by the trainees. In addition, the supplier shall have a system to clearly identify new employees and workers for their initial thirty (30) days working in Client PREMISES.

4.3. The supplier shall employ qualified operators for all machinery to be used in client's premises. For machinery where there is no skilled training available in Singapore, supplier shall engage the provider of the machinery to train them and authorize them in writing. Examples of qualified operator include, but not limited to: welder, excavator operator, forklift operator and crane operator.

4.4. The supplier shall ensure that all person and in particular new person, or person transferred to new assignments are given proper EHS training relevant to their duties.

4.5. The supplier shall implement an identification system to clearly identify all the qualified person and operators.

### **5. Accidents and Incidents Reporting**

5.1. Notwithstanding the reporting requirements of the legislation and the insurance specification, supplier shall notify client of any accident, incident, dangerous occurrence, occupational disease and near miss associated with this contract. Verbal notification shall be made to the client person-in-charge immediately and followed up by written notification within 24 hours.

5.2. The supplier shall propose remedial measures to prevent recurrence of the accidents, incidents, dangerous occurrence, occupational disease and near miss to the satisfaction of the Client person-in-charge.

5.3. The supplier shall submit photos, sketches and evidences related to the incident, accident or near miss in soft and hard copies as deemed necessary to the satisfaction of the client person-in-charge.

### **6. Personal Protective Equipment (PPE)**

- 6.1. The supplier shall provide, maintain and enforce the usage of PPE required for all its employees and suppliers working in Client Premises. The applicable PPE but not exhaustive are:
- a. Industrial safety helmets with chin strap conforming to EN 397.
  - b. Safety footwear with steel toe cap and steel sole plate conforming to
  - c. High visibility vest/ clothing conforming to BS EN 471.
  - d. Work positioning and restraint system for fall prevention conforming to
  - e. Personal fall arrest system conforming to EN 363.
  - f. Respirators/ dust masks conforming to SS548 shall be provided for activities generating airborne contaminants, or in conditions with presence of airborne contaminants.
  - g. Respiratory equipment. Open-circuit self-contained compressed air diving apparatus. Requirements, testing and marking conforming to EN 250
  - h. Personal eye protection conforming to EN 166 and EN 207 against exposure to laser.
  - i. Hearing protection conforming to EN 352-2.
  - j. Protective gloves against chemicals and micro-organisms conforming to EN 374.
  - k. Protective gloves against mechanical risks conforming to EN 388.
  - l. Protective gloves. General requirements and test methods conforming to EN 420.
  - m. Protective clothing for chainsaw users conforming to EN 381.
  - n. Helmets for pedal cyclists conforming to EN 1078.
- 6.2. The Supplier shall maintain and update all PPE issuance records. A PPE maintenance regime shall be established and implemented. Such records shall be made available for inspection at all times.
- 6.3. The Supplier shall ensure that all equipment is properly used by its employees and suppliers during the course of their work.

## **7. EHS Inspection**

- 7.1. The supplier shall carry out internal EHS inspections at least once per work shift to ensure all required risk control measures are in place and effective during the course of their work.
- 7.2. Inspection of side supports of excavations and trenches, cranes, formworks and scaffolds should be carried out after any episode of inclement weather which may affect their stability/ integrity.

## **8. Maintenance Regimes**

- 8.1. The supplier shall assess the EHS risks especially in terms of age, noise, emissions, condition etc. associated with the equipment or tool and only those assessed with minimal EHS risks shall be brought to Client Premises.
- 8.2. The client person-in-charge shall stop the equipment or tool from operation or require its removal if he or she finds the EHS associated risks to be high. Supplier shall not be entitled to any claim for compensation or extension of time for completion.
- 8.3. The supplier shall implement a preventive maintenance program to ensure that all equipment and tools are maintained in a safe and working order.
- 8.4. The supplier shall implement a lockout and tag-out system in accordance with SS 571 : 2011, Code of practice for energy lockout and tagout.
- 8.5. The supplier shall implement an inspection program conforming to applicable standards and manufacturer guidelines. All equipment and tools that have undergone repair or maintenance shall be inspected and checked before returning to service. Stickers or tags shall be displayed to indicate its approval for usage or "Not for Use".
- 8.6. Job-made or modified tools of any kind shall not be used in Client Premises.

## **9. Hazardous Substances and Chemicals**

- 9.1. The supplier shall assess the Safety Data Sheets (SDS) of all the hazardous substances and chemicals prior to its entry to Client Premises for its suitability in terms of EHS hazards and consider safer alternatives.
- 9.2. The client person-in-charge may require the removal of any hazardous substance or chemical if there are safer alternatives. In such events, the Supplier shall not be entitled to any claim for compensation or extension of time for completion.
- 9.3. The supplier shall ensure that all hazardous substance or chemical containers are labelled; its movement is recorded and returned to the designated storage areas when not in use.

## **10. Temporary Electrical Installations**

- 10.1. The supplier shall obtain licenses for using electrical power from their own generating sets. All temporary electrical installations, equipment and tools shall be checked and certified safe for use prior to usage in Client Premises by a Licensed Electrical Worker (LEW) and thereafter monthly and after any repairs. The LEW shall provide a sticker on the equipment and tools indicating the date on inspection and is safe for use.
- 10.2. A current photograph of the LEW(s) and the contact number(s) shall be displayed on the outside of all boxes containing electrical DBs and equipment for ease of reference. Letter of Appointment for the LEW(s) shall be submitted to Client when so requested.
- 10.3. The supplier shall ensure that all portable electrical appliances used in client premises such as hand-held tools and inspection lamps, are rated at 110 volts AC via a step-down transformer centre tapped to earth (CTE).
- 10.4. The supplier shall ensure that all generators and welding sets used in Client Premises are adequately and effectively earthed at all times during operation.

## **11. Storage Licence for Petroleum and Flammable Materials**

- 11.1. If the supplier intends to store petroleum and flammable materials in Client Premises, it shall obtain a storage licence from SCDF and a copy of the licence shall be submitted to Client person-in-charge.
- 11.2. The supplier may store petrol up to a maximum volume of 5 litres in Client Premises provided that it is kept in a safe and suitably constructed store which is licensed by the Fire Safety & Shelter Department of the SCDF.
- 11.3. All diesel stored in Client Premises shall be kept in drums or in bulk tanks which in either case shall be located at a designated place away from any sources of ignition or open drain which does not lead to an interceptor, and shall be properly labelled. A "No Smoking. No Open Flames" sign shall be displayed at the storage location and a charged fire extinguisher of correct type kept on standby.
- 11.4. All bulk diesel tanks shall be properly supported in an elevated position to facilitate gravity discharge. They shall stand within a bund constructed to contain a volume of 110% of the volume of the tank. There shall be no breaches in the bund wall, no material shall be stored within the bund and rain water collecting in the bund shall be regularly removed to prevent build-up. The inner face of the bund wall shall be coated with a chemical resistant material. A chemical resistant valve, which shall be closed at all times, except for releasing rainwater into a storm water drain via an oil intercepting system, shall be installed at the outlet situated outside the bund, in accordance with the National Environmental Agency (NEA) Code of Practice on Pollution Control. SCDF licence shall be applied for such storage.

- 11.5. All drums of diesel in Client Premises shall be in good condition and shall be kept closed with a lid/ cap when not being used. They shall be stored on end with the lid/ cap uppermost and kept within a tray of sufficient volume to contain the contents of the largest drum in the case of accidental rupture, taking into account the presence of the other drums within the tray.
- 11.6. Drums of diesel shall not be rolled along the ground. They shall be transported vertically chained on a trolley; or by a forklift fitted with a drum handling device and not standing unsupported on the forks or on a pallet; or by crane using a safe rigging technique.
- 11.7. Diesel shall be transferred from the storage drum to another container, or to the tank of machinery using a hand pump whenever practicable and at all times a drip pan must be provided. Where the diesel container is light enough to be lifted by one person it can be poured out by hand, using a funnel to guide the liquid.
- 11.8. The supplier shall provide Oil-Fuel Spill Kit to mitigate spillages of diesel or related flammable liquids. Any spillages of diesel or related flammable liquids shall straight away be absorbed using sand or other absorbent materials, which shall be disposed of as contaminated waste. On no occasion should diesel be allowed to enter Client Premises drainage system unless this is connected to an interceptor prior to the waste being discharged into the public sewer system.

## **12. Emergency Preparedness**

- 12.1. The supplier shall brief all its employees and suppliers on Client's emergency response plan and ensure their competency in the emergency response procedures required by them.
- 12.2. When required, the Supplier shall ensure all its employees and suppliers to take part in Client's table top exercises and emergency exercises/ drills.
- 12.3. The Supplier shall put in place a written rescue plan to ensure all its employees and suppliers who are using personal fall arrest system can be rescued as soon as practicable.

## **13. Work in Confined Spaces**

- 13.1. Where practicable the Supplier shall ensure that there are at least two readily accessible escape routes from each confined space. Confined Space Attendant (CSA) shall be present at access points for monitoring purposes at all times. The CSA shall hold a competent certification and trainings to perform his or her duties safely.
- 13.2. The supplier shall operate a tag system for entry so that all personnel entering the confined space can be accounted for.
- 13.3. The supplier shall ensure a stretcher which is capable of being brought manually out of the confined space to be located at a convenient point.
- 13.4. Gas monitoring shall be conducted by a competent confined space assessor to certify that the confined space is safe for workers to enter and thereafter at every four (4) hours intervals. Gas monitoring calibration shall be done on monthly basis and calibration records shall be kept.
- 13.5. Confined space ventilation systems shall be provided of ventilation speeds and equipment calculated and deemed adequate by Professional Engineer. The energy source of ventilation systems shall be of independent supply to prevent sudden ventilation disruption.
- 13.6. The supplier where necessary shall ensure "Fit Testing" for all personals to ensure suitable and safe respiratory protective devices are provided and checked prior to entry into a confined space.
- 13.7. The supplier shall ensure that suitable atmospheric monitoring devices such as anemometer and wet/ dry bulb thermometer are made available for the competent

confined space assessor to determine the air flow, ambient temperature and humidity level within the confined space.

#### **14. Excavations**

- 14.1. The supplier shall appoint sufficient number of banksman to coordinate excavation activities. The banksman shall be appointed in writing and should be competent for his or her duties. The banksman shall be properly identified and have overall control of the excavation works.
- 14.2. For excavations exceeding 4 metres in depth, the Supplier shall appoint at least one banksman within 30 metres length of excavation. If deemed necessary by Client person-in-charge, the Supplier shall appoint additional banksman.
- 14.3. Communication in the form of walkie-talkie sets shall be established between the banksman and the excavator operators. The banksman shall be equipped with a loud hailer with siren function to communicate during emergency. No one shall be within any excavator's swing radius.
- 14.4. Excavators within the excavation pit shall have suitably reinforced cabin roofs capable of withstanding impact from falling objects from the top of the excavation.
- 14.5. For excavations exceeding 2 metres in depth, the Supplier shall ensure effective guard-rails and toe-boards are provided to prevent falls and falling objects.

#### **15. Lifting Operations**

- 15.1. The supplier shall be responsible for ensuring that all lifting operations carried out in Client Premises and any lifting machines, appliances and gears brought into Client Premises are done so with minimal risk of injury to persons including members of public or damage to property.
- 15.2. Effective control must be exercised at all stages of a lifting operation through the deployment of a competent and authorised lifting supervisor, signalman, rigger and a registered crane operator.
- 15.3. All lifting machines, appliances and gears used in Client Premises must be suitable and safe for the task, used within their rated safe load capacity and must be of good construction, sound material and free from patent defects.
- 15.4. The supplier is to submit a specification list for all lifting machines before deploying them in Client Premises detailing their ownership, make, identification number, maximum safe working load and the corresponding radius, lifting machine certification number and date of expiry.
- 15.5. No excavator shall be used as a lifting machine on site unless it is originally designed and manufactured to also function as a lifting machine and comply with all MOM stipulated requirements.
- 15.6. The supplier shall ensure that Lifting Plan and Permit to Work System for Lifting Operation are implemented for all lifting operations before work commencement.
- 15.7. Lifting supervisor shall wear brown safety helmets and green reflective vest with identification tags.
- 15.8. Rigger/ signalman shall wear red safety helmets and red reflective vest with identification tags.

#### **16. Lifting Machinery**

- 16.1. The supplier shall ensure that before any lifting machine, including lorry crane, is brought into use in Client Premises the labels on all controls, the details on the safe working load radius chart and any other safety related notices in the cab or on the body of the machine shall be written in English as well as in a language comprehensible to the crane operator.

- 16.2. The supplier shall ensure that no lifting operation shall be carried out on site using the auxiliary hook of a mobile crane unless its safe working load (SWL) is shown on the Lifting Machine Certificate in addition to that of the main hook block and is not exceeded.
- 16.3. The supplier shall ensure that both the lifting supervisor and the crane operator are able to understand the working load chart. No lifting machine over 15 years shall be operated in Client Premises regardless of its intent of use. All mobile cranes shall be fitted with rear view camera for safe rear monitoring.
- 16.4. Cranes fitted with a load radius indicator (LRI) shall sound an audible alarm in the crane cab if its safe working load is exceeded on either the main or the auxiliary hook. A second alarm connected to the LRI, shall be fitted external to the cab and shall emit a signal of a sufficient volume to make it audible above the ambient site noise levels during working hours. Visual warning shall also be provided externally to indicate safe working range and overload conditions.
- 16.5. LRI shall be fitted with a limiting device, which disables the crane from continuing with any lifting operation under overload conditions. Once disabled, the device should only permit the crane to return to the safe working range. The device shall be tamper proof, with no over-ride to disable it, and shall be maintained in good working order. In case of provision of bypass switch for LRI, it shall be secured by a lock and kept with the lifting supervisor.
- 16.6. LRI shall be calibrated and maintained according to the manufacturer specifications and verified by the Authorized Examiner (AE) during his or her annually inspections to ensure good working condition.
- 16.7. If the crane is down rated by the AE during his or her annually inspections then the LRI shall also be calibrated and a new capacity chart should be drawn up and posted in the crane cab. The AE shall highlight the above details on the lifting machine certificate.
- 16.8. Lifting machine shall not be used for any unsafe operation that may affect its overall integrity or stability.
- 16.9. At least 24 hours before any crane is brought into Client Premises the Supplier must submit to the Client person-in-charge:
  - a. The lifting plan for the operation to be carried out.
  - b. A copy of the current lifting machine certificate for the crane.
  - c. A copy of the crane operator's MOM registration.
  - d. The name and the supporting documents of the lifting supervisor responsible for it.
- 16.10. Lifting operations involving lorry cranes shall take place over the side of the crane body and not in an arc over either the front or rear of the chassis, in accordance with safe working practices.
- 16.11. The supplier shall ensure that every lifting gear and appliance brought into Client Premises, including those accompanying rental cranes, has a valid lifting gear or appliance LG/ LA certificate and clearly marked with its SWL. All LG/ LA shall be inspected by an AE once every 12 months.
- 16.12. The supplier shall ensure that LG/ LA is not loaded beyond its SWL and this includes multi leg chain slings being used at variable angles.
- 16.13. The supplier shall ensure that LG/ LA is not used for any purpose other than the raising or lowering of a load.
- 16.14. If an item of lifting gear is inadvertently subjected to a force exceeding that it is designed to experience when lifting an object at its SWL then the supplier shall ensure that it is taken out of use.



- 16.15. The supplier shall implement an inspection programme to thoroughly check all LG/ LA by a lifting supervisor prior to its first use in Client Premises and thereafter on a monthly basis. Inspection register and checklist of the thorough check shall be submitted to Client person-in-charge. Defective LG/ LA shall be discarded.
- 16.16. Prior to use, the operators of lifting equipment and accessories shall perform a pre-use check in order to identify any faults in the equipment. This shall be a daily check at the start of each shift. Defective LG/ LA shall be discarded.
- 16.17. When not in use the supplier shall ensure that all items of LG/ LA are stored in a rack sheltered from the weather and maintained regularly. Should any LG/ LA be exposed to a corrosive material, it must be washed off afterwards and re-greased.
- 16.18. All mobile cranes shall be equipped with a data logger in accordance with EN 13000.

### **17. Lifting Supervisors**

- 17.1. The supplier shall ensure that a sufficient number of qualified lifting supervisors are employed in Client Premises, whether by itself or by its suppliers, to provide adequate supervision for all lifting operations carried out both by day and by night including loading/ unloading. There must be a minimum of one lifting supervisor to three cranes if they are co-located within a 50m diameter and carrying out routine lifting operations, and one lifting supervisor to one crane if it is geographically isolated or carrying out a heavy/ abnormal/ awkward lifting operation or operating near building/ public roads. In addition, the supplier shall also station at least one additional worker to assist signalman for lifting operations carried out near public areas.
- 17.2. Lifting supervisor shall supervise and coordinate all lifting operations under his or her charge. Lifting supervisor shall familiarise himself or herself with the safe working load chart of each crane for which he or she is responsible and has identified himself or herself to the operator of each such crane as being the only individual whose instructions concerning any lifting operation are to be followed. This includes the positioning of the crane prior to the lift as well as slinging of the load.
- 17.3. Prior to any lifting operation involving mobile crane, the lifting supervisor must satisfy himself or herself that the crane is positioned suitably close to the load and its destination to ensure that the operation can be carried out at the safest appropriate radius.
- 17.4. The lifting supervisor shall ensure that the load is safely rigged, and a tag line is attached before signalling to the crane operator to start the lift to control the load. The lifting supervisor is responsible for the load until it is safely resting at the intended destination either by taking control of the operation himself or herself for non-routine lifts or for routine lifting operations, by thoroughly briefing the crane operator, riggers and signalman on the safe work procedures to be followed.

### **18. Crane operators**

- 18.1. The supplier shall ensure all crane operators engaged are competent for the lifting operation.
- 18.2. The crane operator shall enter the date, types of maintenance carried out and any malfunction of the crane in a checklist or logbook. He shall not operate the crane until any such defect is rectified, and the crane's use is authorised by his lifting supervisor.
- 18.3. All cranes shall be checked by its operator at the start of any day/ shift using a checklist written in English and in a language comprehensible to the operator. Copies of the checklist together with the lifting machine certificate, operator certificate, permits should be retained in the crane cabin for verification.

- 18.4. The crane operator is to ensure that the outriggers are fully extended, and any adjustments made to the jacks to level the crane before lifting operation commences. Steel plates of minimum dimensions 1m by 1m by 25mm shall be placed under all the outriggers of any lorry cranes deployed for a lifting operation unless that crane is entirely sited on hard standing such as a reinforced concrete surface, with no void underneath. Pieces of timber are not to be used.

### **19. Lighting**

- 19.1. The supplier shall provide temporary illumination with lighting levels of not less than the values as specified in SS 531 part 3.

### **20. General Safety**

- 20.1. The supplier shall provide, put up, maintain and finally remove, when instructed, Danger, Warning, Caution or Information signs, located appropriate to Client Premises layout. The signs shall be of adequate size and written boldly to ensure prominence and clarity. These shall be put up on existing footpaths and at points of access likely to be used by the public to warn or inform them of the existence of the works. These notices shall be in addition to any notices required to be put up to meet the statutory requirements.
- 20.2. The supplier shall ensure that all roads, pavements and public footpaths are kept clear of waste materials, debris and dust.
- 20.3. Unless otherwise agreed, the supplier shall be responsible for the proper fencing, hoarding, lighting, guarding and watching of the works.
- 20.4. The supplier shall implement a buddy system for all employees and suppliers.
- 20.5. The supplier shall provide capping on all protruding starter reinforcement bars with individual plastic/ rubber caps or hose/ tubes.
- 20.6. The supplier shall ensure that horseplay, practical jokes, scuffling, wrestling or fighting are strictly prohibited in Client Premises.

### **21. Working at Heights**

- 21.1. The supplier shall provide safe and suitable access equipment for its employees and suppliers to carry out their works at heights safely and ensure safe use of these access equipment.
- 21.2. The supplier shall provide platform ladder of suitable height or other safe and suitable access equipment, instead of A-frame ladder, in the event where both hands are required to perform the works at heights.
- 21.3. All platforms, covers, ladders, stairways, staging, scaffolding and other provisions for access provided by the supplier shall be installed and maintained in compliance with current legal requirements and made available for use as early as possible. In cases where this is impracticable the supplier shall provide all necessary temporary access facilities which shall be constructed, installed and maintained in a safe and secure manner.
- 21.4. The supplier shall provide safe and suitable personal fall prevention or arrest system to employees and suppliers in the event where safe and secured foothold and edge protections are inadequate or impractical. The supplier shall ensure these systems are installed and maintained in compliance with current legal requirements and the safe use of these systems.
- 21.5. For works at heights where a person can fall from a height of more than three (3) metres, including falling into depths, the supplier shall ensure it is carried out safely by

implementing a Permit to Work (PTW) System for Working at Heights according to the requirements and format set by Client.

- 21.6. The PTW System for Working at Heights shall ensure all person involved are informed of the hazards associated and the precautions they have to take, and the necessary safety precautions are taken and enforced when the works at heights are being carried out. The PTW System shall be implemented for each work shift and a copy of the completed PTW System shall be submitted to Client person-in-charge.
- 21.7. The supplier shall appoint competent work at heights supervisor, work at heights safety assessor and authorised manager to apply, evaluate and issue the PTW respectively.
- 21.8. The supplier shall ensure that the appointed authorized manager review and assess the need to continue the work at height on a daily basis, and to revoke the permit-to-work issued in respect of the work at height if he thinks fit to do so.
- 21.9. Where industrial rope access system is used in Client Premises, the contactor shall ensure such work is carried out in compliance to WSH (Work at Heights) Regulations, and SS 508 Part 1 & 2 or equivalent. The contactor shall ensure immediate supervision by a competent industrial rope access and work at heights supervisor is provided at all times to ensure all necessary risk control measures are implemented and maintained effectively.
- 21.10. The supplier shall ensure every anchorage and anchorage line of the industrial rope access system is installed in accordance with the design and drawings of a professional engineer (PE).
- 21.11. The supplier shall ensure a competent industrial rope access and work at heights supervisor to inspect the industrial rope access system at the start of every work shift to ensure that it is in good working condition and is safe for use, immediately remove from service any equipment of the industrial rope access system which is found to be defective, and immediately enter the results of every inspection into a register, which shall be appended with inspection checklists for each critical component of the industrial rope access system.
- 21.12. The supplier shall ensure a copy of the PE endorsed design and drawings of every anchorage and anchorage line, and the inspection register and checklists of the industrial rope access system are submitted to Client person-in-charge.

## **22. Traffic Control and Road Safety**

- 22.1. The supplier shall provide, install and maintain all necessary traffic and directional signs, barriers, blinkers, rotating beacons, cones, lane markings etc. in accordance with the requirements stipulated in the Code of Practice for Traffic Control at Work Zone to guide and inform the public of works carried out at road area or any road lane closure. The supplier must observe the minimum clearance required between the working area and the trafficked carriageway and ensure that all plants and materials do not intrude into any area reserved for pedestrians, cyclists or other traffic.
- 22.2. The supplier shall provide a Traffic Marshal donned in bright green – yellow full uniform with reflective gloves and light strobes for enhanced visibility.

## **23. Spillage on Roads**

- 23.1. Washings from the wash bay shall be directed into a slit trap before its final discharge into a suitable outlet.
- 23.2. Preventive measures shall be taken to limit the incidence of earth droppings from earth moving vehicles. In the event that any earth dropping occurs onto a public road/ drain,

such earth shall be removed and the roads/ drains washed by the supplier at his own expense to the satisfaction of Client person-in-charge.

#### **24. Environment**

- 25.1. The supplier shall be responsible for all impacts on the environment from its activities. Such impacts include any form of pollution and excessive noise affecting those outside Client Premises boundary.
- 25.2. The supplier shall also be responsible for ensuring the health of the public who may be affected by its activities.
- 25.3. The supplier shall comply with all relevant Acts, Regulations and Code of Practice of Singapore including any amendments or re-enactment thereto including, but not be limited to, the followings:
  - Code of Practice on Environmental Health.
  - Code of Practice on Pollution Control.
  - Code of Practice on Surface Water Drainage.
- 25.4. Client person-in-charge may also require additional measures to be put in place if current measures are deemed insufficient.

#### **25. Air Pollution**

- 25.5. Any atmospheric pollution (in the form of smoke, fumes, vapours, dust and other pollutants) shall be effectively controlled. Air pollution control requirements such as the concentration and rates of omission of air pollutants shall be within legal limits.
- 25.6. Client person-in-charge reserves the right to request for a newer machine or an emission control device be installed if any machine is deemed to be producing excessive greyish/ black smoke.
- 25.7. All dusty operations must be adequately shielded and/ or arrested with water at point of impact.
- 25.8. Supplier shall ensure all drivers of motor vehicles to turn off engine while it is stationary to prevent vehicle left idling, for any reasons other than traffic conditions.

#### **26. Water and Land Pollution**

- 26.1. Diesel drums and chemicals shall be stored under shelter within concrete bund walls or in storage containers with good ventilation. Spill trays shall be provided for all drums, plants and machinery and potentially pollutive substances used in Client Premises. Spill trays shall be regularly maintained to prevent rain from washing out the pollutive substances.
- 26.2. A drainage system shall be provided to drain off all surface water from the worksite into a slit trap before its final discharge into a suitable outlet drain, canal, stream or river. Such slit trap provided shall be of adequate size and regularly desilted throughout the duration of the project.
- 26.3. Wastewater shall not be discharged into watercourses. Wastewater shall be discharged into sewers. Gully traps and wastewater drainage system shall be provided to drain wastewater into the sewerage system.
- 26.4. Quality of wastewater shall comply with the latest limits stipulated in the Trade Effluent Regulations (e.g. concentration of oil and grease in the wastewater shall not exceed 10mg/l for watercourse).
- 26.5. All activities involving repair, servicing, engine overhaul etc. shall be carried out in a covered area which shall be kerbed or provided with scupper drains to channel all wastewater into the sewerage system.

## **27. Rodent Control**

- 27.1. Use source reduction as the main form of rodent control. Food consumption and storage must be strictly restricted to designated areas where lidded rubbish bins are available.
- 27.2. Food must only be stored in rodent proof storage containers/ cabinets with at least 60cm clearance above the ground.
- 27.3. Pest control team should also look out for evidences of rodents and their burrows during their rounds.

## **28. Mosquito Control**

- 28.1. The supplier shall report to client person-in-charge as soon as possible if any employees or supplier found in Client Premises to be a carrier of Dengue Haemorrhagic Fever Virus, Chikungunya Virus, Zika Virus, Malaria or Japanese Encephalitis and remove them from client premises when required.
- 28.2. Existing watercourses or anti-mosquito drains in Client Premises shall not be obstructed or otherwise interfered with unless alternative approved drainage is provided.
- 28.3. All water bearing receptacles are to be collected and disposed at dumping grounds approved by the Ministry of the Environment and Water Resources.
- 28.4. Any ground depression collecting water caused by the supplier shall be filled in, drained or sprayed with oil to prevent mosquito breeding.

## **29. Waste Management**

- 29.1. All waste by the supplier shall be cleared up as often as may be necessary to prevent build-up and deposited/ stored in bins. The bins shall be removed from Client Premises and replaced/ emptied once they have been filled.
- 29.2. The supplier shall carry out effective sorting of waste materials in Client Premises. For example, a separate skip bins for wood waste; plastic waste; paper waste; metal waste; construction waste etc. (to recover inert, reusable and/ or recyclable portion.)
- 29.3. The system of sorting and temporary storage of waste materials shall include the followings:
  - Cardboards and paper packaging shall be recovered, properly stockpiled in dry and covered conditions to avoid cross contamination by other materials.
  - Metals shall be recovered for collection by recycling suppliers.
  - Excavated materials shall be sorted to recover inert portions (e.g. soil and crushed rocks) for re-use on site or disposal to designated filling areas.
- 29.4. Any toxic waste as listed in the Environmental Public Health (Toxic Industrial Waste) Regulations and this includes oil, shall be disposed of by an operator holding a valid toxic industrial waste collector's license.

## **30. Noise Control**

- 30.1. The supplier shall ensure that excessive noise is avoided at all times to protect guests, person and animals in Client Premises as well as public.
- 30.2. The supplier shall note that machineries, equipment and methods of work which cause excessive noise will not be allowed to be used on site. Client person-in-charge has the discretion to require the supplier to take necessary precautions, whether specified herein or not, to maintain or to repair such machineries and equipment or to instruct their removal from Client Premises when it is determined that the noise level generated from the works fails to comply with regulations and standards as stated in this annex.

- 30.3. It is the supplier's responsibility to ensure that machine/ equipment is maintained and operating to the standards indicated in their respective specifications.
- 30.4. The supplier shall comply with the latest requirement and regulations on the noise limits at workplace.
- 30.5. The supplier shall comply with the noise emission standards for all its vehicles, in accordance to the latest statutory regulations, i.e. NEA.
- 30.6. The supplier shall take into account the non-working restriction and the Client Premises layout in order to minimize noise as far as possible including but not limited to considering using materials as noise barriers etc.
- 30.7. While planning for the works, the supplier shall review the working hours and consider the effects of noise on person working in or around Client Premises as well as public within the proximity of Client Premises.

### **31. Earth Control**

- 31.1. The supplier shall implement the appropriate covers in order to minimize the extent of any exposed earth surfaces:-
  - Vegetation is retained within Client Premises.
  - Bare surface not covered by vegetation, is covered by erosion control blanket.
  - Paving used to prevent erosion.
- 31.2. The supplier shall ensure all excavated materials and soil are either removed from Client Premises or stored in proper containment by the end of the day.
- 31.3. Preventive measures shall be taken to limit the incidence of earth droppings from the earth moving vehicles. In the event that any earth dropping occurs onto a public road/ drain, such earth shall be removed by the supplier to the satisfaction of the Client person-in-charge.
- 31.4. No drain, public street or lane shall be obstructed by excavated material during the course of work.

### **32. Flooding Protection**

- 32.1. The contactor shall consider the risks of flooding due to nature or arising from the activities and propose relevant risk mitigating measures in its risk assessment where applicable.
- 32.2. When pumping is proposed, the supplier shall address the followings:
  - Operating procedures.
  - Provision of a secure power supply and back-up.
  - Automation and/ or reaction time to start up the pumps.
  - Method and arrangement of discharge.

### **33. Flooding Evacuation and Rescue Procedure**

- 33.1. The safety provisions to be put in place shall not be limited to providing of an emergency evacuation and rescue plan, trained rescue teams and water rescue aid or equipment. The trained rescue team and emergency procedure shall be in place before work commencement. The number of trained rescue teams and water rescue aid or equipment shall be increase when deem necessary by the client person-in-charge. The water rescue aids or equipment shall be properly maintained throughout the lifetime of the project.

### **34. Contaminants**

- 34.1. Soil samples at appropriate depths and spacing shall be taken for testing by a competent person to identify any contaminant present as well as monitoring of airborne

contaminants through air sampling when applicable. Soil contaminants to consider shall include, but not limited to, heavy metals and their derivatives, hydrocarbon compounds and asbestos. Airborne contaminants to consider shall include, but not limited to, methane (CH<sub>4</sub>) and other flammable gases.

- 34.2. The supplier must take all necessary precautions to prevent any person from being exposed to the risk posed by the contaminants.
- 34.3. It shall be noted that contamination can be caused by a range of different hazardous materials and by a mixture of concentrations and distributions. Contaminants can also migrate to adjacent areas via ground water.
  - Measures shall be taken in the design to alleviate the risks and describe those hazards that are not reasonably practicable to eliminate by design but must be controlled by the supplier and any other relevant party.
  - The supplier shall ensure that sufficient information is provided on the nature, extent and level of contamination and that all personnel entering the site shall be informed of the hazards and the precautions needed.
  - All permissible exposure limits shall be established and communicated.
- 34.4. Appropriate Personal Protective Equipment (PPE), which may include but not limited to waterproof safety boots and gloves when handling wet material, shall be provided for all personnel working in Client Premises when applicable.
- 34.5. Practical measures shall be implemented to control dust generation in Client Premises that may pose a possible hazard to those working in Client Premises as well as the public.
- 34.6. Air quality in Client Premises shall be monitored on a frequency deemed appropriate when applicable. Gases to be monitored include, but not limited to, methane (CH<sub>4</sub>) and other flammable and toxic gases, with emergency plans prepared in the event permissible limits are breached. A record of the daily monitoring is to be submitted to the Client person-in-charge weekly when applicable.
- 34.7. The supplier shall comply with all the statutory requirements as laid down by the National Environment Agency with regards to the disposal of contaminated waste material.
- 34.8. The supplier shall transport waste material directly from the excavation to the approved dumping ground and shall discharge the waste directly into position. No stockpiles of waste are allowed on site.

### **35. Time Restrictions**

- 35.1. Restriction on working hours shall be as stipulated by Governmental Authorities and/ or the Law, and prescription by the Client person-in-charge based on the nature and location of work.

### **36. Eating and Resting Areas**

- 36.1. The supplier shall clarify the location of the designated eating and resting areas with the Client person-in-charge and ensure adherence by its employees and suppliers.

### **37. Company Demerit Scheme**

- 37.1. The supplier shall implement the Company Demerit Scheme for all its employees and suppliers as included in Annex A

## Annex A – Company Demerit Scheme

Minor Offences – 3 points	
S/ N	Description
1.	<p><b>Poor site/ project management</b></p> <ul style="list-style-type: none"> <li>● Failure to remove signs from site after completion of work;</li> <li>● Failure to inform the Client person-in-charge before commencement of work;</li> <li>● Failure to seek clearance from Client person-in-charge before changing site supervisor;</li> <li>● Poor housekeeping;</li> <li>● Failure to display valid certificate on equipment/ machinery/ temporary structures, where required by law or standard operating procedures, of their fitness for use, date of inspection etc.;</li> <li>● Failure to provide required first-aid items;</li> <li>● Use of signs that do not have company’s logo and/ or supplier’s name</li> <li>● Failure to ensure that Safety documents (e.g. Method Statement (MS), Risk Assessment (RA), Safe Work Procedures (SWP), briefing records for RA and SWP, Toolbox Meeting records, Permit to Work (PTW) forms, Lifting Plan etc.) are duly filled and endorsed by appropriate persons;</li> <li>● Failure to make available on-site Safety documents (e.g. MS, RA, SWP, briefing records for RA and SWP, Toolbox Meeting records, PTW forms, Lifting Plan etc.).</li> </ul>
2.	<b>Inconsiderate act and cause minor public inconvenience or nuisance</b>

Major Offences – 6 points	
S/ N	Description
1.	<p><b>Failure to comply with EHS requirements and legitimate instructions</b></p> <ul style="list-style-type: none"> <li>● Commence work without obtaining all necessary approval/ permit from all relevant authorities;</li> <li>● Failure to conduct tool box meeting by supervisor;</li> <li>● Any employee or supplier smoking in non-designated areas.</li> </ul>
2.	<p><b>Failure to protect the environment</b></p> <ul style="list-style-type: none"> <li>● Failure to implement Earth Control Measures according to relevant Acts, Regulations and Code of Practice of Singapore;</li> <li>● Failure to protect slope/ earth stock pile against erosion and wash out of mud;</li> <li>● Failure to prevent slit and/ or sediment from flowing into the water bodies and/ or open drains;</li> <li>● Release of oily water into drains;</li> <li>● Having overflowed spill tray;</li> <li>● Failure to implement vector control measures in accordance to NEA’s requirements;</li> <li>● Failure to dispose contaminated waste in a proper manner.</li> </ul>
3.	<p><b>Failure to safeguard public Safety</b></p> <ul style="list-style-type: none"> <li>● Failure to display adequate/ proper warning signs in accordance to LTA and other authorities’ requirements;</li> <li>● Display wrong/ misleading/ confusing signs;</li> <li>● Failure to provide barricade and warning signs to prevent unauthorized entry into work site;</li> <li>● Failure to provide unobstructed pedestrian passageway using barricades, shield, temporary walkway and signs etc.;</li> <li>● Failure to provide opaque screen during electric arc welding operation;</li> </ul>



### Major Offences – 6 points

	<ul style="list-style-type: none"><li>• Failure to reinstate temporary/ permanent road lines within the time frame stipulated by LTA and other authorities;</li><li>• Failure to reinstate and/ or unsatisfactory/ poor reinstatement;</li><li>• Carrying out work causing heavy traffic congestion, noise pollution and/ or other major public inconvenience;</li><li>• Unauthorized changes to set up of Caution/ Danger notices, barriers and screens.</li></ul>
4.	<p><b>Failure to ensure workers' safety and health, and/ or to provide safe and healthy work environment</b></p> <ul style="list-style-type: none"><li>• Failure to provide PPE relevant to the types of work undertaken;</li><li>• Failure to ensure workers put on appropriate PPE;</li><li>• Worker did not wear reflective safety vest while carrying out works on road;</li><li>• Failure to provide guard for machinery moving parts;</li><li>• Provision and/ or use of defective/ inappropriate tools and equipment, e.g. defective ladder/ hand tools etc.;</li><li>• Worker did not use the correct tools or instrument in a correct and safe manner;</li><li>• Worker found working within excavator's swing radius;</li><li>• Failure to implement risk mitigation measures identified in the risk assessment register;</li><li>• Storage/ stacking of materials in an unsafe manner;</li><li>• Failure to obtain permit prior to work commencement in accordance to the PTW system;</li><li>• Failure to provide Safety Data Sheet (SDS) for hazardous substances and chemicals and brief all relevant workers of the hazards involved;</li><li>• Failure to label chemicals and hazardous materials;</li><li>• Storage of flammable material near ignition source;</li><li>• Failure to provide fire blanket, where required, during welding and/ or cutting operations;</li><li>• Failure to display "No Smoking. No Open Flame" sign at storage area for flammable material;</li><li>• Failure to provide adequate fire extinguishers at storage area for flammable material;</li><li>• Failure to provide adequate fire extinguishers at work area where required;</li><li>• Failure to provide supervisor at site</li><li>• Failure to provide appropriate wedges or other suitable stoppers at the base of materials when applicable to prevent them from rolling.</li></ul>
5.	<p><b>Failure to ensure safe use, storage and transportation of equipment/ machinery</b></p> <ul style="list-style-type: none"><li>• Use of equipment, machinery and associated accessories etc. that are without valid certificate and/ or prior inspection/ approval;</li><li>• Failure to engage trained/ competent/ certified operator for machinery/ equipment;</li><li>• Use of defective electrical wire/ tools;</li><li>• No proper earthing of generator and/ or welding set;</li><li>• Use of temporary electrical installation (e.g. portable generators) without Residual Current Device;</li><li>• Access way for use by heavy machinery not designed and certified by a PE when required;</li><li>• Failure to provide non-return valve and/ or flashback arrestor on oxy-acetylene gas cutting tool;</li><li>• Ladder not properly secured;</li></ul>

### Major Offences – 6 points

	<ul style="list-style-type: none"><li>• Failure to ensure that safety devices (e.g. locking/ retaining pins, machine guards, presence sensing safety devices, emergency stop device, warning device) of equipment/ machinery are in place and fully functional.</li></ul>
6.	<b>Failure to ensure safe excavation works</b> <ul style="list-style-type: none"><li>• Failure to provide adequate shoring, PE design where required, for excavated trench;</li><li>• Failure to provide proper and safe access into excavated trench;</li><li>• Placement of materials near to the edge of a trench that may affect stability of the trench and/ or may fall into the trench;</li><li>• Failure to check stability of the trench before work commencement after a break especially after heavy rain;</li><li>• Failure to barricade excavated area.</li></ul>
7.	<b>Failure to ensure safe lifting operation</b> <ul style="list-style-type: none"><li>• Failure to provide qualified and authorized lifting supervisor, signaller and rigger, during lifting operation;</li><li>• Failure to properly secure material to be lifted;</li><li>• Safe working load of auxiliary hook and main hook block of a mobile crane not shown on the LM certificate or equivalent;</li><li>• Outriggers of crane not placed on firm and/ or stable ground;</li><li>• Use of lifting equipment (e.g. crane, chain block, webbing sling, chain, shackle, wire rope etc.) without valid certification;</li><li>• Use of un-certified excavator for lifting operation.</li></ul>
8.	<b>Failure to ensure safe scaffolding</b> <ul style="list-style-type: none"><li>• Failure to engage MOM approved scaffold supplier to erect, alter or dismantle scaffold above 4m (except tower scaffold);</li><li>• Failure to provide qualified scaffold erectors to erect, alter or dismantle scaffold;</li><li>• Failure to provide qualified scaffold supervisor to supervise erection, alteration or dismantling of scaffold and/ or inspect scaffold when required;</li><li>• Failure to erect scaffold in accordance to PE design when required;</li><li>• Failure to provide safe access, adequate guardrails and toe-boards on scaffold;</li><li>• Failure to provide prominent display of sign on scaffold showing the maximum loading capacity and number of people allowed.</li></ul>
9.	<b>Failure to comply with Regulatory/ Statutory requirements</b> <ul style="list-style-type: none"><li>• Commence work without conducting RA and/ or developing SWP;</li><li>• Commence work without communicating the contents of RA and SWP to all involved person;</li><li>• Failure to ensure work is performed by qualified and/ or authorized person when required;</li><li>• Failure to implement permit-to-work system prior to work commencement when required;</li><li>• Failure to implement lifting plan prior to lifting operation;</li><li>• Failure to implement appropriate system for work in confined space.</li></ul>

<b>Severe Offences – 12 points</b>	
<b>S/ N</b>	<b>Description</b>
1.	<b>Supplier causing damage to services and properties of Client.</b>
2.	<b>Supplier causes an accident as a result of inadequate, substandard and improper risk control measures to safeguard any person, guests and public from risks arising from its work activities.</b>
3.	<b>When the supplier is found to have illegal worker on Client Premises.</b>
4.	<b>Worker smoking in “No Smoking” areas.</b>