Approved Code of Practice (ACOP)

For

Managing Health and Safety

in Construction

The Nigerian Institution of Safety Engineers

(A Division of the Nigerian Society of Engineers)

2023

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The guidance in this Approved Code of Practice (ACOP) is issued by the Nigerian Institution of Safety Engineers (NISafetyE). The NISafetyE believes that if you follow this guidance, you will normally be doing enough to manage construction health and safety risks and secure the health and safety of everyone on a construction project.

The health and safety regulators in Nigeria may seek to secure health and safety compliance on construction projects by referring to this guidance.

Construction Health and Safety Guidance Document 2023

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Acknowledgement:

The Construction Health and Safety Published Guidance Book is a comprehensiveresource aimed at promoting and ensuring the highest standards of health and safety within the construction industry. This note acknowledges and expresses gratitude to all contributors who dedicated their expertise, knowledge, and valuable insights to the development of this essential guide. Their collective efforts have made this publication possible and have contributed to fostering a safer working environment for those involved in construction projects in Nigeria.

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We express our deepest appreciation to each of the contributors for their unwavering commitment, expertise, and dedication in making this guidance document a valuable resource for the construction industry. Their collective contributions will undoubtedly help safeguard the well-being of workers and enhance construction project safety in Nigeria.

Glossary of Acronyms and Terms

ACOP Approved Code of Practice.

CDM 2015 Construction (Design and Management) Regulations 2015

COREN The Council for the Regulation of Engineering in Nigeria

HSE Health, Safety and Environment.

HSWA Health and Safety at Work etc Act 1974.

Must 'must' is used only where there is an absolute duty, i.e., an explicit legalrequirement to take a certain action which is not qualified by terms such as 'so far as reasonably practicable'.

NSE The Nigerian Society of Engineers

NISafetyE The Nigerian Institution of Safety Engineers

Reasonably practicable balancing the level of risk against the measures needed to control the real risk in terms of money, time or trouble. However, you do not need to take action if it would be grossly disproportionate to the level of risk (see www.gov.uk/risk/faq.htm for the most up-to-date explanation of what 'reasonably practicable' means.)

Should 'should' is used to indicate what to do to comply with legal requirements which are qualified by terms such as 'so far as reasonably practicable'.

Significant risks not necessarily those that involve the greatest risks, but those (including health risks) that are not likely to be obvious, are unusual, or likely to be difficult to manage effectively.

The Management Regulations Management of Health and Safety at Work Regulations 1999.

Workplace Regulations Workplace (Health, Safety and Welfare) Regulations 1992.

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Introduction

About This Book

a) This book gives guidance on the management of health, safety and welfare when carrying out construction projects.

Who This Book is For

b) This guidance is for people with involvement in construction work and who have roles and responsibilities or are appointed as part of a construction project. It explains what they must or should do to secure the health and safety of everyone on a construction project. Any actions taken should always be proportionate to the risks on the construction project.

Other Benefits of Using This ACOP

c) This Approved Code of Practice (ACOP) is intended to communicate a set of rules and guidelines that should be applied and maintained by professional Organisations, Government agencies and other bodies to achieve the elimination ofdanger to life, and to secure the safety and health of workers in workplaces, as well as to facilitate the establishment of comfortable working environments, by promoting comprehensive and systematic countermeasures concerning the prevention of industrial and construction accidents, such as taking measures for theestablishment of standards for hazard prevention as applied to construction, renovation and maintenance of buildings or other structures on the ground or underground or in water, as well as to installation, demolition, earthwork, hydraulicengineering and construction design in connection with such construction, renovation or maintenance activities in Nigeria.

   The practical recommendations of this ACOP are intended for the use of all those, both in the public and in the private sectors, who have responsibility for safety and health in the Construction industries across Nigeria having in mind that everybody has a role to play to ensure the safety of people, assets and the environment and that such roles are effectively communicated to individuals (management, workers and visitors) concerned.

Additional Applications:

The guidelines will also assist users to:

a) Review engineering specifications and plans for the inclusion of safety engineering principles, occupational health requirements, design codes and risk analyses; analyse specifications and plans for feasibility and effective safety measures;

monitor planning, engineering and construction phases for inclusion and application of required safety measures.

b) Review/ evaluate engineering concepts, designs, periodic and special reports on project scopes of work and contractor proposals; results of tests on various projects; processes and techniques relative to construction safety; and architectural design and in-house engineer design.

c) Apply professional knowledge of the principles, methods and techniques of safety engineering and a thorough understanding of safety principles, standards, practices and analytical techniques against proposed designs, methods, and procedures to ensure technical conformance with engineering criteria to eliminate or control hazardous conditions resulting from human error, equipment, and machine operation.

d) Develop safety site plans and safety submissions for proposed new or modified facilities to ensure appropriate design factors (i.e., construction, industrial hygiene, or material/ personnel, regulations) are addressed; utilize computer-aided design programs and software aids whenever possible and practicable to improve efficiency and effectiveness.

e) Participate in the general overall development and revision of manuals, regulations, and other publications to ensure inclusion of safety engineering principles, practices, and hazard analysis techniques.

f) Apply safety, scientific and engineering design, and analysis principles to expand or modify existing standards/ policies or develop new ones; confer with project managers, knowledgeable scientists, and engineers to provide advice andjustification for recommendations to personnel.

g) This Codes constitutes a guide which Governments and industries shall benefit from to such an extent as they may desire when framing measures for the improvement of safety conditions in Construction Industries.

h) The intent of the Codes is also to communicate the mandatory involvement of Safety Engineers (relevant subject matters expert) to be fully involved from the planning stage of any proposed Engineering work, Construction activities to effectively curb the incessant accidents and injuries ranging from failures and construction errors as experienced in recent times across the country.

i) Comply with all applicable safety and occupational health laws, regulation standards, an established codes of practice in Nigeria applicable to both private and public works.

j) Ensure that employees work in a safe and healthful environment by setting and enforcing standards, and by providing training, outreach, education, and assistance.

1.0 Phase One: Pre-Design

1.1 Pre-Planning

1.1.1 Identifying Principal Parties, their Roles, and Responsibilities

1. Under NISafetyE ACOP 2023, organisations or individuals can be one or more dutyholders for a project. The different dutyholders are summarised in Table 1 below. The table does not include all the duties, nor does it distinguish between duties that are absolute (dutyholders 'must' comply with them), and duties that are qualified by terms such as 'as far as practicable' or 'as far as reasonably practicable' (dutyholders 'should' comply with them).

Table 1: A Summary of Roles and Duties Under NISafetyE ACOP 2023

NISafetyE ACOP dutyholders; Who are they?	**Summary of Role/Main Duties**

Clients are organisations or individuals for whom a construction project is carried out.	Make suitable arrangements for managing a project.
	This includes making sure:
	• Other duty holders are appointed; including the Safety Engineer at the pre-design stage of the project.
	• Sufficient time and resources are allocated and agreed upon based on the magnitude and/ or complexity of the project.
	
	Make Sure:
	• Relevant information is prepared and provided to other dutyholders;
	• A competent and certified Safety Engineer is appointed to oversee the implementation of safety throughout the project phase;
	• Welfare facilities are provided.
	• Health and Safety Specification are made available to the Principal Contractor and contractors on the project and forms part of the contract document.
	• Health and Safety Requirements Specifications, the pre-construction information, baseline risk assessment and design risk assessment are supplied to:
	  • Tendering Contractors or
	  • The construction team for the projects which are not tendered,

NISafetyE ACOP dutyholders; Who are they?	Summary of Role/Main Duties
	• In other documents such as the contract, and contract specifications.
Domestic clients are people who have construction work carried out on their own home, or the home of a family member that is **not** done as part of a business, whether for profit or not.	Domestic clients are in scope of NISafetyE 2023 ACOP, but their duties as a client are normally transferred to: • The contractor, on a single contractor project or; • The principal contractor, on a project involving more than one contractor. However, the domestic client can choose to have a written agreement with the Safety Engineer to carry out the client's duties.
Designers are those, who as part of a business, prepare or modify designs for a building, product or system relating to construction work.	When preparing or modifying designs, to eliminate, reduce or control foreseeable risks that may arise during: • Construction; and • The maintenance and use of a building once it is built. To ensure that a design risk assessment is carried out and shared with the client and the project team to help them fulfil their duties. **Make Sure:** Baseline Risk Assessment and Design Risk Assessment are developed and issued to the client. The baseline risk assessment and design risk assessment are reviewed at a safety workshop.
Safety Engineer is the person or organisation appointed to oversee the implementation of safety throughout the lifespan of the project.	Plan, manage, monitor, and coordinate health and safety in the pre-construction phase of a project. This includes: • Identifying, eliminating or controlling foreseeable risks; • Ensuring designers carry out their duties. • Prepare and provide relevant information to other duty holders ensuring that duty holders comply with safety requirements. • Provide relevant information to the principal contractor to help them plan, manage, monitor, and coordinate health and safety in the construction

NISafetyE ACOP dutyholders; Who are they?	Summary of Role/Main Duties
	phase. **Make Sure:** • Coordinate design workshop • Health and Safety Specification is developed early enough on behalf of the client so as to be included as part of the principal contractors and contractors contract document.
Main Contractors are contractors appointed by the client to coordinate the construction phase of a project where it involves more than one contractor.	Plan, manage, monitor and coordinate health and safety in the construction phase of a project. Thisincludes: • Liaising with the client and principal designer; • Preparing the construction phase plan; • Organising cooperation between contractors and coordinating their work. Ensure: • Suitable site inductions are provided; • Reasonable steps are taken to prevent unauthorized access; • To ensure that suitable arrangements are inplace for managing or eliminating significant risk associated with the construction work; • Workers are consulted and engaged in securing their health and safety; and • Welfare facilities are provided.
Contractors are those who do the actual construction work and can be either an individual or a company.	Plan, manage and monitor construction work undertheir control so that it is carried out without risks to health and safety. For projects involving more than one contractor, coordinate their activities with others in the project team – in particular, comply with directions given to them by the principal designer or principal contractor. For single-contractor projects, prepare a construction phase plan.
Workers are the people who work for or under the control of contractors on a	They must: • Be consulted about matters which affect their health, safety and welfare;

NISafetyE ACOP dutyholders; Who are they?	Summary of Role/Main Duties
construction site.	• Take care of their own health and safety and others who may be affected by their actions; • Report anything, they see which is likely to endanger either their own or others' health andsafety; • Cooperate with their employer, fellow workers, contractors and other dutyholders.

Key Elements to Securing Construction Health and Safety

2. The key elements, include:

   a) Managing the risks by applying the **general principles of prevention**;
   b) **Appointing** the right people and organisations at the right time;
   c) Making sure everyone has the **information, instruction, training and supervision** they need to carry out their jobs in a way that secures health and safety;
   d) Duty holders **cooperating and communicating** with each other and **coordinating** their work; and
   e) **Consulting workers and engaging** with them to promote and develop effective measures to secure health, safety, and welfare.
   f) **Appropriate ratio of HSE personnel and workforce is maintained –** a ratio of not less than 1 HSE personnel to 25 workers is to be maintained at all times. This ratio should be reviewed and increased where necessary depending on the complexity of work, its hazardous nature and the geographical spread of the site or activity distribution on site. Thus, the number of HSE Officers increases as number of workforce increases. Once the number of HSE personnel is more than 2, there should be a competent supervisor.

Additional Responsibility of the Client

3. A client must appoint a competent Safety Engineer to enable the client meets its health and safety obligations and that contractors engaged by the client are monitored throughout the construction phase and that contractor comply with the client's health and safety specification, applicable regulatory requirementsand the construction health and safety management system standards set by theclient.

4. At the conceptual stage of the project, a competent Safety Engineer should be engaged to work with the project designer throughout the project lifecycle.

5. A client must make suitable arrangements for managing a project, including the allocation of sufficient time and other resources.

6. A client must ensure that the contractor provides welfare facilities before mobilisation to site and before work commencement.

7. A client must provide pre-construction information as soon as is practicable to every designer and contractor appointed, or being considered for appointment, to the project.

8. A client must ensure the pre-construction information is included in the tender document.

9. A client must ensure a baseline risk assessment, health and safety specification are provided to the contractor as part of the contractual agreement with contractors.
10. A client must ensure that:
    a) Before the construction phase begins, a construction phase plan is drawn up by the contractor.
    b) A health and safety specification is issued to the main contractor, contractors and subcontractors.
    c) The health and safety specification forms an integral part of the Contract.
    d) The contractor prepares a health and safety file for the project.
    e) The health and safety file is kept available for inspection by any person who may need it to comply with the relevant legal requirements.
    f) Provide the Safety Engineer and principal contractor with any existing file produced as part of an earlier project so the information it contains can be used to plan the pre-construction phase of the current project.
    g) Ensure the contractor reviews and revises the file regularly and passes the completed file back at the end of the project.
    h) Pass the file to whoever takes over the building and takes on the client duties if the client decides to dispose of their interest in it.

Additional Responsibility of Main Contractor

11. To ensure the preparation of the construction phase plan, and health and safety file and to ensure they remain fit for purpose. The principal contractor must plan, manage, and monitor the construction phase and coordinate matters relating to health and safety during the construction phase to ensure that, so far as is

reasonably practicable, construction work is carried out without risks to health or safety.

Providing Welfare Facilities

12. The principal contractor must ensure that suitable and sufficient welfare facilities are provided and maintained throughout the construction phase. Facilities must be made available before any construction work starts and should be maintained until the end of the project.

Coordinating

13. The main contractor has a specific duty to ensure that contractors under their control cooperate with each other so the risks to themselves and others affected by the work are managed effectively. This includes ensuring contractors who start work at different stages of the construction phase cooperate with each other so any information and instruction relevant for a new contractor to carry out their work safely is provided to them. The principal contractor must ensure that sub-contractors comply with the safety standard as agreed with the client. The principal contractor must coordinate periodic interface meetings where the principal contractor representative(s) and all subcontractor representatives authorized to take decisions binding on the company shall address all interface issues that are safety related.

Managing

14. To manage the construction phase, main contractors must ensure that:

    a) those engaged to carry out the work are capable of doing so;
    b) effective, preventative and protective measures are put in place to control the risks; and
    c) the right plant, equipment and tools are provided to carry out the work involved.

15. Main contractors must demonstrate visible leadership through the actions of their managers. Main Contractors must Set standards for working practices and provide a safe system of work (SSoW) including adequate resources for effective construction risk management (CRM).

16. The main contractor must also ensure anyone they appoint has the skills, knowledge, and experience and, where they are an organisation, the organisational capability to carry out the work in a way that secures health and safety.

Monitoring

17. The contractor should monitor their work to ensure that the health and safety precautions are appropriate, remain in place and are followed in practice. Effective monitoring by the contractor must address the same issues maincontractors must consider. This includes using a mix of measures to check performance and taking prompt action when issues arise.

Planning

18. Planning must take into account the risks to all those affected – workers,members of the public and the client's employees, if working in an occupied premises. It must cover:

    a) The risks likely to arise during construction work;
    b) The measures needed to protect those affected by planning to provide:
        i And maintain the right plant and equipment;
        ii The necessary information, instruction and training; and
        iii The right level of supervision.

    c) The resources (including time) needed to organise and deliver the work, including its management, monitoring and coordination.

General

19. In planning, managing, monitoring, and coordinating the construction phase, a principal contractor must take account of the **general principles of prevention**. They must take account of these principles when:

    a) decisions are being taken to plan which items or stages of work can take place at the same time or in sequence; and
    b) estimating the time certain items or stages of work will take to complete.

20. The Main Contractor must provide adequate and suitable Personal Protective Equipment (PPE) for all workers, including visitors and ensure that sub- contractors comply with same standard.

Additional responsibility of contractor

Complying with Directions and the Construction Phase Plan

21. The contractor is required to comply with any directions to secure health and safety given to them by the principal designer or principal contractor. They are

also required to comply with the parts of the construction phase plan that are relevant to their work, including the site rules.

Drawing up a Construction Phase Plan

22. For single contractor projects, the contractor must ensure a construction phase plan is drawn up as soon as practicable before the construction site is set up.

Health and Safety Specification

23. Contractors shall make a Health and Safety Specification an integral part of their Contracts with Sub Contractors and Suppliers. Contractors employed by the Client are to ensure that the provisions of the Health and Safety Specification areapplied both on the site and in respect of all off-site activities relating to the project, in particular in transport activities and project dedicated off site fabrication works.

Appointing and Employing Workers

24. When a contractor employs or appoints an individual to work on a construction site, they should make enquiries to make sure the individual:

    a) Has the skills, knowledge, training, and experience to carry out the work they will be employed to do in a way that secures health and safety for anyone working on the site; or
    b) is in the process of obtaining them.

Training Workers

25. A contractor should:

    a) Assess the existing health and safety skills, knowledge, training and experience of their workers;
    b) compare these existing attributes with the range of skills, knowledge, training and experience they will need for the job; and
    c) identify any shortfall between a) and b).
    The difference between the two will be the 'necessary training'. As ageneral rule, if the person being assessed demonstrates the required qualities, no further training should be needed.

26. Assessing training needs should be an ongoing process throughout the project. Further training may be required if:

a) The risks to which people are exposed alter due to a change in their working tasks;
b) New technology or equipment is introduced; or
c) The system of work changes.

27. Skills can also decline if they are not used regularly. Particular attention should be paid to people who deputize for others on an occasional basis; they may needmore frequent further training than those who do the work regularly. Contractors should also consider 'softer skills', such as the ability to foresee risk, maintain sensitivity to risk, anticipate mistakes others might make and to communicate clearly, as well as the more technical skills workers require for theirwork.

28. Contractors must develop and maintain a Competence Matrix throughout the project.

Providing Supervision

29. A contractor who employs workers or manages workers under their control must ensure that appropriate supervision is provided. The level of supervision provided will depend on the risks to health and safety involved, and the skills, knowledge, training, and experience of the workers concerned.

Providing Information and Instructions

30. Contractors must provide their employees and workers under their control with the information and instructions they need to carry out their work without risk to health and safety. This must include:

    a) Suitable site induction where this has not been provided by the principal contractor.
    b) The procedures to be followed in the event of serious and imminent danger to health and safety. These should make clear that any worker exposed to any such danger should stop work immediately, report it to the contractor and go to a place of safety. The procedures should:

        i include details of the person to whom such instances should be reported and who has the authority to take whatever prompt action is needed;
        ii take account of the relevant requirements which set out provisions relating to emergency procedures, emergency routes and exits and fire detection and fire-fighting;

c) provide information on the hazards on site relevant to their work (e.g., site traffic), the risks associated with those hazards and the control measures put in place (e.g., the arrangements for managing site traffic).

Preventing Unauthorised Access to the Site

31. A contractor must not begin work on a construction site unless reasonable steps have been taken to prevent unauthorised access to the site.

Providing Welfare Facilities

32. Contractors are required to provide welfare facilities which meet the minimum requirements set out in this ACOP. This duty only extends to the provision of welfare facilities for the contractor's own employees who are working on a construction site or anyone else working under their control. Facilities must be made available before any construction work starts and should be maintained until the end of the project.

Duties of a Sub Contractor

33. A contractor must not carry out construction work in relation to a project unless satisfied that the client is aware of the duties owed by the client under these Regulations.

34. A contractor must plan, manage, and monitor construction work carried out either by the contractor or by workers under the contractor's control, to ensure that, so far as is reasonably practicable, it is carried out without risks to health and safety.

35. The contractor must take account of the general principles of prevention when:

    a) Design, technical and organisational aspects are being decided in order to plan the various items or stages of work which are to take place simultaneously or in succession; and
    b) Estimating the period of time required to complete the work or work stages.

36. A contractor must not employ or appoint a person to work on a construction site unless that person has, or is in the process of obtaining, the necessary skills, knowledge, training and experience to carry out the tasks allocated to that person in a manner that secures the health and safety of any person working on the construction site.

37. A contractor must provide each worker under their control with appropriate supervision, instructions and information so that construction work can be carried out, so far as is reasonably practicable, without risks to health and safety.

38. The information provided must include:

    a) A suitable site induction, where not already provided by the main contractor;
    b) The procedures to be followed in the event of serious and imminent danger to health and safety;
    c) Information on risks to health and safety:

        i Identified by the risk assessment;
        ii Arising out of the conduct of another contractor's undertaking and of which the contractor in control of the worker ought reasonably to be aware; and

    d) Any other information necessary to enable the worker to comply with the relevant statutory provisions.

39. A contractor must not begin work on a construction site unless reasonable steps have been taken to prevent access by unauthorised persons to that site.

40. A contractor must ensure, so far as is reasonably practicable, that Minimum welfare facilities required for construction sites as contained in this ACOP are complied with so far as they affect the contractor or any worker under that contractor's control.

1.1.2 Health and Safety Requirement Specifications

41. The client shall set requirements to the Principal Contractor and all Contractors who carry out work and / or contracted on the construction work.

42. This Health and Safety Specification shall form an integral part of the Contract, and Contractors shall make it an integral part of their Contracts with Sub Contractors and Suppliers.

43. Contractors employed by the Client shall ensure that the provisions of the Health and Safety Specification are applied both on the site and in respect of all off-site activities relating to the project, in particular in transport activities and project dedicated off site fabrication works.

44. The Principal Contractor shall enforce the provisions of the Health and Safety Specification amongst all sub-contractors and suppliers for the project.

45. The Principal Contractor shall sign the acknowledgment on the health and safety specification that he/ she has familiarized him/herself with the content of the Health and Safety Specification and shall comply with all obligations in respect thereof.

46. It is Principal Contractor obligation to ensure that adequate safety levels are maintained, and environmental impacts are identified and controlled during the entire performance of the work.

47. The health and safety specification shall as a minimum state the requirements for the following:

    1) Purpose
    2) Scope
    3) Definitions
    4) Project Team
    5) General Requirements 1
    6) Construction Work Permit/ Safety Compliance Certificate
    7) Notification of Intention to Commence Construction Work
    8) Project Site Mobilisation Requirements
    9) Duties of Principal Contractor / Contractor
    10) Management and Supervision of Construction Work
    11) Appointment and Competency of Principal Contractor's Responsible Persons
    12) Compensation of Occupational Injuries and Diseases
    13) Occupational Health and Safety Policy
    14) Health and Safety Organogram
    15) Contractor's Health and Safety (H&S) Plan
    16) Brief description of the project scope of works.
    17) Leadership and Commitment
    18) Policy and Objectives
    19) Organisation, Resources and Competence
    20) Evaluation and Risk Management
    21) Planning, Standards and Procedures
    22) Implementation and Monitoring
    23) Audit and Review
    24) Compliance with Statutory Requirements
    25) Risk Assessment
    26) Safe Work Procedure
    27) Qualification and Training of Personnel
    28) Health and Safety Representatives(s)
    29) Induction
    30) Awareness
    31) Competency

32) General Record Keeping
33) HSE Meetings / Information
34) Welfare Facilities
35) Toilets
36) Mess Room and Rest Facilities
37) Changing Accommodation
38) Drinking Water
39) First Aid Arrangement
40) Accident / Incident Reporting and Investigation
41) Site Signage
42) Certification of Equipment & Equipment Standard
43) Crane
44) Construction Equipment
45) Construction Vehicles and Mobile Plant
46) Electrical Installations and Machinery on Construction Sites
47) Working Safely near Overhead Power lines
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50) Occupational Health
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1.1.3 Developing Pre-Construction Information

Pre-Construction Information (PCI)

48. The client must develop and make available the pre-construction information to the main contractor. The PCI must be relevant, have an appropriate level of detail and be proportionate to the nature of risks involved in the project.

49. The pre-construction information provides information for those bidding for or planning work, and for the development of the construction phase plan.

50. The Safety Engineer must help the client bring together the information the client already holds (such as any existing health and safety file or asbestos survey).

51. The Safety Engineer should then:

    a) Assess the adequacy of existing information to identify any gaps in the information which it is necessary to fill;
    b) provide advice to the client on how the gaps can be filled and help them in gathering the necessary additional information; and
    c) provide, as far as they are able to, the additional information promptly and in a convenient form to help designers and contractors who:
    i are being considered for appointment; or
    ii have already been appointed to carry out their duties.

The Provision of Pre-Construction Information

52. Pre-construction information is information already in the client's possession or which is reasonably obtainable. It must be relevant, have an appropriate level of detail and be proportionate to the nature of risks involved in the project.

53. The client has responsibility for pre-construction information. The Safety Engineer must help the client bring together the information the client already holds (such as any existing health and safety file or asbestos survey). The SafetyEngineer should then:

    a) Assess the adequacy of existing information to identify any gaps in the information which it is necessary to fill;

b) Provide advice to the client on how the gaps can be filled and help them in gathering the necessary additional information; and
c) Provide, as far as they are able to, the additional information promptly and in a convenient form to help designers and contractors who:
    i. are being considered for appointment; or
    ii. have already been appointed, to carry out their duties.

Sources of Information Necessary to Produce the PCI

54. The sources of information for producing PCI are shown below:

a) The client, who provides information on any health and safety factors known to him associated with the site or building and who will make available any existing health and safety file.
b) Designers and professional advisers who have knowledge of health and safety implications of systems, materials and equipment being used.
c) Site surveys which indicate for example – contaminated land, asbestos in structures, ground conditions, structural stability.
d) Health and Safety legislation and supporting approved codes of practice (e.g., regulations for control of hazardous substances, asbestos, electricity).
e) International and Local HSE guidance literature.
f) Industry guidance, such as COREN Regulations for the Construction industry, Health and Safety Manual published by any other related agencies.
g) Ground investigation reports.
h) Trial pit report.
i) Mining records.
j) Utilities drawings and plans.
k) Safety exclusion distances from overhead power lines or railways.
l) Contaminated land surveys.
m) Methane production / propagation reports.
n) Radon gas surveys.
o) Any access / egress difficulties.
p) Asbestos surveys.
q) Lead surveys.
r) Other hazardous substances surveys.
s) Structural surveys.
t) Planning constraints/ restrictions.
u) Details of activities on or near the site that will continue during construction, including access requirements to others' premises.

v) Any constraints on parking, traffic movements, working times, routes to site etc.
w) Any rules that the client wishes to impose on the contractors, particularly where the work is to be performed on client occupied sites, e.g., permit to work systems, emergency arrangements, etc.
x) Any particular elements of the design that the client wishes to be included/excluded.
y) Any as-built information for the site or the structures that is available.
z) Project health and safety file goals.

Any other information required by the designers or contractors to allow effective design and construction management.

Format of the PCI

55. The pre-construction information provides information for those bidding for or planning work, and for the development of the construction phase plan. **The level of details in the information should be proportionate to the risks involved in the project;**

a) Description of project.
b) Clients' considerations and management requirements.
c) Environmental restrictions and existing on-site risks.
d) Significant design and construction hazards.
e) The health and safety file.

56. When drawing up the pre-construction information, each of the following topics should be considered. Information should be included where the topic is relevant to the work proposed. The pre-construction information provides information for those bidding for or planning work, and for the development of the construction phase plan. **The level of detail in the information should be proportionate to the risks involved in the project.**

1. **Description of Project:**
   a) Project description and program details including:
      i key dates (incl. planned start and finish of construction); and
      ii time allowed between appointment of the Principal Contractor and start of work on site.
   b) Details of client, designers, Principal Contractor, Safety Engineer and any other consultants;

c) Whether or not the structure will be used as a workplace (in which case, the finished design will need to take account of the relevant requirements of the Workplace.
d) Extent and location of existing records and plans.

2. Client's Considerations and Management Requirements:

a) Arrangements for:
   i Planning for and managing the construction work, incl. any H&S goals for the project;
   ii Communication and liaison between client and others;
   iii Site security
   iv Welfare provision;
b) Requirements relating to the health and safety of the client's employees or customers or those involved in the project such as
   i Site hoarding requirements;
   ii Site transport arrangements or vehicle movement restrictions;
   iii Client permit-to-work systems;
   iv Emergency procedures and means of escape;
   v 'No-Go' areas or other authorization requirements for those involved in the project;
   vi Any areas the client has designated as confined spaces;
   vii Smoking and parking restrictions.

3. Environmental restrictions and existing on-site risks

a) Safety hazards, including:
   i boundaries and access, including temp. access;
   ii any restrictions on deliveries or waste collection;
   iii adjacent land uses;
   iv existing storage of hazardous materials;
   v location of existing services;
   vi ground conditions;
   vii existing structures – stability, fragile or hazardous materials, anchorage points;
   viii previous structural modifications, incl. weakening or strengthening;
   ix fire damage, ground shrinkage, movement or poor maintenance which may have affected the structure;
   x H&S information contained in earlier design, construction or 'as-built' drawings.

b) Health hazards, including:
    i. asbestos surveys;
    ii. existing storage of hazardous materials;
    iii. contaminated land surveys;
    iv. existing structures containing hazardous materials;
    v. health risks arising from client's activities.

4. Significant design and construction hazards

a) Significant design assumptions and suggested work methods, sequences or other control measures;
b) Arrangements for co-ordination of on-going design work and handling design changes;
c) Information on significant risks identified during design;
d) Materials requiring particular precautions.

5. The health and safety file

Description of its format and any conditions relating to its content.

1.1.4 Developing Baseline Risk Assessment

Baseline Risk Assessment

57. Baseline Risk Assessment and Design Risk Assessment must be developed by the Designer. The baseline risk assessment and design risk assessment must be reviewed at a safety workshop coordinated by a Safety Engineer.

58. As a minimum the following must be present:

a) The Client representative with decision making authority.
b) The Safety Engineer.
c) The Designer.
d) The Project Manager.
e) Construction Manager.
f) Designated Regulatory Agencies.
g) Relevant Vendors including Original Equipment Manufacturers (OEM).
h) Subject matter experts.
i) Relevant stakeholders.

59. Any recommended design changes must be actioned and closed-out by the designer, and the close-out report must be issued and endorsed by all

participants.

60. The Safety Workshop report, attendance register, and minutes of meeting must be included in the Health and Safety file.

61. The client must ensure that the Health and Safety Requirements Specifications, the pre-construction information, baseline risk assessment and design risk assessment are supplied to:

    a) Tendering Contractors or
    b) The construction team for the projects which are not tendered,
    c) In other documents such as the contract, and contract specifications.

2.0 Phase Two- Design Stage

2.1 Pre-Mobilisation

62. Prior to mobilization, the HSE Plan must have been developed and design risk assessment conducted. it is important to ensure that the HSE plan is implemented and communicated to all relevant parties (client personnel, contractor personnel, subcontractor personnel, community contacts, and any other third parties).

63. Pre-mobilisation meetings must be conducted including team building exercises with supervisors, a kick-off meeting, and site induction for all staff on site are key steps that should be completed before work starts.

Design Risk Assesment

Who is the Designer?

64. This ACOP defines a designer as any person or organisation (including a client, contractor or any other person referred to in this ACOP) who:

    a) Prepares or modifies a design; or
    b) Arranges for or instructs any person under his control to do so.
    c) Carries out design work.
    d) Prepares specifications.
    e) Prepares bill of quantities.

Duty of the Designer

65. Designers must:

    1. Make sure the client is aware of the client duties under this ACOP before starting any design work.

    2. When preparing or modifying designs:

        a) take account of any pre-construction information provided by the client and Safety Engineer
        b) eliminate foreseeable health and safety risks to anyone affected by the project (if possible)
        c) take steps to reduce or control any risks that cannot be eliminated.

3. Provide design information to:

    a) the Safety Engineer and principal contractor for inclusion in the pre-construction information and the health and safety file
    b) the client and principal contractor to help them comply with theirduties, such as ensuring a construction phase plan is prepared.

4. Communicate, cooperate, and coordinate with:

    a) any other designers (including the Safety Engineer) so that all designs are compatible and ensure health and safety, both during the project and beyond

    b) all contractors (including the principal contractor), to take account of their knowledge and experience of building designs.

Design Risk Management

66. The expanded duties placed onto designers in this ACOP specifically require designers to identify and address the foreseeable risks to those persons who are:

    a) Carrying-out construction work.
    b) Liable to be affected by such construction work.
    c) Cleaning any window or any transparent or translucent wall, ceiling, or roof in or on a structure
    d) Maintaining the permanent fixtures and fittings of a structure, or
    e) Using a structure designed as a workplace.

Hierarchical Approach

67. To fulfil the requirement for a project that can be constructed, maintained, cleaned, used and ultimately demolished safely. The following stages must be adhered to:

    Stage 1: Identify the activities the contractors/maintainers/users/etc. will be required to carry out.

    Stage 2: Identify any hazards associated with the activities.

    Stage 3: Identify the groups who may be affected by the hazards.

    Stage 4: Apply the principles of prevention to avoid/reduce/mitigate the hazards & risks.

Stage 5: Document the decisions and thought processes and share the information on residual risks with others (other designers, principal contractors, contractors, etc.).

Design Standards

68. The design risk assessment at the design stage must ensure that:

    a) Designs comply with federal and state regulations. This may be linked to particular construction methods (e.g., COREN regulation for construction industry);
    b) The design conforms with the Material specifications which minimizes risks; and
    c) The design provides Information about remaining risks.
    d) The information derived from the review of the design provides some detail for the pre-construction information.

Identifying Risks

69. The designers' understanding of the risks that will be encountered at the design stage of the project will depend on:

    a) The designer's knowledge of the construction, maintenance, use and cleaning processes.
    b) Designer's knowledge of the health and safety legislation and guidance documents.
    c) Designer's knowledge of types and frequency of maintenance, inspection, testing and redecoration activities.
    d) Hazard inventory associated with design elements for construction, maintenance, use and cleaning.

Minimising Risks at Design Stage

70. To minimise risks at the design stage, the designer should apply the following steps:

    a) Consult the hazard Inventory.
    b) Conduct a review of the listed hazards.
    c) Use the hierarchy of measures outlined under the General Principles of Prevention to identify means by which the hazards can be eliminated or minimised.

d) Make a decision with consideration of "reasonably practicable".
e) Make a file note showing reason for the decision.
f) Append note to the design hazard inventory.

General Principles of Prevention

71. The designer must apply the hierarchical order in making decisions about eliminating risks at design stage:

    a) Avoiding risks;
    b) Evaluating the risks which cannot be avoided;
    c) Combating the risks at source;
    d) Adapting the work to the individual, especially as regards the design of workplaces, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work-rate and reducing their effect on health;
    e) Adapting to technical progress;
    f) Replacing the dangerous by the non-dangerous or the less dangerous;
    g) Developing a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the working environment;
    h) Giving collective protective measures priority over individual protective measures; and
    i) Giving appropriate instructions to employees.

Hazards to Consider in the Design

72. The following lists identify some areas over which the designer has directinfluence and is seen as good practice to follow, it could be used as a benchmarkfor risk identification and options open to the designers.

73. The areas cover construction as well as future maintenance and cleaning requirements. This is not an exhaustive list, nor is each item relevant to every project. The designer should, where possible:

    a) **Select the position and design of structures** to minimize risk from site hazards, such as underground facilities, overhead power lines, traffic movements to, from and around the site, contaminated ground, etc.
    b) **Design out health hazards** by specifying less hazardous materials, avoid processes that create hazardous fumes, vapours, dust, noise or

vibration, specify materials that are lighter and easier to handle, design block paved areas to enable mechanical handling and laying of blocks, etc.

c) **Design out safety hazards** by eliminating or minimizing the need for work at height, particularly where it would involve work from ladders, or where safe means of access and a safe place of work is not provided, eliminate fragile roofing materials, reduce the need for deep or long excavations in public areas or on highways, minimize materials that could create a significant fire risk during construction, etc.

d) **Consider prefabrication** to minimize hazardous work or to allow it to be carried out in more controlled conditions off-site, such as designing such that structural steel and process plant can be assembled at ground level and then safely lifted into place, arranging for cutting to size to be done off-site, under controlled conditions, to reduce the amount of dust released, etc.

e) **Design in features that reduce the risk of falling/injury** where it is not possible to avoid work at height, including early installation of permanent access, such as stairs to reduce the use of ladders, provision of edge protection or other features that increase the safety of access during construction, etc.

f) **Design to simplify safe construction**, by providing lifting points and mark the weight, and centre of gravity of heavy or awkward items requiring slinging both on drawings and on the items themselves, make allowance for temporary works required during construction, design joints in vertical structural steel members so that bolting up can easily be done by someone standing on a permanent floor, and by use of seating angles to provide support while the bolts are put in place, design connections to minimize the risk of incorrect assembly, etc.

g) **Design to simplify future maintenance and cleaning work,** by making provision for safe permanent access, specifying windows that can be cleaned from the inside, designing plant rooms to allow safe access to plant and for its removal and replacement, providing safe access for roof-mounted plant, and roof maintenance, making provision for safe temporary access to allow for planting and maintenance of facades, etc.

h) **Identify demolition hazards for inclusion in the health and safety file**, such as sources of substantial stored energy, including pre- or post-tensioned members, unusual stability concepts, alterations that have changed the structure, etc.

74. Those which cannot be reduced to an acceptable level should be identified on the design hazard inventory, on drawings or within a risk register.

75. To be able to achieve the above design objectives, designers need to understand how the structure can be constructed, cleaned and maintained safely. This involves:

    a) Taking full account of the risks that can arise during the proposed construction processes, and to those that may place large numbers of people at risk;

    b) Considering the stability of partially erected structures and, where necessary, providing information to show how temporary stability could be achieved during construction;

    c) Considering the effect of proposed work on the integrity of existing structures, particularly during refurbishment;

    d) Ensuring that the overall design takes full account of any temporary works, for example falsework, which may be needed, no matter who is to develop those works;

    e) Ensuring that there are suitable arrangements (for example access and hard standing) for mobile elevating working platforms, cranes, and other heavy equipment, if required.

76. Occupied buildings or sites and refurbishment present special risks that can often be avoided or reduced if they are identified and addressed at the design stage. Such as not specifying the surface of a car to be tarmac in an area with flammable vapours.

77. Deciding the design strategy, timing, and sequence of the work requires good communication and co-operation between all parties.

78. Hazards and the associated risks should be addressed in a particular way to maximize the effect and therefore the benefit of a particular design decision.

79. Care should be taken to ensure that design decisions which remove or minimize one particular risk do not give rise to another. This would apply equally to the maintenance operation and to the safety of the end user.

80. Risks should therefore be addressed in the following descending order of effectiveness.

1. **Eliminate the risk**

    a) For all of the persons at risk, or where this is not possible.

    b) For the greatest number of persons possible.

2. **Effect a substitution** that will reduce the risk. Some such substitution may be achieved by altering;

    a) The work method currently applied;

    b) The work sequencing currently applied;

    c) Material specification involving

        i The nature of the material,
        ii The form of the material,
        iii The location that materials are used,
        iv The quantity of the material used,
        v Materials which are lighter and easier to handle,
        vi Components of manageable size for ease of replacement for repair or maintenance,
        vii Positions of equipment which is subjected to routine maintenance.

This list is for guidance and is not intended to be exhaustive.

81. Those which cannot be reduced to an acceptable level should be identified on the design hazard inventory, on drawings or within a risk register.

Red, Amber and Green lists

82. This section provides practical guides to designers on what to eliminate/avoid, and what to encourage.

Red List (High Risks):

83. These are examples of hazardous procedures, products and processes that should be eliminated from the project where possible.

    a) Lack of adequate pre-construction information, e.g., asbestos surveys, geology, obstructions, services, ground contamination, etc.;
    b) Hand scabbling of concrete ('stop ends', etc.);

c) Demolition by hand-held breakers of the top sections of concrete piles (pile cropping techniques are available);
d) The specification of fragile roof-lights and roofing assemblies;
e) Process giving rise to large quantities of dust (dry cutting, blasting etc.);
f) On-site spraying of harmful particulates;
g) The specification of structural steelwork which is not purposely designed to accommodate safety nets;
h) Designing roof mounted services requiring access (for maintenance, etc.), without provision for safe access (e.g. barriers);
i) Glazing that cannot be accessed safely. All glazing should be anticipated as requiring cleaning and replacement, so a safe system of access is essential;
j) Entrances, floors, ramps, stairs, and escalators. Etc. not specifically designed to avoid slips and trips during use and maintenance, incl. effect of rainwater and spillages;
k) Design of environments involving adverse lighting, noise, vibration, temperature, wetness, humidity and draughts or chemical and/or biological conditions during use and maintenance operations;
l) Designs of structures that do not allow for fire containment during construction.

Amber List (Medium Risks):

84. These are examples of products, processes or procedures to be eliminated or reduced as far as possible and only specified/allowed if unavoidable. Including amber items would always lead to the provision of information to the Principal Contractor (or contractors on a non-notifiable project).

a) Internal manholes/inspection chambers in circulation areas;
b) External manholes in heavy used vehicle access zones;
c) The specification of "lip" details (i.e. trip hazards) at the tops of pre-cast concrete staircases;
d) The specification of shallow steps (i.e. risers) in external paved areas;
e) The specification of heavy building blocks i.e. those weighing >20kgs;
f) Large and heavy glass panels;
g) The chasing out of concrete/ brick/ block walls or floors for the installation of services;
h) The specification of heavy lintels (the use of slim metals or hollow concrete lintels being alternatives);

i) The specification of solvent-based paints and thinners, or isocyanates, particularly for use in confined areas;
j) Specification of curtain wall or panel systems without provision for the tying of scaffolds;
k) Specification of blockwork walls >3.5 meters high using retarded mortar mixes;
l) Site traffic routes that do not allow for 'one way' systems and/or vehicular traffic segregated from site personnel;
m) Site layout that does not allow for adequate room for delivery and/or storage of materials, including specific components;
n) Heavy construction components which cannot be handled using mechanical lifting devices (because of access restrictions / floor loadings etc.);
o) On-site welding, in particular for new structures;
p) Need to use large piling rigs and cranes near 'live' railways and overhead electric power lines or where proximity to obstruction prevents guarding of rigs.

Green list (Low Risks):

85. There are products processes or procedures to be positively encouraged.

a) Adequate access for construction vehicles to minimize reversing requirements (one-way systems and turning radii);
b) Provision of adequate access and headroom for maintenance in plant rooms, and adequate provision for replacing heavy components;
c) Thoughtful location of mechanical/ electrical equipment, light fittings, security devices etc. to facilitate access and away from crowded areas;
d) The specification of concrete products with pre-cast fixings to avoid drilling;
e) Specify half board sizes for plasterboard sheets to make handling easier;
f) Early installation of permanent means of access, and prefabrication staircase with hand rails;
g) The provision edge protection at permanent works where there is a foreseeable risk of falls after handover;
h) Practical safe methods of window cleaning (e.g., from the inside);
i) Appointment of a temporary Works Coordinator;
j) Off-site timber treatment if PPA and CCA based preservatives are used (Boron or copper salts can be used for cut ends);

k) Offsite fabrication and prefabrication elements to minimize on site hazards;
l) Encourage the use of engineering controls to minimize the use of Personal Protective Equipment.

2.2 Mobilisation

86. Before mobilization to site, the client must ensure that an adequate welfare system has been put in place by the principal contractor or by the contractor where a single contractor is used. The Principal Contractor shall ensure that, as aminimum, the underlisted are implemented.

Table 2: Requirements for Mobilisation

	Items	**Requirements**
1.	Policies	• Pandemic Policy. • Driving and Vehicle Safety Policy. • Environmental Management Policy. • Control of Hazardous Substance Policy. • HSE Policy. • Quality Management Policy. • Smoking Policy. • Drug and Alcohol Policy. • Aggression and Violence Prevention Policy. • Civil Unrest Policy.
2.	Procedures	• Hazard Identification & Risk Assessment Procedure. • Pandemic Control and Prevention Procedure. • Emergency Preparedness and Response Procedure. • Permit-to-Work Procedure. • Fire Fighting. • Fire Drill Evacuation. • First Aid. • Non-Conformance and Corrective Action Procedure. • Incident Investigation and Reporting Procedure. • Civil Unrest Management Procedure. **Environmental procedures-** Procedures for: • Waste Management. • Diesel Fuel, Oils and Chemical Storage. • Prevention of Spills – Leaks of Chemical, Diesel Oils etc. • Managing Environmental Risks from Plant & Vehicles.

	Items	Requirements
		• Environmental Inspection and Audit.
3.	Safety coverage	• Site Organogram Structure. • Safety Officers Qualifications and Experience. • Designated Permit Representative/ Coordinator. • Traffic controller on site. • Nominated Induction Officer. • On site medical staff. • Onsite First Aider. • Onsite Banks man. • Scaffold Erectors. • Scaffold Inspector. • Scaffold Supervisor. • Crane Operators Experience and Qualifications.
4.	Safety Team	• List of HSE Personnel and Reporting Line. • HSE Team Organogram. • Name of Designated Permit Representative.
5.	HSE Plans	• HSE Plan development. • Welfare Arrangement. • Site Set-up plan. • Site Layout Plan, Access Routes. • Traffic Management Plan. • Fall Protection Plan. • Emergency Preparedness and Response Plan (to include fire safety, first aid, medical emergency, Pandemic emergency). • Site Waste Management Plan. • Safety Signs/ Signage Plan. • HSE Communication Plan. • Civil Unrest Plan.
6.	Risk Assessment & Method Statement (RAMS)	• Initial Construction Phase Risk Assessment. • Contractors Risk Assessment and Method Statements. • . • Activity Risk Assessment & Method Statement (RAMS).
7.	Inspection	• Daily HSE Report Template. • Weekly Inspection Report Template. • Monthly HSE Inspection Report Template.

	Items	Requirements
8.	Permits	• Hot Works. • Confined Space. • Work on or the Commissioning of live or near to live electrical installations. • Work on or the Commissioning of live or near to live mechanical installations. • All digging or excavation work. • Crane and Lifting Operations. • Working at Height. • General Non-Routine Works.
9.	Pandemic	• Pandemic Protocols & Requirements • Weekly Reporting • Monthly Reporting
10.	Reporting lines	• HSE Communication Plan • Site Management Team Organogram
11.	Forms / Register	• Risk Assessment • Environmental Aspect and Impact • Fire Drill Attendance • Non-conformance and Incident Consequence Form • Loss Prevention tracker • First Aid Kit Injury-Dressing Control • Roll Call Evacuation • Fire Equipment • Site Induction • Plant and Equipment Inspection Form • HSE Awareness Training Register • Hazard Identification and Control • Hazardous Chemical Received. • H&S Committee Meeting Attendance • H&S Committee Meeting Minutes Template
12.	Certificates	• Plant and Equipment Inspection Test Certificates. • Operatives Certificates / Licenses. • Employees Valid Medical Certificates of Fitness. • PAT Test Certificates for Portable Electrical Appliances. • Scaffold Erectors and Inspectors Certificates. • Competency Certificates of HSE Team. • Regulatory Clearance Certificate e.g., Lagos State Safety

	Items	Requirements
		Commission Clearance Certificate etc.
13.	Environment	• Site Waste Management Plan. • Environmental Aspect and Impact Register. • Pollution control.
14.	General	• Creation of restriction zones: No one from LOS1 Operations should be on the construction site for LOS2 and no one from construction team can ever go through to the access gate to LOS1. • Draw up or have drawn up a logistics plan, indicating construction zones, operational zones (no-go), with proposed signage posts visible to all (red zones, no access routes, etc.). • Rebar caps for capping protruding rebars. • Creation of pedestrian pathways on site. • A Log-Book/ Attendance Register for your company to be provided at the Site Security Station for Access control and for personnel accountability). • Team List / Personnel List. • Personnel Company Identity Cards/Badges. • Signed Contractor's penalty clause documents on safety standards. • Safety Data Sheets for chemicals e.g., cement, paint,plasticizer, primer, etc. • Mandatory and task specific Personal Protective Equipment as applicable and practicable to your operations: Hard Hat, Safety Shoes/Boots, Hi-Visibility vest/ Coverall, Eye goggles, Face Shields, Hand Gloves, Nose mask, Full Body Harness belt with Lanyards (Single or Double lanyard), LOTO (LOG-OUT TAG-OUT). • Legible and adequate Safety Signage, Caution Cones, and Caution Tape as practicable. • Serviced and labeled Fire extinguishers sufficient for your operations. • First Aid Box(es) appropriate to the risks of work and size of the workforce. • Retainership hospital details: - Name of hospital, address, contact person, etc.

87. The Safety Engineer shall verify the suitable of the arrangement and system in place before the principal contractor is authorized to mobilize to site.

3.0 Phase Three- Construction Stage

3.1 Execution

General Requirements

Construction Work Permit/ Safety Compliance Certificate

88. The Principal Contractor shall obtain a Safety Compliance Certificate prior to mobilising to site. As a minimum, the Commission shall require the Principal Contractor to provide evidence of the following:

    a) Site Specific Safety Plan (including HSE Policy signed by the MD, Risk Assessment, Emergency Response Plan, Incident and Accident Reporting Procedure etc.).

    b) CV and Credentials of nominated HSE Officer on site.

    c) Toolbox Talk Minutes of Meeting.

    d) Lists of Fire Fighting/ Fire Protection Equipment.

    e) Fire Fighting and Prevention Procedure.

    f) Safety Signages/ Directional Signages.

    g) List of Personal Protective Equipment Purchased (Hard hats, High Visibility Jacket, Safety boots etc.).

    h) First Aid Box.

    i) Good housekeeping procedure and picture of site.

    j) Welfare Facilities for Site Workers (Convenience, Canteen, and Portable Water).

    k) Insurance Certificate.

Notification of Intention to Commence Construction Work

89. The Principal Contractor shall notify the Safety Regulatory Agencies in the States the project is being executed and applicable Federal Agencies of the intention to commence construction on site and shall apply for a Safety Compliance Certificate prior to mobilising to site.

90. It is the Principal Contractor's responsibility to apply for this Safety Compliance Certificate or any other required permits as applicable and a copy of this certificate will be required to be kept in the Principal Contractor's safety file and must be displayed at the site entrance.

Project Site Mobilisation Requirements

91. The Principal Contractor shall ensure as a minimum, the underlisted are provided to the Client's Agent before mobilising to site.

Table 3: Requirements for Project Site Mobilisation

	Items	**Requirements**
1.	Policies	• Pandemic HSE Policy • Driving and Vehicle Safety Policy • Environmental Management Policy • Control of Hazardous Substance Policy • HSE Policy • Quality Management Policy • Smoking Policy • Drug and Alcohol Policy • Aggression and Violence Prevention Policy • Civil Unrest Policy
2.	Procedures	• Hazard Identification & Risk Assessment Procedure • Pandemic Control and Prevention Procedure • Emergency Preparedness and Response Procedure • Permit-to-Work Procedure • Fire Fighting • Fire Drill Evacuation • First Aid • Non-Conformance and Corrective Action Procedure • Incident Investigation and Reporting Procedure • Civil Unrest Management Procedure. **Environmental procedures-** Procedures for: • Waste Management • Diesel Fuel, Oils and Chemical Storage • Prevention of Spills – Leaks of Chemical, Diesel Oils etc. • Managing Environmental Risks from Plant & Vehicles • Environmental Inspection and Audit

	Items	Requirements
3.	Safety coverage	• Site Organogram Structure • Safety Officers Qualifications and Experience • Designated Permit Representative/ Coordinator • Traffic controller on site • Nominated Induction Officer • On site medical staff • Onsite First Aider • Onsite Banks man • Scaffold Erectors • Scaffold Inspector • Crane Operators Experience and Qualifications
4.	Safety Team	• List of HSE Personnel and Reporting Line • HSE Team Organogram • Name of Designated Permit Representative
5.	HSE Plans	• HSE Plan development • Welfare Arrangement • Site Set-up plan • Site Layout Plan, Access Routes • Traffic Management Plan • Fall Protection Plan • Emergency Preparedness and Response Plan (to include fire safety, first aid, medical emergency, Pandemic emergency) • Site Waste Management Plan • Safety Signs / Signage Plan • HSE Communication Plan • Civil Unrest Plan
6.	Risk Assessment & Method Statement (RAMS)	• Initial Construction Phase Risk Assessment • Contractors Risk Assessment and Method Statements • • Activity Risk Assessment & Method Statement (RAMS)
7.	Inspection	• Daily HSE Report Template • Weekly Inspection Report Template • Monthly HSE Inspection Report Template

	Items	Requirements
8.	Permits	• Hot Works. • Confined Space. • Work on or the Commissioning of live or near to live electrical installations. • Work on or the Commissioning of live or near to live mechanical installations. • All digging or excavation work. • Crane and Lifting Operations • Working at Height • General Non-Routine Works
9.	PANDEMIC	• PANDEMIC Protocols & Requirements • Weekly Reporting • Monthly Reporting
10.	Reporting lines	• HSE Communication Plan • Site Management Team Organogram
11.	Forms/ Register	• • Environmental Aspect and Impact • Fire Drill Attendance • Non-conformance and Incident Consequence Form • Loss Prevention tracker • First Aid Kit Injury-Dressing Control • Roll Call Evacuation • Fire Equipment • Site Induction • Plant and Equipment Inspection Form • HSE Awareness Training Register • Hazard Identification and Control • Hazardous Chemical Received. • H&S Committee Meeting Attendance • H&S Committee Meeting Minutes Template
12.	Certificates	• Plant and Equipment Inspection Test Certificates • Operatives Certificates / Licenses • Employees Valid Medical Certificates of Fitness • PAT Test Certificates for Portable Electrical Appliances • Scaffold Erectors and Inspectors Certificates • Competency Certificates of HSE Team
13.	Environment	• Site Waste Management Plan

	Items	Requirements
		• Environmental Aspect and Impact Register • Pollution control
14.	General	• A Log-Book/ Attendance Register for your company to be provided at the Site Security Station for Access control and for personnel accountability) • Team List / Personnel List. • Personnel Company Identity Cards/Badges. • Signed Contractor's penalty clause documents on safety standards. • Safety Data Sheets for chemicals e.g., cement, paint, plasticizer, primer, etc. • Mandatory and task specific Personal Protective Equipment as applicable and practicable to your operations: Hard Hat, Safety Shoes/Boots, Hi-Visibility vest/ Coverall, Eye goggles, Face Shields, Hand Gloves, Nose mask, Full Body Harness belt with Lanyards (Single or Double lanyard), LOTO (LOG-OUT TAG-OUT). • Legible and adequate Safety Signage, Caution Cones and Caution Tape as practicable. • Serviced and labeled Fire extinguishers sufficient for your operations. • FIRST AID Box(es) appropriate to the risks of work and size of the workforce. • Retainership hospital details: - Name of hospital, address, contact person, etc.

Summary of the Duties of Principal Contractor/ Contractor

92. A Principal Contractor must:

a) plan, manage, monitor and coordinate the entire construction phase;

b) take account of the health and safety risks to everyone affected by the work (including members of the public), in planning and managing the measures needed to control them;

c) liaise with the client and the client's agent for the duration of the project to ensure that all risks are effectively managed;

d) prepare a written construction phase plan / HSE Plan before the construction phase begins, implement, and then regularly review and revise it to make sure it remains fit for purpose;

e) have ongoing arrangements in place for managing health and safety throughout the construction phase;

f) consult and engage with workers about their health, safety and welfare;

g) ensure suitable welfare facilities are provided from the start and maintained throughout the construction phase;

h) check that anyone they appoint has the skills, knowledge, experience and, where relevant, the organisational capability to carry out their work safely and without risk to health;

i) ensure all workers have site-specific inductions, and any further information and training they need;

j) take steps to prevent unauthorised access to the site;

k) liaise with the client's agent to share any information relevant to the planning, management, monitoring and coordination of the pre-construction phase;

l) ensure that all contractors under his control are complying with the respective Health and Safety Plans, as well as Health and Safety Legislation;

m) provide and demonstrate to the client a suitable, sufficiently documented and coherent site-specific health and safety plan, based on the client's documented health and safety specifications, which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by thePrincipal Contractor as work progresses;

n) open and keep on site a health and safety file, which must include all documentation required as specified in this Health and Safety Specification, and must be made available on request to an inspector, the Client, the Client's Agent or a Contractor; and

o) on appointing any other Contractor, in order to ensure compliance with the health and safety provisions –

   i provide Contractors who are tendering to perform construction work for the Principal Contractor, with the relevant sections of the health

and safety specifications pertaining to the construction work which has to be performed;

ii ensure that potential Contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;

iii ensure that no Contractor is appointed to perform construction work unless the Principal Contractor is reasonably satisfied that the Contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely;

iv take reasonable steps to ensure that each Contractor's health and safety plan is implemented and maintained on the construction site;

v ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the Principal Contractor and any Contractor, but at least once every 30 days;

vi stop any Contractor from executing construction work which is not in accordance with the Client's Health and Safety Specifications and the Principal Contractor's health and safety plan for the site or which poses a threat to the health and safety of persons.

p) take reasonable steps to ensure co-operation between all Contractors appointed by the Principal Contractor

q) where changes are brought about to the design and construction, make available sufficient health and safety information and appropriate resources to the Contractor to execute the work safely;

r) discuss and negotiate with the Contractor the contents of their health and safety plan and finally approve that plan for implementation;

s) ensure that a copy of both the Principal Contractor and Contractor's health and safety plan is available on request to an employee, an inspector, a contractor, the client or the client's agent;

t) hand over a consolidated health and safety file to the client upon completion of the construction work, to include all drawings, designs, materials used and other similar information concerning the completed structure;

u) in addition to the documentation required in the health and safety file include and make available a comprehensive and updated list of all the contractors on site accountable to the Principal Contractor, and the type of work being done;

v) ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed.

93. The Contractor, as a minimum, must:

a) plan, manage and monitor all work carried out by themselves and their workers, taking into account the risks to anyone who might be affected by it (including members of the public) and the measures needed to protect them;

b) ensure a construction phase plan (HSE Plan) is drawn up before setting up the site;

c) provide and demonstrate to the Principal Contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the client's health and safety specification and provided by the Principal Contractor, which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the Contractor as work progresses;

d) check that all workers they employ or appoint have the skills, knowledge, training and experience to carry out the work;

e) make sure that all workers under their control have a suitable, site-specific induction, unless this has already been provided by the principal contractor;

f) provide appropriate supervision, information and instructions to workers under their control;

g) ensure they do not start work on site unless reasonable steps have been taken to prevent unauthorised access;

h) ensure suitable welfare facilities are provided from the start for workers under their control, and maintain them throughout the work;

i) coordinate their work with the work of others in the project team;

j) comply with directions given by the client's agent or Principal Contractor

k) open and keep on site a health and safety file, which must include all documentation required as specified in the health and safety specification and must be made available on request to an inspector, the client, the client's agent or the principal contractor;

l) before appointing another contractor to perform construction work be reasonably satisfied that the contractor that he or she intends to appoint has the necessary competencies and resources to perform the construction work safely;

m) co-operate with the Principal Contractor as far as is necessary to enable each of them to comply with their responsibilities;

n) as far as is reasonably practicable, promptly provide the Principal Contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

94. Where a Contractor appoints another Contractor to perform construction work, the duties that apply to the Principal Contractor will apply to the Contractor as if he or she were the Principal Contractor.

95. No Contractor may allow or permit any employee or person to enter any site unless that employee or person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

96. A Contractor must ensure that all visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.

97. A Contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed.

Management and Supervision of Construction Work

98. A Principal Contractor must, in writing, appoint one full-time competent person as the Construction Manager with the duty of managing all the construction workon a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor.

99. A Principal Contractor must upon having considered the size of the project, in writing appoint one or more assistant Construction Managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in hisor her management duties.

100. No Construction Manager appointed may manage any construction work on or in any construction site other than the site in respect of which he or she has been appointed.

101. A Contractor must, after consultation with the client and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site.

102. A Construction Manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

103. A Contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the Construction Supervisor, and every such employee has, to the extent clearly defined by the Contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of such employee does not relieve the Construction Supervisor of any personal accountability for failing in his or her supervisory duties.

104. No Construction Supervisor appointed may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated on all the relevant construction sites, the appointed Construction Supervisor may supervise more than one site.

Appointment and Competency of Principal Contractor's Responsible Persons

105. The Principal Contractor shall submit the details of the appointed persons responsible (Safety Engineer or competent construction health and safety specialist) to manage health and safety on site prior to commencement of work.

106. The responsible persons shall be competent in health and safety and be familiar with applicable health and safety regulations and best practices. Appointed Construction health and safety specialist shall have as a minimum, a level 3 HSE qualification with not less than 3 years' work experience in the construction sector and must be a member of NISafetyE and valid proof of meeting these requirements as specified will be required to be presented to the client's agent.

Compensation of Occupational Injuries and Diseases

107. The NSITF is charged with the implementation of the Employees' Compensation Act (2010) which enables compensation in the event of death, injury, disease, or disability arising out of, or in the course of employment.

108. The Principal Contractor and Contractor shall comply with the Employees' Compensation Act 2010 and shall submit to the client a valid certificate of compliance by NSITF or provide a valid letter of good standing from NSITF prior to commencement of work.

Occupational Health and Safety Policy

109. The Contractor shall submit their Health and Safety Policy, prior to construction commencement, signed and dated by the Chief Executive Officer/ Managing Director. The policy must outline objectives and how they will be achieved and implemented within the operations.

110. The Contractor shall bring this policy statement to the attention of all hispersonnel. The policy shall be submitted to the Client, Client's Agent and must bereadily available to regulatory agencies on request. As a minimum, the underlisted policies must be made available on request by the Client and Client's Agent.

    a) Occupational Health and Safety Policy
    b) Pandemic Policy
    c) Driving and Vehicle Safety Policy
    d) Environmental Management Policy
    e) Control of Hazardous Substance Policy
    f) Quality Management Policy
    g) Smoking Policy
    h) Drug and Alcohol Policy
    i) Aggression and Violence Prevention Policy

Health and Safety Organogram

111. The Contractor shall submit an organogram, prior to construction commencement, that will include the Health and Safety Site Team that will be assigned to the project. In cases where appointments have not been made, the organogram shall reflect the position. The organogram shall be updated when there is a change in the site team.

Contractor's Health and Safety (H&S) Plan

112. The Contractor shall prior to commencing the works to which this specification applies, submit to the Client's Health and Safety Agent (Safety Engineer) for approval a suitable and sufficiently documented health and safety plan, based on this specification, pre-construction information provided and the risk assessment that is conducted.

113. The Health and Safety (H&S) Plan shall contain all the relevant information and methodology to ensure the safe execution of the works in compliance with this specification and applicable legislation. The plan should set out the arrangements for securing the health and safety of everyone carrying out the construction work and all others that may be affected by it.

114. The plan must describe how the HSE risks posed by the project will be identified and managed throughout the duration of the project.

115. More specifically, the plan must detail:

    a) The health and safety management process;

    b) The arrangements for the management of health and safety of the construction work;

    c) The monitoring systems for checking that the health, safety & environmental plan is being followed;

    d) Health and safety risks to those at work, and others, arising from the construction work;

    e) The risks to the environment that may arise during the construction phase.

116. This H&S Plan must take into account the Pre-Construction Information (PCI) and the site wide survey and must be maintained, reviewed and updated by the site team throughout the construction phase of the project.

117. The Project Manager or the Designated HSE Advisors must review the H&S Plan monthly and under the following conditions:

    a) Change in Policy.

    b) Change of Duty Holder.

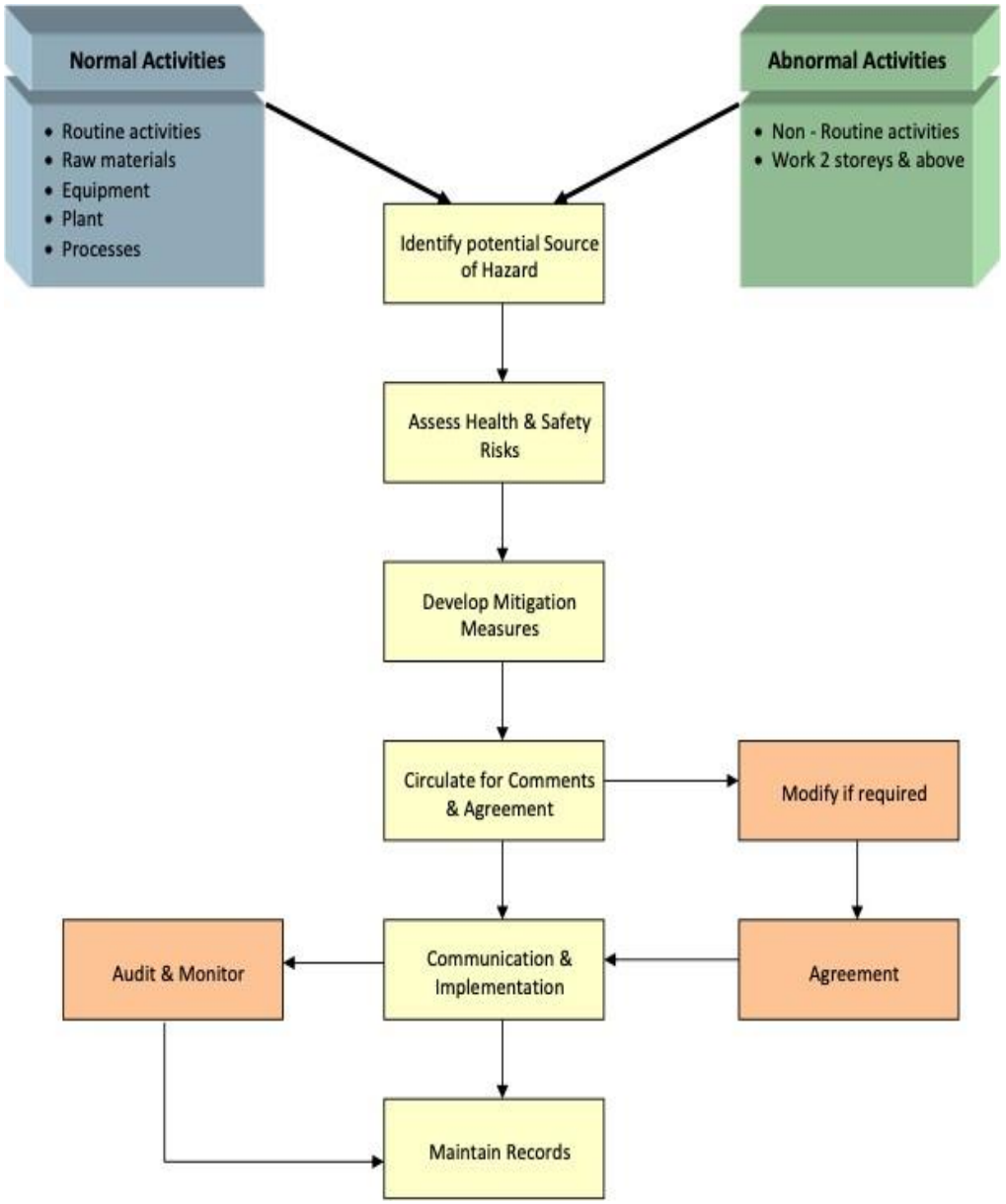
    c) Request from the HSE Manager.

    d) Design Changes and/ or in Scope of Work.

e) Change to the Construction Process.

118. The H&S Plan must be kept in the site filing system for viewing by the site team and relevant external organisations as required.

119. The Health and Safety Plan shall describe the Health and Safety Management Process. A flow diagram of the Health and Safety Management Process is shown below.



Health and Safety Management Process

120. The health and safety plan shall conform to the following structure and as a minimum provide:

a) Brief Description of the Project Scope of works.

121. This will briefly explain the project scope of works and shall cover the following:

a) HSE Plan is signed by the Contractor's Project Manager, HSE Manager and MD of the company.

b) Project details, including description of works, dates of construction and key milestone dates.

c) Details of client, client's agent, designers, principal contractor and other consultants.

d) Site team and responsibilities.

e) Location of existing information relevant to health and safety (H&S) on site, including information on existing environment, drawings, designer's risk assessment and existing health and safety file where applicable.

b) Leadership and Commitment

122. Contractor shall define how senior management set personal examples, demonstrate involvement and participation, communicate to employees on HSE matters including description of management structure and responsibilities.

c) Policy and Objectives

123. Contractor shall define the HSE policy statements that are to be observed, project HSE goals, objectives and KPI set for the project.

d) Organisation, Resources and Competence

124. Contractor shall define the formal structure for organisation, allocating resources, defining communications and responsibilities on HSE issues on the project and sets minimum competence levels and training requirements in HSE expected on the project for his personnel and specifying documentation control.

125. The following headings are as a minimum for consideration:

a) HSE organisation and responsibilities

b) HSE communications

c) HSE meeting program HSE promotion and awareness

d) HSE competence requirements

e) Employee orientation program

f) HSE training matrix

e) Evaluation and Risk Management

126. Contractor shall describe how hazards and effects are to be identified, assessed, controlled and how recovery in the event of loss of control will be carried out.

127. This will include the following headings as minimum:

a) Identification, assessment and control of hazards and aspects.

b) Methods and procedures for hazards and effects management.

c) Assessment of exposure of the workforce to hazards and aspects.

d) Material data sheets for safe handling of chemicals and other hazardous material (if available).

e) Methods and procedures for waste management.

f) Planning, Standards and Procedures

128. Contractor shall describe how the controls for hazards and effects management are to be implemented, develop a comprehensive listing of HSE standards and procedures applicable to the project and describe emergency response procedures.

129. The Contractor shall describe the arrangement put in place for controlling significant site risks in the HSE plan. These shall include arrangement for:

a) monitoring health and safety on site

b) reviewing the HSE Plan

c) ensuring compliance with applicable HSE standards, procedures and legislations

d) assessing the competency of workforce and contractors

e) Pandemic control and prevention

f) site waste management

g) liaison between parties on site

h) consultation with the workforce

i) exchange of design information between, principal contractor, designer, client, client's agent and contractors

j) management of design changes through the project

k) selection and control of contractors

l) site security

m) site induction

n) on-site training

o) welfare arrangements and first aid

p) incident / accident reporting procedure

q) production & approval of risk assessments & written systems of work

r) ensuring compliance to site rules

s) managing fire and emergencies

t) temporary works inspections

u) permit issuance and approval

v) safe scaffold erection and inspection

w) verification of tools and equipment suitability, maintenance and safe usage

x) verifying the medical fitness of workers

y) verifying workers competencies

z) controlling significant site risks

   i safety risks
   ii delivery & removal of materials including the impact on any members of the public
   iii dealing with services
   iv accommodating adjacent land use

v stability of structures whilst carrying out construction work, including temporary structures and existing unstable structures,
vi means of preventing falls
vii work near or with fragile materials
viii control of lifting operations
ix maintenance of plant and equipment
x work on excavations & known ground conditions
xi excessive Exposure to dust
xii work on wells, underground earthworks and tunnels
xiii work on or near water where there is a risk of drowning
xiv work on a caisson or compressed air working
xv work involving explosives
xvi traffic routes & segregation of vehicles and pedestrians
xvii storage of materials (particularly hazardous materials) and work equipment
xviii environmental and social risks
xix any other significant safety risks

aa) health Risks

i Pandemic
ii removal of asbestos
iii dealing with contaminated land
iv manual handling
v use of hazardous substances, particularly where there is a need for health monitoring
vi reducing noise and vibration
vii work with ionising radiation
viii exposure to UV radiation (from the sun)
ix any other significant health risks

bb) producing the Health and Safety File

i Arrangements for the collection & gathering of information.
ii Storage of information

cc) managing civil unrest

g) Implementation and Monitoring

130. Contractor shall define how HSE performance is monitored, the criteria for HSE performance and how the corrective action is to be taken. The main issues to be considered are:

a) HSE performance– General;

b) Incident investigation and reporting;

c) Daily, Weekly and Monthly reporting;

d) HSE inspections and audits;

e) HSE meetings;

f) Near misses.

h) Audit and Review

131. Contractor shall define the basis under which internal and external HSE auditing, and management reviews will be conducted.

Note: Any format(s) that would be used by contractor related to HSE is to be attached to the HSE Plan.

Compliance with Statutory Requirements

132. The Contractor shall carry out his work in accordance with all local, national, and international regulations and standards, as well as all applicable Codes of Practice, health and safety best practices and Occupational Health and SafetyAct, etc.

133. The Contractor shall at all times carry out his work in accordance with these specifications, approved procedures and Health and Safety (H&S) Plan. It is the contractor's responsibility to ensure that he has a copy of such as applies to his scope of work and that the H&S Specification is clear and understood by him. The contractor shall ensure that all personnel under his control are aware of and follow the statutory guidelines, standards and site rules.

134. The Contractor shall observe and consider the application of the following legal requirements, standards, national and international regulations when carrying out construction work:

a) Lifting and Allied Work Equipment (Safety) Regulations, 2018.

b) National Building Code, 2006.

c) National Environmental (Construction Sector) Regulations, S.I. No.19 of 2011.

d) National Fire Safety Code, 2013.

e) Nigeria Factories Act, No.16 of 2004.

f) ISO14001:2015 Environment Management System.

g) ISO 45001:2018 Occupational Health and Safety Management System.

h) ISO9001:2015 Quality Management System.

i) Coronavirus Disease (PANDEMIC) Health Protection Regulations 2021.

j) NCDC-Guidelines for Employers and Businesses in Nigeria.

k) LSG-Sectorial Guidelines on Occupational Safety and Health in Lagos State Flowing the PANDEMIC pandemic.

l) NECA (Nigeria Employer's Consultative Association)-PANDEMIC Workplace Guide for Employees.

m) FOCI- Proposed SOP for Building and Construction Sites during the PANDEMIC pandemic.

n) WHO- Cleaning and disinfection of environmental surfaces in the context of PANDEMIC.

o) AFRICA- Workplace Preparedness: PANDEMIC (SARS-CoV-19virus).
p) Abuja Environmental Protection Board (AEPB) Act, 1999
q) Abuja Environmental Protection Board (AEPB) (Waste Management) Regulation, 2005
r) Dumping of Refuse silts and other Environmental Health Offences Bye-Law (No. 40 2020 (As amended).
s) Labour Act, CAP LI, LFN 2004.
t) Environmental Impact Assessment Act, 1992
u) Public Procurement Act, 2007.
v) National Environmental Standards and Regulations Enforcement Agency, (NESREA) Act, 2018
w) ILO Code of Practice: Safety and Health in Construction, Revised Edition, 2022.
x) Standards and Regulations for Gas Piping in The Nigeria National Building Code (2020).
y) Electric Power Sector Reform Act 2005 CAP E7, LFN 2004 (EPSRA).
z) National Electric Power Policy 2001.
aa) Nigerian Electricity Management Service Agency (NEMSA) Act 2015.

Risk Assessment

135. The Client shall cause a baseline risk assessment to be conducted by a competent person and the assessed risks shall form part of the health and safetyspecifications.

136. The Contractor must, before commencement of any construction work, and during construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site and must include:

    a) The identification of the risks and hazards to which persons may be exposed to.

    b) An analysis and evaluation of the risks and hazards identified; based on a documented method.

    c) A documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified.

    d) A monitoring plan; and

    e) A review plan.

137. The Contractor must ensure that, as far as is reasonably practicable, all occupational health, safety and environmental risks associated with the construction work are analysed, evaluated, and addressed in a risk assessment.

138. The Contractor must ensure that all employees under his control are informed, instructed, and trained by a competent person regarding any hazard and the related work procedures and/or control measures before any work commences and thereafter at the times determined in the risk assessment monitoring and review plan of the relevant site.

139. The Principal Contractor must ensure that all contractors are informed regarding any hazard that is stipulated in the risk assessment before any work commences and thereafter at the times determined in the risk assessment monitoring and review plan of the relevant site.

140. The Contractor must consult with the health and safety committee or with a representative group of employees if no health and safety committee exist, on the monitoring and review of the risk assessments for the site.

141. The Contractor must ensure that copies of risk assessment for this site are available on site for inspection purposes by interested parties (inspector, the client, client's agent, any contractor, any employee, a representative trade union,a health and safety representative or safety committee member.

142. The Contractor must ensure that task-specific risk assessments are developed and communicated to and signed by all employees assigned to undertake a task.

The Contractor must ensure that the risks associated with a task and controls puts in place are understood by the workforce assigned to carry out the task.

143. It is the duty of the Contractor to ensure pre-task risk assessment is done by a competent person and that employees are informed of the pre-task risks and the risk control measures.

144. A Contractor must review the relevant risk assessment where changes areeffected to the design and/or construction that result in a change to the risk profile, or when an incident has occurred.

145. In general, the Contractor must ensure that the Risk Assessment involves identifying the hazards present in a work activity on site. This is followed by an evaluation of the extent of the risk involved taking into account those precautions already being taken.

146. The following general principle should be followed when conducting a risk assessment:

    a) All relevant risks and/or hazards should be systematically addressed.

    b) The risk assessment should address what actually happens in the workplace during the work activity.

    c) All employees and those who may be affected must be considered, including maintenance staff, security guards, visitors and subcontractors etc.

    d) The risk assessment should highlight those groups and individuals who may be required to work alone or who have disabilities.

    e) The risk assessment process should take into account the existing safety measures and controls.

    f) The level of detail on a risk assessment should be appropriate to the level of risk.

Safe Work Procedure

147. Safe Work Procedures are to form part of the H&S Plan and must be compiled for all the identified activities.

148. The safe work procedures must address the following elements:

    a) The work method to be followed to conduct work safely.

b) Mitigation of identified risks.

c) Reducing and controlling risks and hazards that have been identified.

d) Responsibilities of competent persons.

e) Required personal protective equipment.

f) Correct equipment/tools/machinery to be used.

g) Reference to relevant registers to be completed.

h) Reference to applicable risk assessment.

149. The Contractor shall ensure suitable and sufficient procedures are developed for managing specific activity. As a minimum, the following procedures must be implemented.

a) Hazard Identification & Risk Assessment

b) Pandemic Control and Prevention

c) Emergency Preparedness and Response

d) Work at Height

e) Confined Space Entry and Rescue

f) Contractors Management

g) Permit-to-Work Procedure

h) Fire Fighting

i) Fire Drill Evacuation

j) First Aid

k) Non-Conformance and Corrective Action Procedure

l) Incident Investigation and Reporting Procedure

m) Waste Management

n) Diesel Fuel, Oils and Chemical Storage

o) Prevention of Spills – Leaks of Chemical, Diesel Oils etc.

p) Managing Environmental Risks from Plant & Vehicles

q) Environmental Inspection and Audit

Qualification and Training of Personnel

150. The Contractor shall ensure that all personnel under his control regardless of position are given a HSE induction prior to arrival on site, and on arrival,attending the project site HSE induction.

151. The Contractor shall ensure that all personnel under his control regardless of position are given specific HSE training as the scope of work and work conditions dictate. The contractor shall ensure that all personnel are also trained in both general awareness of environmental issues and specific procedures aimed at avoidance of environmental damage.

152. The Contractor shall submit to the Client's Agent an HSE training program for his personnel for the duration of the contract. The Contractor shall provide documented evidence of all HSE training and instruction given to personnel under his control to the Client's Agent, together with practical demonstrations of such training if requested.

153. The Contractor shall ensure that all personnel are qualified in the particular job that they are performing and undergo further training to meet the needs of the working environment, if required.

154. The Contractor shall provide copies of all qualifications for personnel under his control prior to arrival on site and shall if required by the Client's Agent release his personnel at the Contractor's expense to sit an examination to determinetheir competency.

155. The prerequisite for becoming a Safety Engineer is preferably a University Degree in Engineering or a Higher National Diploma in Engineering from a Monotechnic or Polytechnic. The individual must be registrable with the Nigerian Society of Engineers (NSE) and Council for the Regulation of Engineering in Nigeria (COREN) and must be accredited by the Nigerian Institution of Safety Engineers (NISafetyE). Combination of education and experience: University, Monotechnic or Polytechnic education, training and/or technical experience furnished with a good understanding, both theoretical and practical, of theengineering sciences and techniques and their applications to the related branch of engineering. Safety engineers must have safety engineering skills or educationrelated to the position's duties and grade.

Health and Safety Representatives(s)

156. The Contractor shall ensure that Health and Safety Representative(s) is/are appointed and trained to carry out his/ her functions. The appointment must be

in writing. The Health and Safety Representative shall carry out regular inspections, keep records and report to the supervisor to take appropriate action.

157. He/ she shall attend Health and Safety Committee Meetings. The Health and Safety Representative shall be part of the team that will investigate incidents, accidents, and non-conformances.

Induction

158. No Contractor may allow or permit any employee or person to enter site unless they have undergone health and safety induction training pertaining to thehazards prevalent on site at the time of entry. This includes visitors to site.

159. The Contractor must ensure that visitors to site have the necessary protective equipment (PPE). A copy of attendance registers of all employees who attend inductions shall be kept.

Awareness

160. The Contractor shall conduct periodic toolbox talks on site, preferably daily, before any hazardous work takes place. The talks shall cover the relevant activityand an attendance register must be signed by all attendees. This record of who attended and the content of the topic will be kept on the site health a safety file as evidence of training.

Competency

161. After the Contractor has identified the training to be conducted as part of the competency requirement, and based on Risk Assessment, he shall send the relevant persons on appropriate courses and keep certificates of training for reference.

General Record Keeping

162. The Contractor shall keep and maintain Health and Safety records to demonstrate compliance with the Health and Safety Specification. The contractorshall ensure that all records of incidents, spot fines, training etc. are kept on site.All documents shall be available for inspection by the Client, or regulatoryagencies. Records kept shall include:

    a) Plant and Equipment Inspection Test Certificates.

    b) Operatives Certificates/ Licenses.

c) Employees Valid Medical Certificates of Fitness.

d) PAT Test Certificates for Portable Electrical Appliances.

e) Scaffold Erectors and Inspectors Certificates.

f) Competency Certificates of HSE Team.

g) Maintenance Reports.

h) Attendance register.

i) PPE Records.

j) Safety Data Sheet.

k) General Complaints.

l) Fines.

m) General Incidents.

n) Surveillance Medical Report.

o) Inspection Registers.

p) Notices from Regulatory Agencies.

q) Site Assessment Test Reports

r) Site Acceptance Test Certificates

HSE Meetings/ Information

163. The Principal Contractor shall provide the Client with a plan showing the frequency of HSE meetings within its own organisation and other Contractors andshall invite the Client's Agent to attend and shall provide copies of HSE meeting minutes.

164. The Principal Contractor shall provide the Client's Agent with a flowchart showing the flow of HSE information to all employees under his control.

165. The Senior Contractor's Representative on site or his immediate superior in his organisation shall attend and actively participate in the HSE Meetings.

Welfare Facilities

166. The Principal Contractor shall provide adequate welfare facilities for construction workers and must ensure that construction work does not start until suitable welfare facilities are in place. It is the duty of the Principal Contractor to sure

that suitable welfare facilities are provided from the start and are maintained throughout the construction phase.

167. The availability of welfare facilities, their location on site and regular maintenance must be considered by the Principal Contractor at the planning and preparation stages of the construction project before construction work starts.

Toilets

168. So far as is reasonably practicable, the Principal Contractor will need to provide flushing toilets and running water, connected to mains water and drainage systems. If this is not possible, facilities with a built-in water supply and drainage tanks should be used.

169. Toilets must be adequately ventilated, lit and maintained in a clean condition. The frequency of cleaning will depend on usage. Basic daily cleaning may not always be sufficient.

170. Provide an adequate number of toilets. The number needed will depend on the number of workers on site and the type of facilities provided. Portable toilets have a limited capacity and will need emptying. The number of portable toilets needed will depend on the number of persons and the frequency of emptying.

171. Men and women may use the same toilet, if it is in a lockable room and partitioned from any urinals. Otherwise, the Contractor shall provide separate toilets. Adequate supplies of toilet paper should always be available. Sanitary waste disposal must be provided in facilities used by female workers.

172. The Contractor shall ensure there are adequate sanitary conveniences and washing facilities for all staff and visitors attending the site. The conveniences and rooms containing them shall be regularly cleaned and maintained to a suitable standard. The responsibility for cleaning shall be clearly defined by the Contractor's Project Manager, particularly where more than one contractor share facilities. A cleaning procedure shall be established with responsibility clearly allocated.

Mess Room and Rest Facilities

173. The Contractor shall provide adequate mess room and rest facilities on site. Welfare facilities shall provide arrangements for the preparation and eating of meals including the means of boiling water and including the means to wash drinking and eating utensils. The welfare facilities shall be suited to meet the requirements of the project.

Changing Accommodation

174. Suitable and sufficient accommodation for clothing that is worn during working hours shall be incorporated in the aforementioned site offices. These shallinclude facilities to dry clothing and provide changing facilities, where for reasonsof health or propriety, persons cannot be expected to change elsewhere.

Drinking Water

175. The Contractor shall ensure that an adequate supply of wholesome drinking water and cups are available within the welfare unit.

First Aid Arrangement

176. The Contractor shall provide first aid box/es and appoint, in writing, First Aider(s) for this project in line with the results of the Contractor's risk assessment for the project, and this health and safety specification. The appointed First Aider(s) are to be sent for accredited first aid training before starting on site. Valid certificates are to be kept on site.

177. First Aid box/es must be adequately stocked at all times, accessible and be controlled by a qualified First Aider. If required by the Client, the Contractor shall have a stretcher on site to be used in case of a serious incident.

178. Notices advising site personnel of the location of First Aid equipment, the name of the person (s) capable of administering first aid and the address of the nearest casualty unit must be displayed in the site office.

Accident/ Incident Reporting and Investigation

179. All incidents (accidents, near misses, dangerous occurrence and unsafe situations etc.) shall be reported to the Client's Agent and investigated. The Contractor shall promptly provide notification to the client of any incidents that occur at the work-site.

180. Incident investigations shall be conducted by the Contractor's appointed Accident Investigator – this Investigator must be a competent person or persons who have sufficient knowledge to carry out an investigation. Incident Investigation Reports shall be at a level commensurate with the event. Reports shall be loggedon the Incident Reporting System or Register and Contractor shall ensure that Actions are tracked and closed out in a timely manner.

181. The Principal Contractor's Project Manager and his deputy on site shall be responsible for ensuring that all incidents are reported to the client and the

client's agent within 2 hours of the incident occurring using the approved Incident Notification Form after which a detailed Incident Investigation shall be conducted and report submitted within 5 days of the Incident.

182. In the event of a fatality or a permanent disabling injury the Contractor must submit proof of reporting of incident to the NSITF Board and the nearest office the National Council for Occupational Safety and Health in the State within 7 days of its occurrence as required under the Employees' Compensation Act 2010.The Client reserves the right to conduct investigations into any incidents thatthey deem fit, and the Contractor is required to provide full co-operation in this regard.

183. All reported incidents must be investigated, commensurate with risk, and corrective actions must be taken to prevent re-occurrence.

Site Signage

184. The Contractor shall ascertain and provide adequate onsite health and safety signage. This signage shall include, but shall not be limited to, Hard Hat/ Helmet Area; Safety Shoes to be worn on site; Dust Masks to be worn in areas where there might be exposure to excessive dust; Ear Plugs/ Muffs to be worn where there might be noise exposure over 85 db; Gloves; Safety Goggles; Safety Harness, Workers in Excavation, traffic management, etc. The Contractor shall be responsible to maintain the quality and replacement of signage.

185. The Contractor shall continuously evaluate the need for signages on site and install sufficient number and type based on the evaluation findings and signage requirements. The evaluation must be conducted by a competent person trained on health and safety signages and its application on construction site.

Certification of Equipment & Equipment Standard

186. The Contractor shall ensure that all lifting and work equipment including those that fall under Lifting and Allied Work Equipment (Safety) Regulations, 2018; such as lifting tackle, lifting appliances, mobile work platforms, drilling rigs and hoists under his control are in possession of current up-to-date certification and are colour-coded.

187. Prior to their use, the Contractor shall provide copies of test certificates and records of a third-party Thorough Examinations to the Client's Agent (Safety Engineer).

In addition, Contractor shall adhere to the standards listed below, for some of the equipment:

Crane

188. The following must be implemented when using crane.

a) Operators are responsible for the exercise of caution necessary for the safe operation of their equipment. Operators shall immediately report unsafe conditions, including defects in the machine, to their supervisor.

b) Operators shall not permit anyone to ride the hook, headache ball or load.

c) When the operator leaves the machine or repairs are being made, it is the responsibility of the operator to set the brakes, secure the boom; take the machine out of gear and turn off the engine.

d) All loose material shall be removed before the loads are lifted.

e) Safety hooks, or properly moused hooks, shall be used on all operations where loads are being handled. Suspended loads shall be controlled by tag lines.

f) Booms shall be equipped with a boom angle indicator and approved boom stops. Boom heads, load blocks and hooks shall be painted with high visibility paint.

g) All cranes, except crawler cranes and boom type excavators, shall be equipped with outriggers of a design and strength suitable for the work being performed. Outriggers shall be used in accordance with the Manufacturer's Instructions.

h) Hooks, wire rope, bearings, gears, friction clutches, chain drives and other parts subject to wear must be inspected at regular intervals and repaired or replaced as required. Records of such inspections shall be maintained by the Contractor.

i) All lifting devices and equipment must be certified annually. This certification shall be submitted to the Projects Management and Client's Agent prior to use. All hydraulic lifting devices and equipment must be certified also, every 6 months.

j) All overhead electrical lines shall be considered as High Voltage lines and no crane or any part of a crane shall be permitted to work within ten feet of an overhead electrical line.

k) Vehicular and/or pedestrian traffic shall not be allowed to pass beneath the boom of any crane. When the boom of a crane must be placed over a

street or pedestrian walkway the traffic, vehicular and/or pedestrian shall be stopped or rerouted.

l) Boatswain's chairs shall not be suspended from any crane.

189. A Contractor must, in addition to the above must ensure that where tower cranes are used:

a) they are designed and erected under the supervision of a competent person

b) a relevant risk assessment and method statement are developed and applied

c) the effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer's specification

d) the bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured

e) the tower crane operators are competent to carry out the work safely; and the tower crane operators have a medical certificate of fitness to work in such an environment.

Construction Equipment

190. The following must be implemented when using crane:

a) The equipment shall be thoroughly checked at the beginning of each shift.

b) Operators shall not start or operate any equipment while other personnel are oiling or adjusting the equipment.

c) The glass in the cabs of cranes, loaders and other equipment shall be approved safety glass.

d) Runways, stairways and/or platforms shall be provided whenever required for the safe operation of the equipment.

e) No more than one person, the operator, shall ride any equipment unless the equipment is equipped with seats to accommodate such riders;

f) Back-up alarms are required.

Construction Vehicles and Mobile Plant

191. A Contractor must ensure that all construction vehicles and mobile plant:

a) are of an acceptable design and construction;

b) are maintained in a good working order;

c) are operated by a person who has received appropriate training, is certified competent and in possession of proof of competency and is authorized in writing to operate those construction vehicles and mobile plant;

d) has a medical certificate of fitness to operate those construction vehicles and mobile plant;

e) have safe and suitable means of access and egress;

f) are properly organised and controlled in any work situation by providing adequate signaling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;

g) are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guard-rails and crash barriers;

h) are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;

i) are equipped with an acoustic warning device which can be activated by the operator;

j) are equipped with an automatic acoustic reversing alarm; and

k) are inspected by the authorised operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspection are recorded in a register kept in the construction vehicle or mobile plant.

192. A Contractor must ensure that:

a) no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon forthat purpose;

b) every construction site is organised in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;

c) the traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size;

d) every traffic route is, where necessary, indicated by suitable signs;

e) All construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order toidentify the location of the vehicles or plant;

f) all construction vehicles or mobile plant when not in use, have buckets, booms or similar appendages, fully lowered or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set and ignition secured;

g) whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;

h) tools, material, and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and

i) all construction vehicles or mobile plant travelling, working or operating on public roads comply with the requirements of the Federal Road Safety Commission (establishment) Act 2007 and National Road Traffic Regulation (NRTR) 2012.

193. The Contractor moving solid or liquid construction materials and waste shall take strict measures to minimize littering of roads by ensuring that vehicles are licensed and loaded in such a manner as to prevent falling off or spilling of construction materials and by sheeting the sides and tops of all vehicles carrying mud, sand, other materials and debris.

Electrical Installations and Machinery on Construction Sites

194. A Contractor must, in addition to compliance with the Nigeria Factories Act, 2004 ensure that:

    a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;

    b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;

    c) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;

    d) all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and

    e) all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

195. A Contractor shall ensure that:

    a) all electrical work installations and cable/wire capacities shall be in accordance with the Electric Power Sector Reform Act 2005 CAP E7, LFN 2004 (EPSRA), the National Electric Power Policy 2001, the Nigerian Electricity Management Service Agency Act (NEMSA) Act 2015, and all applicable Local and International Regulations;

    b) all switches shall be enclosed and grounded. Panel boards shall have provisions for closing and locking the main switch and fuse box compartment;

    c) cables or cords passing through work areas shall be covered or elevated to protect them from damage and to eliminate tripping hazards;

    d) cables or cords crossing roadways shall be covered to prevent damage from vehicles and / or equipment and they shall not be allowed to lie in water;

e) extension cords used with portable electric tools and appliances shall be heavy duty, of the three-wire grounding type, and shall conform to the type and configuration required by the applicable government standard;

f) suitable means shall be provided for identifying all electrical equipment and circuits, especially when two or more voltages are used on the same job. All circuits shall be marked for the voltage and the area of service they provide;

g) all electrical work shall be performed by qualified electricians who are familiar with the Wiring Regulations;

h) ground-fault circuit interrupters or an approved assured grounding program shall be used. Should an assured grounding program be used, copies shall be submitted to the Company Project Management Team;

i) live parts of wiring or equipment shall be effectively guarded to prevent contact by personnel or objects;

j) all electrical circuits and/or equipment shall be de-energized prior to any work being performed on the circuits and equipment.

Exception: When electrical circuits and/ or equipment cannot be de-energized and must be worked hot, then adequate voltage rated insulated gloves, mats, aprons, and other protective equipment shall be used as required and shall be tested for leaks and insulating capabilities.

Working Safely Near Overhead Power lines

196. Contractor shall:

a) Collect information about the routes of Over Head Power Lines, safe operating distances, maximum working heights permitted under eachspan of overhead line, other safe work practices, etc;

b) prepare a training plan for workers identifying the hazards, precautions to follow and what to do if they do contact a power line;

c) prepare emergency action plan in the event of an accident;

d) use barriers and signs/ posts to limit access;

e) ensure orientation of workers on hazards prior to starting of an assignment, and training to lessen or prevent accidents, and precautionsto follow in case of an event.

Personal Protective Equipment (PPE)

197. The Contractor shall provide free of charge all personnel under his control with Personal Protective Equipment (PPE) clothing and other equipment, as requiredin connection with the safe performance of the work, which shall be maintainedin good condition or replaced.

198. The Contractor shall ensure that all personal protective equipment under his control is of good quality, suits the wearer and fit for purpose. As a minimum, Contractor shall ensure that:

    a) Safety goggles, safety helmets, hard hats, reflective jackets, and safety shoes shall be worn by all personnel while in the vicinity of any construction activity.

    b) Safety goggles or face shields shall be worn by all personnel performing grinding/ chipping, chiseling / cutting, welding or any other similar acts which may produce dust, sparks, gases and/ or flying particles, and by those in the affected vicinity.

    c) Protective gloves shall be provided and used when working with sharp material.

    d) All employees shall be required to wear appropriate work protectiveclothing (coveralls, pants, or overalls for skin protection).

    e) Nose masks shall be provided and used by all personnel on site.

    f) All personnel protective devices shall be risk assessed and inspected regularly and maintained in good working conditions.

199. Contractor shall provide adequate storage facility for storing PPEs and shall provide instruction to all employees on how to use the PPE safely. PPE maintenance and usage monitoring program should be implemented by theContractor for effective monitoring of PPE compliance. The Contractor shallensure that the type of PPE chosen and provided must be suitable for the different tasks and hazards on construction site.

Occupational Health & Hygiene

200. The Contractor shall ensure that all necessary arrangements have been made to identify any hazardous exposures to health of his employees and those precautionary measures have been taken to protect personnel and the workplace.

201. The Contractor shall provide and agree with the Client arrangements for provision of medical facilities and services for all his personnel including, but not limited to, physical examination for fitness to work and freedom from contagious diseases, consultation and treatment of sickness and injury.

Occupational Health

202. The Exposure of workers to occupational health hazards and risks are very common in any work environment, especially in construction. Occupational health hazards and risks exposure is a major problem, and all Contractors are to ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards and risks.

203. The occupational hazards and risks may enter the body in three ways:

    a) Inhalation through breathing e.g., cement dust;

    b) Ingestion through swallowing maybe through food intake;

    c) Absorption through the skin (pores) e.g., painting or use of thinners.

204. The contractor is required to ensure that all his personnel are medically fit prior to being allowed onto the work site.

205. All Contractors should ensure that Occupational Hygiene surveys are conducted as per the Occupational Health and Safety Act to ensure employees are not exposed to hazards. Risk Assessments should identify areas where surveys are to be conducted.

Pandemic Control and Prevention

206. The Contractor shall take measures to reduce the risk of spreading PANDEMIC on site. The Contractor shall develop a Pandemic Control and Prevention Procedure/ Protocol as part of is Infectious Disease Preparedness Action Plan to reduce the risk of exposure in the workplace and communicate it to all staff members. This includes identifying a central person focused on coordinating PANDEMIC matters.

207. As a minimum, Contractors must take the following measures to reduce the risk of spreading PANDEMIC in the workplace:

    a) Provide handwashing facilities/alcohol-based sanitisers – promote thorough and frequent handwashing, with soap and water for at least 20 seconds.

b) Ensure extensive temperature checks on entry into office and construction site.

c) Mandate the use of non-medical face mask/ covering for all staff at all times.

d) Develop physical distancing strategies within the construction environment to safeguard the health and safety of employees, in line with guidelines set out by the NCDC.

e) Where Construction workers have regular face-to-face contact with other contractors, ensure they have the necessary protective equipment to keep them safe and their health protected.

f) Ensure the contact details and emergency contact details of all employees are kept up to date and is always easily accessible.

g) Ensure that employees know how to spot the symptoms of coronavirus and they have a clear understanding what to do if they feel unwell, mandating unwell employees to stay at home.

h) Display signage on site premises reminding staff and visitors to maintain good and respiratory hygiene.

i) Discourage the sharing of work equipment, tools, computers, phones and desks.

j) Ensure emergency arrangement are in place for dealing with infected persons and informed employees on actions to take during evacuation of anyone suspected of being infected with Pandemic virus.

k) Maintain employees and visitors screening register.

l) Ensure adequate system are in place for disinfection of tools and equipment during and after usage.

Permit to Work System

208. The Client operates a "Permit to Work System"(PTW) procedure which the Contractor shall adhere to fully, when working on site.

209. The Contractor shall ensure that all personnel who are required to work under the Permit to Work system shall understand and shall be tested to be authorized and competent in dealing with the Permit, prior to commencing work.

210. The Contractor must ensure that all PTW are properly completed and duly authorised by the appropriate Client's Agent signatories before commencing with

the work in question. All requirements stated in the Permit must be fully complied with. Activities that require a permit to work include but are not limited to:

a) hot works.

b) confined space.

c) work on or the commissioning of live or near to live electrical installations.

d) work on or the commissioning of live or near to live mechanical installations.

e) all digging or excavation work.

f) crane and lifting operations.

g) working at height.

h) demolition.

i) site clearing.

j) general non-routine works.

Work at Height

211. The Contractor shall ensure that working at height is considered as a last option when assessing how a work task should be carried out. Working at height shall only be undertaken if the task is essential and alternative means of achieving the task have been fully considered.

212. In any location where the potential exists to have a fall likely to cause personal injury the person must use a fall protection system. There is no minimum height where the risks of operating at height will not be considered and assessed with appropriate use of the risk assessment process.

213. The only occasion where a fall protection system may not be used is when a greater hazard exists after implementing fall protection measures. The residual risk must then still be considered acceptable in order to carry out the work. In order to ensure that no person is exposed to the danger of being deniedimmediate rescue or recovery, all personnel operating at height must have direct standby supervision or work as a team of at least two personnel. Contractor to ensure all Working at Height operations is in compliance with the Work at Height Regulations 2005.

214. A Permit to Work shall always be raised for all Working at Height operations and the Contractor before working at height shall work through these simple steps:

    a) avoid work at height where it is reasonably practicable to do so;

    b) where work at height cannot be avoided, prevent falls using either an existing;

    c) place of work that is already safe or the right type of equipment;

    d) minimise the distance and consequences of a fall, by using the right type of equipment where the risk cannot be eliminated.

    e) Implement emergency evacuation and rescue procedures.

215. The Contractor shall allocate sufficient time for planning work at height. When undertaking work at height, the Contractor must:

    a) take account of weather conditions that could compromise worker safety;

    b) check that the place (e.g., a roof) where work at height is to be undertaken is safe. Each place where people will work at height needs to be checked every time, before use;

    c) stop materials or objects from falling or, if it is not reasonably practicable to prevent objects falling, take suitable and sufficient measures to make sure no one can be injured, e.g., use exclusion zones to keep people away or mesh on scaffold to stop materials such as bricks falling off;

    d) store materials and objects safely so they won't cause injury if they are disturbed or collapse;

    e) plan for emergencies and rescue, e.g., agree a set procedure for evacuation. Think about foreseeable situations and make sure employees know the emergency procedures.

Fall Protection

216. The Contractor shall:

    a) designate a competent person to be responsible for the preparation of a fall protection plan;

    b) ensure that the fall protection plan contemplated above is implemented, amended where and when necessary and maintained as required; and

    c) take steps to ensure continued adherence to the fall protection plan.

217. A fall protection plan shall include the following minimum requirements:

a) a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified perlocation;

b) the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;

c) a rescue plan detailing the necessary procedure, personnel and suitable equipment;

d) designation of a Competent Person responsible for the oversight and supervision of all elevated work;

e) the programme for training employees to work in elevated positions including specific instruction in the correct use of fall protection equipment and records of all training given;

f) the procedure and requirements for the inspection, testing andmaintenance of all fall protection equipment;

g) the use of lifelines in situations where safety may be compromised by frequent attaching and detaching of lanyards from the structure;

h) provisions to prevent tools and other objects falling from elevated positions onto persons below;

i) a specific requirement to stop work at elevated positions during inclement weather;

j) there is a fall rescue and response plan;

k) the process for review, amendment and maintenance of the Fall Protection Plan as and when required;

l) measures in place to ensure ongoing compliance with the requirements of the Fall Protection Plan by all affected employees.

218. A contractor must ensure that a construction manager appointed is in possession of the most recently updated version of the fall protection plan.

219. A contractor must ensure that all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings.

220. Also that no person is required to work in a fall risk position, unless such work is performed safely as contemplated in above and fall prevention and fall arrest equipment are approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and securely attached to a structure or plant, and the structure of plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and person who could fall, and fall arrestequipment is used only where it is not reasonably practicable to use fall prevention equipment.

Structures

221. The Contractor shall ensure that:

    a) all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work.

    b) no structure or part of a structure is loaded in a manner which would render it unsafe; and

    c) All drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client's agent or employee.

222. An owner of a structure must ensure that:

    a) Inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use.

    b) The structure is maintained in such a manner that it remains safe for continued use.

    c) The records of inspections and maintenance are kept and made available on request to an inspector.

Temporary Works

223. A contractor must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

224. A contractor must ensure that all temporary works operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose.

225. A contractor must ensure that:

a) all temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads;

b) all temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer should be consulted;

c) detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the client, the client's agent or any employee;

d) all persons required to erect, move or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely;

e) all equipment used in temporary works structure are carefully examined and checked for suitability by a competent person, before being used;

f) all temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least on a daily basis until the temporary works structure has been removed and the results have been recorded in a register and made available on site;

g) no person may cast concrete, until authorization in writing has been given by the competent person contemplated above;

h) if, after erection, any temporary works structure is found to be damaged or weakened to such a degree that its integrity is affected, it is safely removed or reinforced immediately;

i) adequate precautionary measures are taken in order to:

i secure any deck panels against displacement; and
ii prevent any person from slipping on temporary works due to the application of release agents;

iii as far as is reasonably practicable, the health of any person is not affected through the use of solvents or oils or any other similar substances;
iv upon casting concrete, the temporary works structure is left in place until the concrete has acquired sufficient strength to safely support its own weight and any imposed load, and is not removed until authorization in writing has been given by the competent person;
v the foundation conditions are suitable to withstand the loads caused by the temporary works structure and any imposed load in accordance with the temporary works design.
vi Provision is made for safe access by means of secured ladders or staircases for all work to be carried out above the foundation bearing level;
vii a temporary works drawing or any other relevant document includes construction sequences and methods statement;
viii the temporary works designer has been issued with the latest revision of any relevant structural design drawing;
ix a temporary works design and drawing is used only for its intended purpose and for a specific portion of a construction site; and
x the temporary works drawings are approved by the temporary works designer before the erection of any temporary works.
xi No contractor may use a temporary works design and drawing for any work other than its intended purpose.

Excavation, Trenching & Shoring

226. The Contractors must:

a) ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing for that purpose; and

b) evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins.

c) Ensure a Permit to Work (PTW) is in place for all exaction work.

d) Ensure excavation plan is in place is in place.

227. A Contractor who performs excavation work:

a) must take reasonable and sufficient steps in order to prevent, as far as is reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation;

b) may not require or permit any person to work in an excavation which has not been adequately shored or braced except an appointed competent person has confirmed:

   i shoring and bracing may not be necessary where the sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or
   ii such an excavation is in stable material;
   iii permission in writing upon evaluation by him or her of the site conditions; and
   iv where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations is decisive and such a decision must be noted in writing and signed by both the competent person and the professional engineer or technologist, as the case may be;

c) must take steps to ensure that the shoring or bracing contemplated above is designed and constructed in a manner that renders it strong enough to support the sides of the excavation in question;

d) must ensure that no load, material, plant or equipment is placed or moved near the edge of any excavation where it may cause its collapse and consequently endangers the safety of any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing;

e) must ensure that where the stability of an adjoining building, structure or road is likely to be affected by the making of an excavation, steps are taken to ensure the stability of such building, structure or road and the safety of persons;

f) must cause convenient and safe means of access to be provided to every excavation in which persons are required to work, and such access may not be further than six meters from the point where any worker within the excavation is working;

g) must ascertain, as far as is reasonably practicable, the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of excavation work that may affect any such service, takethe steps that are necessary to render the circumstances safe for all persons involved;

h) must ensure that every excavation, including all bracing and shoring, is inspected-

i daily, prior to the commencement of each shift; o after every blasting operation
ii after an unexpected fall of ground
iii after damage to supports; and

i) must ensure that all precautionary measures stipulated for confined spaces as determined in this Health and Safety Specification are complied with by any person entering any excavation;

j) must, where the excavation work involves the use of explosives, appoint a competent person in the use of explosives for excavation, and must ensure that a method statement is developed by that person in accordance with the applicable explosives legislation; and

k) must cause warning signs to be positioned next to an excavation within which or where persons are working or carrying out inspections or tests.

General Considerations for Excavation Plan

228. The excavation plan and attached sketches must demonstrate that consideration has been given to the following:

a) Purpose and proposed depth of the excavation;

b) Location and nature of underground services;

c) Predicted nature of the ground to be excavated;

d) The environment in which the excavation is to be made;

e) Expected presence or absence of water in the ground;

f) Potential for water to run into the excavation from the surface;

g) Support system design;

h) Stages at which timber or sheet piling is placed in the excavation as work proceeds;

i) Presence of loose 'pockets' in what is otherwise firm, stable ground;

j) Proximity of any buildings or roads and the weight of traffic;

k) Whether any other important work is to be carried out adjacent to the proposed excavation;

l) Whether any materials are likely to be stacked nearby;

m) Stages of the excavation to be dug by machine or by hand tool;

n) Amount of room needed for raising and lowering material in the course of work;

o) Whether the sides of the proposed excavation can be splayed to allow more freedom and make wedging easier, the period that the excavation will be open, the maximum allowable trench length and the weather that may be expected;

p) Whether the timber or sheet piling can be removed safely as the back-fill proceeds;

q) Access to and egress from the excavation;

r) Emergency evacuation of the excavation;

s) Requirements for a gas testing programme;

t) Arrangements for temporary site shelters at long-duration excavations in open areas.

229. The excavation plan shall show that checks have been made to locate:

a) Electric cables if a mechanical excavator is to be used.

b) Gas, water and oil pipes.

c) Telephone, TV and radio cables.

d) Storm water, sewage and other underground transportation systems.

e) The proximity of any foundations that may be affected by the excavation.

230. The excavation plan shall detail the relevant requirements to deal with the above obstructions in a safe manner and all excavation works should be in compliance with the approved Excavating Safety Procedure.

Demolition

231. The Contractors must:

a) appoint a competent person in writing to supervise and control all demolition work;

b) ensure that before any demolition work is carried out, and in order to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a

competent person and that a method statement on the procedure to be followed in demolishing the structure is developed by that person;

c) during a demolition, a competent person must check the structural integrity of the structure at intervals determined in the method statement contemplated in order to avoid any premature collapses.

232. A Contractor who performs demolition work must:

a) with regard to a structure being demolished, take steps to ensure that-

i no floor, roof or other part of the structure is overloaded with debris or material in a manner which would render it unsafe;
ii all reasonably practicable precautions are taken to avoid the danger of the structure collapsing when any part of the framing of a framed or partly framed building is removed, or when reinforced concrete is cut; and
iii precautions are taken in the form of adequate shoring or other means that may be necessary to prevent the accidental collapse of any part of the structure or adjoining structure;

b) ensure that no person works under overhanging material or a structure which has not been adequately supported, shored or braced;

c) ensure that any support, shoring or bracing contemplated in paragraph (b), is designed and constructed so that it is strong enough to support the overhanging material;

d) where the stability of an adjoining building, structure or road is likely to be affected by demolition work on a structure, take steps to ensure the stability of such structure or road and the safety of persons;

e) ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of demolition work that may affect any such service, take the steps that are necessary to render circumstances safe for all persons involved;

f) cause every stairwell used and every floor where work is being performed in a building being demolished, to be adequately illuminated by either natural or artificial means;

g) cause convenient and safe means of access to be provided to every part of the demolition site in which persons are required to work; and

h) erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under, or fence off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects;

i) ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected;

j) no person may dispose of waste and debris from a high place by a chute unless the chute-

   i is adequately constructed and rigidly fastened;
   ii if inclined at an angle of more than 45 degrees to the horizontal, is enclosed on its four sides;
   iii if of the open type, is inclined at an angle of less than 45 degrees to the horizontal;
   iv where necessary, is fitted with a gate at the bottom end to control the flow of material; and
   v discharges into a container or an enclosed area surrounded by barriers.

k) ensure that every chute used to dispose of rubble is designed in such a manner that rubble does not free-fall and that the chute is strong enough to withstand the force of the debris travelling along the chute.

l) ensure that no equipment is used on floors or working surfaces, unless such floors or surfaces are of sufficient strength to support the imposed loads.

m) where a risk assessment indicates the presence of asbestos, a contractor must ensure that all asbestos related work is conducted in accordance with the Lagos State Environmental Protection Agency and other Federal Environmental Agencies requirements for disposal of asbestos and hazardous wastes.

n) where a risk assessment indicates the presence of lead, a contractor must ensure that all lead related work is conducted in accordance with the State and Environmental Agencies requirements for handling and disposal of hazardous substances and waste.

o) where the demolition work involves the use of explosives, a method statement must be developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for demolition work and all persons involved in the demolition

works must adhere to demolition procedures issued by the appointed person.

p) ensure that all waste and debris are as soon as reasonably practicable removed and disposed of from the site in accordance with the applicable legislation.

Scaffolding

233. A Contractor must appoint a competent person in writing who must ensure that all scaffolding work operations are carried out under his or her supervision and that all scaffold erectors, team leaders and inspectors are competent to carry outtheir work.

234. All scaffolding used on site shall be designed, erected, inspected, used, and dismantled in accordance with internationally accredited/ recognised standards.

235. Scaffolding shall be erected, inspected, and dismantled under the direct supervision of a competent person specifically trained and experienced in such work and who has been designated in writing by the contractor for this purpose.

236. Every scaffold shall be inspected by a competent person (Scaffold Inspector) at the time of erection, not less than once per week whilst in use and immediately after inclement weather. The findings of any inspection shall be recorded in a Scaffold Register which shall be open to inspection by the Client's Agent.

237. Scaffolding inspections shall include, but not be limited to base plates, sills, bracing, tie-ins, planking, access ladders to working levels, guard-rails (handrails, mid-rails, and toe-board), anchorage to building structure, etc.

238. Where a specific risk assessment establishes that the use of a scaffold/tower is the most appropriate method of access, then the Contractor should follow these guidelines:

    a) Always refer to the manufacturer's instruction manual or assembly guidein order toa determine specified limitations of erection, such as themaximum height or height to base ratio.

    b) Always fit guardrails and toe boards at the working level.

    c) Ground conditions must be firm and level in order to accommodate the scaffolding. Base plates may be used as an extra precaution, and wheels and outriggers must be securely fixed.

d) NO FREE CLIMB policy applies at all times. Under no circumstances may the outside of the scaffolding be used to gain access. All climbing must bedone inside the tower itself using specifically provided integral ladders where possible.

e) If at all possible, the tower scaffolding should be secured to a firm fixed structure while work is being undertaken. This is especially important where the scaffolding is to remain in one place for a longer period of time,or where high winds prevail. NEVER USE SHEETING ON TOWERS.

f) Once at the work level, Contractor's operatives must attach their fall arrest harness to a firm secure member/structure –NOT THE TOWER- at the earliest practicable opportunity.

g) Where required, a competent person will be appointed by the Contractor and made available to provide supervision and/or guidance during the movement and relocation of the tower scaffold.

h) When moving the scaffold as a complete or nearly complete unit, special consideration must be given to any potential hazards and obstructions, particularly overhead lines and all persons, plant, tools and materials must be moved from the work platform.

i) Trestles are suitable for short duration work only. Use of trestles may only follow after a specific risk assessment has deemed it the only safe means of access. Trestles must be placed on a level firm base for stability. Platforms must be fully boarded, adequately supported and provided with edge protection. Trestles require handrails. A safe means of access must be provided to the working platform.

Suspended Platforms

239. A Contractor must appoint a competent person in writing who must ensure that all suspended platforms work operations are carried out under his or her supervision and that all suspended platform erectors, operators and inspectors are competent to carry out their work.

240. No Contractor may use or permit the use of a suspended platform, unless:

a) the design, stability and construction thereof comply with the safety standards incorporated for this purpose;

b) he or she is in possession of a certificate of system design issued by a professional engineer, certificated engineer, or a professional technologist for the use of the suspended platform system; and

c) he or she is, before the commencement of the work, in possession of an operational compliance plan developed by a competent person. Operational compliance plan must include proof of the-

i appointment of the competent person;
ii competency of erectors, operators and inspectors;
iii operational design calculations, which must comply with the requirements of the system design certificate;
iv performance test results;
v sketches indicating the completed system with the operational loading capacity of the platform;
vi procedures for and records of inspections having been carried out; and
vii procedures for and records of maintenance work having been carried out.

241. A contractor making use of a suspended platform system must submit a copy of the certificate of system design to the client including a copy of the operational design calculations, sketches, and test results before commencement of the use of the system and must further indicate the intended type of work that the system will be used for.

242. A contractor must submit a copy of the certificate of system design for every new project. A contractor must ensure that the outriggers of each suspended platform –

a) are constructed of material of adequate strength and have a safety factor of at least four in relation to the load it is to carry; and

b) have suspension points provided with stop devices or other effective devices at the outer ends to prevent the displacement of ropes.

243. A Contractor must ensure that:

a) the parts of the building or structure on which the outriggers of a suspended platform are supported, are checked by means of calculations to ensure that the required safety factor is adhered to without risk of damage to the building or structure;

b) the suspension wire rope and the safety wire rope are separately connected to the outriggers;

c) each person on a suspended platform is provided with and wears a body harness as a fall prevention device, which must at all times be attached to the suspended platform;

d) the hand or power driven machinery to be used for the lifting or lowering of the working platform of a suspended platform is constructed and maintained in such a manner that an uncontrolled movement of the working platform cannot occur;

e) the machinery referred to in paragraph (d) is so situated that it is easily accessible for inspection;

f) the rope connections to the outriggers are vertically above the connections to the working platform; and

g) when the working platform is suspended by two ropes only, the connections of the ropes to the working platform are of a height abovethe level of the working platform to ensure the stability of the working platform.

244. A Contractor must ensure that a suspended platform:

a) is suspended as near as possible to the structure to which work is being done to prevent as far as is reasonably practicable horizontal movement away from the face of the structure;

b) is fitted with anchorage points to which workers must attach the lanyard of the safety harness worn and used by the worker, and such anchorage connections must have sufficient strength to withstand any potential load applied to it; and

c) is fitted with a conspicuous notice easily understandable by all workers working with the suspended platform, showing-
   i the maximum mass load;
   ii the maximum number of persons; and
   iii the maximum total mass load, including load and persons, which the suspended platform can carry.

245. A Contractor must cause:

a) the whole installation and all working parts of a suspended platform to be thoroughly examined by a competent person in accordance with the manufacturer's specification;

b) the whole installation to be subjected to a performance test as determined by the standard to which the suspended platform was manufactured;

c) the performance test contemplated in paragraph (b) to be done by a competent person appointed in writing, with the knowledge and

experience of erection and maintenance of suspended platforms or similar machinery, and who must determine the serviceability of the structures, ropes, machinery and safety devices before they are used, every time suspended platforms are erected; and

d) the performance test contemplated in paragraph (b) of the whole installation of the suspended platform to be subjected to a load equal to that prescribed by the manufacturer or, in the absence of such load, to a load of 110 per cent of the rated mass load, at intervals not exceeding 12 months and in such a manner that every part of the installation is stressed accordingly.

246. A Contractor must cause every hoisting rope, hook or other load-attaching device which forms part of the suspended platform to be thoroughly examined in accordance with the manufacturer's specification by the competent person before they are used every time they are assembled, and, in cases of continuous use, at intervals not exceeding three months.
247. A Contractor must ensure that the suspended platform supervisor or the suspended platform inspector carries out a daily inspection of all the equipment prior to use, including establishing whether-

a) all connection bolts are secure;

b) all safety devices are functioning;

c) all safety devices are not tampered with or vandalized;

d) the total maximum mass load of the platform is not exceeded;

e) the occupants in the suspended platform are using body harnesses which have been properly attached; there are no visible signs of damage to the equipment; and

f) all reported operating problems have been attended to.

248. A Contractor must further ensure that:

a) all inspection and performance test records are kept on the construction site at all times and made available to an inspector, the client, the client's agent or any employee upon request;

b) all employees required to work or to be supported on a suspended platform are-

i medically fit to work safely in a fall risk position or such similar environment by being in possession of a medical certificate of fitness;
ii competent in conducting work related to suspended platforms safely;

iii trained or received training, which includes at least-
- how to access and egress the suspended platform safely;
- how to correctly operate the controls and safety devices of the equipment;
- information on the dangers related to the misuse of safety devices, and/ information on the procedures to be followed in the case of- (1) an emergency; (2) the malfunctioning of equipment; and (3) the discovery of a suspected defect in the equipment; and (4) instructions on the proper use of body harnesses.

c) where the outriggers of a suspended platform are to be moved, only persons trained and under the supervision of the competent person effect such move, within the limitation stipulated in the operational compliance plan and that the supervisor must carry out an inspection and record the result thereof prior to re-use of the suspended platform.

d) the suspended platform is properly isolated after use at the end of each working day in such a manner that no part of the suspended platform presents a danger to any person thereafter.

Material Hoists

249. A Contractor must ensure that:

a) every material hoist and its tower have been constructed in accordance with the generally accepted technical standards and are strong enough and free from defects.

b) the tower of every material hoist is-

i erected on firm foundations and secured to the structure or braced by steel wire guy ropes, and extends to a distance above the highest landing to allow a clear and unobstructed space of at least 900 millimeters for over travel;

ii enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 millimeters from the ground or floor level; and

iii provided with a door or gate at least 2100 millimeters in height at each landing, and that door or gate must be kept closed except when the platform is at rest at such a landing.

c) every material hoist-

i. is inspected on daily basis by a competent person appointed in writing by the contractor and such competent person must have the experience pertaining to the erection and maintenance of material hoists or similar machinery; inspection contemplated,
ii. includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices;
iii. inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose;
iv. is properly maintained and the maintenance records in this regard are kept on site.

250. A Contractor must cause:

a) the platform of every material hoist to be designed in a manner that it safely contains the loads being conveyed and that the combined mass of the platform and the load does not exceed the designed lifting capacity of the hoist;

b) the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and

c) every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when power is not being supplied to the hoisting machinery;

d) a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.

251. No Contractor may require or permit trucks, barrows, or material to be conveyed on the platform of a material hoist and no person may so convey trucks, barrows or material unless those articles are secured or contained in a manner that displacement thereof cannot take place during movement.

252. A Contractor of a material hoist may not require or permit any person to operate a hoist unless the person is competent in the operation of that hoist. Nocontractor may require or permit any person to ride on a material hoist.

Bulk Mixing Plant

253. A Contractor must ensure that the operation of a bulk mixing plant is supervised by a competent person who has been appointed in writing and is:

    a) aware of all the dangers involved in the operation thereof; and

    b) conversant with the precautionary measures to be taken in the interest of health.

254. No person supervising or operating a bulk mixing plant may authorize any other person to operate the plant unless that person is competent to operate a bulk mixing plant.

255. A Contractor must ensure that the placement and erection of a bulk mixing plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.

256. A Contractor must ensure that all devices to start and stop a bulk mixing plant are provided and that those devices are placed in an easily accessible position and constructed in a manner to prevent accidental starting.

257. A Contractor must ensure that the machinery and plant selected is suitable forthe mixing task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.

258. No person may remove or modify any guard or safety equipment relating to a bulk mixing plant, unless authorized to do so by the appointed person.

259. A Contractor must ensure that all precautionary measures stipulated for confined spaces are complied with when entering any silo.

260. A Contractor must ensure that a record is kept of all repairs or maintenance to a bulk mixing plant and that the record is available on site to an inspector, the client, the client's agent, or any employee.

Use and Temporary Storage of Flammable Liquids on Construction Sites

261. A Contractor must ensure that:

    a) where flammable liquids are being used, applied or stored at the workplace concerned, it is done in a manner that does not cause a fire or explosion hazard, and that the workplace is effectively ventilated;

b) no person smokes in any place in which flammable liquid is used or stored, and the contractor must affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking;

c) an adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognized symbolic signs; only the quantity of flammable liquid needed for work on one day is taken out of the store for use;

d) all containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, are removed from the construction site and safely disposed of;

e) where flammable liquids are decanted, the metal containers are bonded and earthed; and

f) no flammable material, including cotton waste, paper, cleaning rags or similar material is stored together with flammable liquids.

Handling, Storage and Use of Gas Cylinder

262. All gases contained in cylinders are identified by markings or the color or combination of colors painted on the cylinders. The marking used must conform to the latest NIS ISO 13679 for Gas Cylinders-Stamp marking.

263. As a further means of distinguishing between flammable and non-flammable gases, the outlets of industrial gas cylinder valves feature screwed 5/8in BSP thread:

a) right-hand for oxygen and non-flammable gases;

b) Left-hand for acetylene, hydrogen and flammable gases;

c) All filled cylinders shall be examined on arrival to ensure that cylinders are correctly color-coded in accordance with the above BS Specification, have been tested and the date stamped within the past two years;

d) Cylinders not easily identifiable are not to be accepted and shall be returned to the supplier immediately;

e) Serial numbers of all cylinders shall be recorded, together with gas identification and dates of issue;

f) No alteration to the coloring of cylinders is permitted;

g) Cylinders must only be charged with the gas as indicated by the color coding of the cylinder, under no circumstances must the cylinder be changed from one gas to another.

264. Cylinders returned for refilling must be accompanied by a written statement indicating:

a) Identification No's;

b) Cylinder is empty;

c) Defects (if any).

265. If a valve is found to be defective it shall be verified by being thoroughly examined, labeled defective and returned to the supplier.

Safe Transport and Handling:

266. Contractors must adhere to these conditions for safe transport and handling of gas cylinders:

a) Passengers shall not travel in the same compartment of the vehicle where cylinders (empty or full) are stored for transportation;

b) Cylinders must be secured, vertical, valves shut and free from leaks;

c) Cylinders must not project over the sides or rear of the vehicle;

d) Travelling with equipment attached to the cylinders is prohibited. Protective valve caps are to be fitted where provided;

e) Drivers shall be properly instructed in the safe handling loading and transporting of cylinders and dealing with emergencies;

f) Vehicles carrying flammable gas cylinders must carry suitable fire extinguishers and prominently display the relevant warning signs. "No Smoking" and "No Naked Lights" signs;

g) Cylinders shall never be lifted by their valve cap or guard;

h) Cylinders shall not be rolled. Purpose built trolleys with the cylinders chained/secured shall be used for moving the cylinders on the ground;

i) Oil, grease or other readily combustible substances must be prevented from coming into contact with cylinders of oxygen, their valves or fittings to prevent the risk of explosion;

j) Cylinders of different gases shall not be mixed together in the same container when being transported.

k) Oxygen Cylinders shall not be transported together with acetylene or any other flammable materials.

Storage:

267. Contractors must adhere to these conditions for safe storage of gas cylinders:

a) Storage areas shall be purpose-built compounds in the open air, fenced to a height of 2m;

b) The fence shall be made of non-combustible material and shall not inhibit natural ventilation;

c) Storage areas shall be clearly identified, with the names of the gases stored;

d) Cylinder should be protected from direct sunlight. Tarpaulins or any other cover must not be used in direct contact with the cylinders;

e) Cylinders are not to be placed on materials that are likely to cause corrosion of the cylinder base;

f) No sources of ignition are allowed in storage compounds where compressed flammable gases are kept;

g) Lighting, instruments, switches and junction boxes in storage compounds containing combustible gas cylinders are to be to Class 1, Div.2 Standard;

h) Suitable firefighting equipment shall be provided, and in the event of a fire, the cylinders shall, if possible, be removed to a safe location;

i) Full and empty cylinders shall be kept apart, and 'FULL' and 'EMPTY' notices displayed accordingly;

j) Different categories of gas cylinders (toxic, flammable, etc.) shall be segregated and notices displayed accordingly;

k) Oxygen and oxidants shall not be stored with flammable gases such as acetylene or LPG, but in separate stores/storage compounds at least 6 meters away;

l) Acetylene and LPG cylinders must never be stacked horizontally in storage or used;

m) Cylinders shall normally be stored upright and secured so that they will not fall;

n) Personnel must not smoke, wear oil-contaminated clothes, or have any naked light in any place where flammable compressed gases are stored (or where oxygen is stored). "No Smoking" and "No Naked Light" signs shall be used;

o) Storage compounds must have appropriate warning signs located so that persons entering and working adjacent are aware of the gases stored and the safety precautions to be applied.

Care in the Use of Cylinders:

268. Contractor must follow implement the following to ensure care in the use of cylinders:

a) Cylinders shall not be used as rollers or supports or for any other purpose than to contain the gas as supplied;

b) When in use cylinders shall, whenever possible, be clamped vertically in a suitable trolley;

c) If removed from the trolley, they shall be secured to prevent toppling;

d) Cylinders must not be allowed to come into contact with electrical apparatus, especially arc welding tools, or live wires, since arcing may be set up which will heat or damage the cylinders;

e) Cylinders must be kept clear from sparks, flames or slag from welding or cutting operations;

f) Joint fittings or piping made of copper shall on no account be used with acetylene. Acetylene shall never be allowed to come into contact with copper or any alloy containing more than 70% copper;

g) Hydrogen shall NEVER be shifted as it may ignite spontaneously;

h) The main cylinder valve shall always be shut off when work has to be stopped for more than a few minutes or when the cylinder is empty;

i) Cylinders shall be removed from working areas and put back into the store at the end of the working period.

Housekeeping and General Safeguarding on Construction Sites

269. A Contractor must ensure that suitable housekeeping is continuously implemented on construction site, including:

    a) the proper storage of materials and equipment;

    b) the removal of scrap, waste and debris at appropriate intervals;

    c) ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;

    d) ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;

    e) ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in the regulations;

    f) ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and

    g) ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger of possibility of persons being struck by falling objects.

270. Contractor shall ensure that, at any time, each and every piece of equipment, tool, material, facility, or apparatus shall be stored, stacked, located, placed, temporarily spotted or set up for manipulation in such a manner as will render an accident highly improbable and gives the direct and obvious impression of a clean and orderly workplace.

271. The Contractor shall designate storage areas with the approval of the Projects Management Team. The Contractor will correct any non-compliance. The following basic requirements shall be expected by all Contractors and employees:

    a) Do not block access ways;

    b) Work areas will be cleaned daily as work progresses;

    c) Do not leave cables, cords or loose objects in passageways, stairways, walkways or underfoot;

d) Remove all materials, tools and equipment such as shackles, slings, ladders, safety equipment, etc. from work areas and return them to storage areas when not needed;

e) Return all tools, supplies, materials and equipment to their proper storage area after completion of job;

f) Welding rod, nuts, bolts and round stock shall be kept in proper containers and not piled on floors, or deck;

g) Trash containers shall be placed at appropriate locations for disposal of all rubbish, trash and debris;

h) Rubbish, trash and/or debris shall be removed from the work area daily;

i) Daily checks of work area by the Contractor shall be made for the removal of rags, boxes, paper and other debris for housekeeping and fire prevention;

j) Dune shall be stored in neat storage piles or removed from the job-site daily.

Stacking of Materials

272. The Contractor must ensure that:

a) a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;

b) adequate storage areas are provided;

c) there are demarcated storage areas; and

d) storage areas are kept neat and under control.

Fire Precautions on Construction Sites

273. A Contractor must ensure that:

a) all appropriate measures are taken to avoid the risk of fire

b) sufficient and suitable storage is provided for flammable liquids, solids and gases;

c) smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials;

d) in confined spaces and other places in which flammable gases, vapours or dust can cause danger:

   i only suitably protected electrical installations and equipment, including portable lights, are used;
   ii there are no flames or similar means of ignition;
   iii there are conspicuous notices prohibiting smoking;
   iv oily rags, waste and other substances liable to ignite are without delay removed to a safe place; and
   v adequate ventilation is provided;

e) combustible materials do not accumulate on the construction site;

f) welding, flame cutting, and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire;

g) suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order;

h) the fire equipment contemplated above is inspected by a competentperson, who has been appointed in writing for that purpose, in themanner indicated by the manufacturer thereof;

i) a sufficient number of workers are trained in the use of fire- extinguishing equipment;

j) where appropriate, suitable visual signs are provided to clearly indicate the escape routes in the case of a fire;

k) the means of escape is kept clear at all times;

l) there is an effective evacuation plan providing for all:

   i persons to be evacuated speedily without panic
   ii persons to be accounted for; and
   iii plant and processes to be shut down; and
   iv a siren is installed and sounded in the event of a fire.

Fire Extinguishers and Fire Fighting Equipment

274. The Contractor shall provide adequate, regularly serviced fire extinguishers located at strategic points on site. The Contractor shall keep spare serviced portable fire extinguishers. The Contractor shall have adequate persons trainedor competent to use the Fire Fighting Equipment.

275. Safety signage shall be posted up in all areas where fire extinguishers are located.

Hazardous Chemical Substances (HCS)

276. The Principal Contractor must provide proof in the Health and Safety Plan that:

    a) Safety Data Sheets (SDS) of the relevant materials/ hazardous chemical substances are available prior to use by the contractor. All SAFETY DATA SHEETs shall be available for inspection by the client's agent at all times.

    b) Risk assessments are done at least once every 6 months.

    c) Exposure monitoring is done, and that the medical surveillanceprogramme is based on the outcomes of the exposure monitoring.

    d) How the relevant HCS's are being/going to be controlled by referring to:

        i limiting the amount of HCS
        ii limiting the number of employees
        iii limiting the period of exposure
        iv substituting the HCS
        v using engineering controls
        vi using appropriate written work procedures

    e) The correct PPE is being used.

277. The Health and Safety plan should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

278. The First Aider must be made aware of the SAFETY DATA SHEET and trained in how to treat HCS incidents appropriately.

279. The Contractor is responsible for effective control of all hazardous substances within its work location. He must ensure that procedures are in place to enable all the following requirements to be achieved:

    a) Procedures/ Instructions for the control of hazardous substances are available and implemented;

    b) Safety Data Sheets (SDS) are available prior to the acquisition or use of hazardous substances, or the information supplied on the substance packaging is adequate to enable suitable procedures for the control of the substance to be developed;

c) All substances to be used within the site are correctly packaged and labeled;

d) Suitable personal protective equipment is identified, provided and properly used as appropriate;

e) Personnel working with hazardous substances receive adequate information, instruction, training and supervision;

f) All spills are promptly dealt with in accordance with the instructions on SAFETY DATA SHEET or the substance container;

g) Waste materials are disposed off in accordance with the instructions on the SAFETY DATA SHEET and in accordance with the Site Waste Management procedure.

h) Making all personnel aware of the hazards associated with substances being used and ensuring the use of the correct procedures and appropriate personal protective equipment, where required;

i) Reporting of spills and defective equipment.

Hazardous Biological Substances (HBS)

280. Because of the possible exposure of workers to raw sewage the H & S Plan shall include details of the following:

a) The conducting of Risk Assessment specifically aimed at exposure to HBA which shall include the following:

i Nature and dose of HBA
Where HBA may be present and in what physical form
ii The nature of work or process
iii Steps in the event of failure of control measures
iv The effect of the HBA
v The period of exposure
vi Control measures to be implemented.

b) Monitoring of exposure of workers shall be conducted to establish whether any worker is infected with an HBA associated with working or being exposed to raw sewage, in terms of the following:

i By an occupational medical practitioner.
ii Before entering the site to establish the worker's baseline.
iii During the period of the contract the risk assessment indicate possible.
iv After completion of the contract.

c) Medical surveillance should such be required after the above-mentioned by an occupational health practitioner.

d) Indication on how all records of assessment, monitoring, etc. will be kept, taking into account that records have to be kept for a period of 40 years.

e) How exposure to HBA is to be controlled

f) The provision of personal protective equipment

g) What information and training is to be provided to employees regarding the following:

   i The contents of these regulations
   ii Potential risks to health
   iii Control measures to be implemented
   iv The correct use and maintenance of personal protective equipment
   v The results of the risk assessment.

Asbestos

281. Should asbestos be identified as a hazard whilst work is carried out, the following must be included in the health and safety plan:

a) Notification to the client's agent and approval from the applicable regulatory agency, prior to commencement of asbestos work.

b) Proof of a structured medical surveillance programme, drawn up by an occupational medicine practitioner.

c) Proof that an occupational health practitioner carried out an initial health evaluation within 14 days after commencement of work.

d) Copies of the results of all assessments, exposure monitoring and the written inventory of the location of the asbestos at the workplace.

e) Only proof that medical surveillance has been conducted and not the actual records itself since these areas of a confidential nature.

f) How records are going to be kept safe for the stipulated period of 40 years.

g) Proof that asbestos demolition (if applicable) is going to be done by a registered asbestos contractor and provide proof that a plan of work for such demolition is submitted to the regulatory agency 30 days prior to commencement of the demolition.

h) Provide proof that the plan of work was approved by the client's agent and submitted to the regulatory body 14 days prior to commencement of demolition work together with the approved standardised procedures for demolition work.

Lead

282. Should lead be identified as a hazard whilst work is carried out, the following must be included in the health and safety plan:

    a) Proof that an occupational health practitioner carried out an initial health evaluation within 14 days after commencement of work.

    b) Copies of the results of all assessments, exposure monitoring and the written inventory of the location of the lead at the workplace.

    c) Only proof that medical surveillance has been conducted and not the actual records since these are of a confidential nature.

    d) How records are going to be kept safe for the stipulated period of 40 years.

Environmental Protection and Waste Disposal

283. The Contractor shall pay due regard to the environment by preserving air, water, soil, animal and plant life from adverse effects of the Contractor's activities and shall provide to the client's agent detailed procedures for protecting and monitoring the environment (e.g., oil and chemical spill contingency measures, site restoration etc.) and waste disposal prior to starting work on site.

Environmental Conditions and Flora and Fauna

284. The Contractor must be mindful of adverse weather conditions upon the health and safety of the workforce. This includes inclement weather, strong wind, heat stress, extreme cold, etc. The Contractor's risk assessment process must take into account the risks associated with such weather conditions.

285. The same is true when working in an environment where there is a risk to employees' health and safety from presence of poisonous flora, or wildlife (including bees, snakes, etc.). The Contractor's risk assessment process must take these risks into account.

Emergency Plans

286. The Contractor shall have a written Emergency Action Plan as a part of his HSE Program/ Plan including, but not limited to, the following:

    a) Injuries to employees;

    b) Injuries to the general public on or adjacent to the work site;

    c) Property damage with particular emphasis on utilities;

    d) Fire;

    e) Environmental damage;

    f) Other exposures or potential hazards that may occur at the work site.

    g) Roles and Responsibilities;

    h) Communications and contact numbers.

287. In formulating an Emergency Action Plan, the Contractor shall provide for the establishment and staffing of appropriate first-aid facilities for the treatment of on-the-job injuries. A first-aid kit adequate to service the crew (s) shall be available on site at all times. The location of first-aid kits shall be discussed atthe weekly HSE meetings.

288. Emergency Procedures shall ensure that the Contractor's Project Manager or most senior supervisor present takes charge and directs the handling of the emergency.

289. Emergency Procedures and actions required shall be discussed regularly with the Contractor's supervisory personnel and at HSE Meetings. The contractor shall provide the client's agent with the following information:

    a) Evidence of retainership clinic, address and location.

    b) Names and evidence/ records of emergency training attended by contractor's personnel.

    c) Name of appointed person for reviewing the effectiveness of emergency response plans.

    d) Schedule of emergency response drills.

Audits, Monitoring & Inspection

290. The Contractor shall carry out regular HSE inspections daily. Copies of inspection reports shall be submitted to client's agent. The Contractor shall also carry out planned audits to review safety management and procedural aspects of his operation.

291. The Contractor shall develop a quarterly HSE audit and weekly inspection plan/ schedule and shall ensure an effective system is in place for monitoring the follow-up and implementation of inspection and audit actions.

292. The client's agent shall have the right at any time to audit/inspect the Contractor's sites and facilities, procedures, and safety management systems. The Contractor shall fully co-operate in such reviews and shall implement recommendations at his own cost where non-compliance is identified and/ or statutory rules and regulations are contravened.

Stopping of Work

293. The client's agent shall have the right to suspend work being performed by the Contractor at any time, if the client's agent deems that the Contractor has or is about to violate statutory or site rules and requirements. The cost of such stoppages of work in this regard will be borne by the Contractor.

Office Safety

294. Whilst on site, reference shall be made to site office safety procedure, but as a minimum, Contractor shall ensure that:

    a) Safety signs giving information and instruction about escape routes, emergency actions, etc. must be prominently displayed and arrangements made to keep signs up to date;

    b) Floors must be kept free from obstruction or material likely to cause a person to slip, trip or fall. Floors must be regularly maintained and worn or loose floor coverings repaired, or replaced with material that is non-slip, fire retardant and anti-static;

    c) Stairways and corridors must not be used for the storage of goods and materials.

Lock-Out/ Tag-Out

295. The following procedure is intended to provide a controlled method for rendering electrical equipment or operating systems inactive (including mechanical or piped) when equipment is down for any reason, such as repair, removal or replacement of equipment and any installation of new equipment.

296. This procedure includes the three basic phases of work on any system:

    a) Shutting down equipment;

    b) Repairing or installing equipment;

    c) Start-up of equipment.

297. In any of the above cases, the "lock-out" clearance procedure must be observed to ensure the safety of the operation.

a. Shutdown of Equipment or System

298. Precautions on Shutdown and Equipment or System

    a) The craft supervisor shall cause equipment to be shut down in a manner consistent with good operating practice;

    b) The main disconnect shall be opened in addition to any remote control switches. On electrical work, it is advisable as a further precaution, that the electrician removes all of the supply fuses. On piped systems, the main valves shall be closed and pressures relieved;

    c) After assurance that the equipment has been properly shut down in accordance with prescribed procedures, the craft supervisor shall positively determine that the equipment or system has been locked and tagged as follows;

    d) A padlock, to which only the craft supervisor shall have access to keys, shall be placed on the equipment in such a manner as to render operationof the equipment or system impossible.

b. Repair or Installation

299. Precautions during repair or installation

    a) Each individual craftsperson assigned to the job shall attach to the equipment or system a separate standard danger tag. The tag shall be

dated, signed, and a short explanation for the reason for the tag should appear in the provided spaces;

b) The craft supervisor responsible for the work must ensure that the equipment has been deactivated and properly tagged before permitting his/ her personnel to perform any work.

c. Starting Up Equipment or System

300. Precautions for starting up equipment or system:

a) As soon as the work is completed, the tags shall be removed only by the individuals installing them;

b) In the event the shift ends before the work is completed, the status of the work is to be reported in detail to the oncoming shift personnel and the names on the tags changed;

c) Upon completion of the work, the supervisor will make certain all workers' tags have been removed and that everyone is clear of the equipment or system. The supervisor shall return the equipment to normal operating conditions.

d. General

301. The following general precautions must be followed during lock-out / tag-out:

a) In an emergency, the Contractor's Safety Engineer shall have the authority to remove the tags and locks only after positively determining whether or not the equipment or system is safe for operation and that all personnel are in the clear;

b) Personnel deviating from these instructions or unauthorized persons removing danger tags shall be subject to immediate dismissal.

Tools

302. All hand tools, power tools and similar equipment, whether furnished by the Contractor or the employee, shall be maintained in a safe condition. Supervisors and craft employees shall be responsible for the inspection and repair of tools under their control. The use of many tools requires the use of a variety of personal protective equipment.

303. All machinery and tools shall be inspected and tested at intervals not exceeding 6 months to ensure they are in satisfactory condition and capable of safely performing the functions for which they were designed and built.

a. Hand Tools

304. The following shall apply to all types of power tools:

a) Insulated or non-conducting tools should be used when working near energized electrical circuits;

b) Tool handles should be tightly fitted. Wooden handles should be carefully checked: tightened with wedges, if necessary, or replaced if split or splintered;

c) All impact tools, such as chisels, punches and wedges shall be regularly dressed to eliminate mushrooming or flaring of the point of impact.

b. Power Tools

305. Power tool accidents are caused by improper handling or poor maintenance. The following shall apply to all types of power tools:

a) Only authorized personnel shall be permitted to operate or repair power tools;

b) Maintenance of power tools shall be systematic. All worn or damaged tools shall be promptly repaired or replaced. All tools shall be cleaned, tested and inspected regularly;

c) Power tools shall not be used if safety equipment, such as shields, tool rests, hoods and guards have been removed or otherwise rendered inoperative;

d) Employees using tools under conditions that expose them to the hazards of flying objects or harmful dusts shall be provided with the required personal protective equipment;

e) All electrically powered tools shall be properly grounded;

f) Gasoline-powered tools shall not be used in unventilated areas. Gasoline shall be dispensed only in approved safety cans;

g) Portable grinders shall be provided with hood type guards with side enclosure that covers the spindle and part of the wheel as per

international standard/ satisfaction of the supervisor and/ or responsible team. All wheels will be inspected regularly for signs of fractures;

h) Bench grinders shall be equipped with deflector shields and side covers guards. Tool rests and tongue guards shall have a clearance from the wheel as per international standard;

i) Hoses supplying pneumatic tools shall have coupling, whip checks and/ or tie wires, secured to prevent accidental disconnection;

j) Air-supply lines shall be protected from damage, inspected regularly and maintained in good condition;

k) Air sources supplying hoses exceeding ½ inch inside diameter shall be protected by excess flow valves to prevent whipping in the event of hose separation of failure;

l) The pressure of compressed air used for cleaning purposes shall be 30 PSI or less (does not apply for cleaning forms, etc.);

m) All hand-held power drills, tapes, fastener drivers, horizontal, vertical and angle grinders, disc sanders, belt sanders, reciprocating saws, saber saws and all other similarly operating powered tools shall be equipped with a momentary contact on-off control switch/ trigger;

n) All personnel who operate pneumatic, electric or gasoline-powered chain saws shall be trained in the safe operation of a chine saw. Documentation attesting to this training shall be on file in the Contractor's office and available upon request;

o) All chain saws shall be equipped with but not limited to the following: safety tip: hand guard/ chain brake, spark arrester (gasoline only), chine catcher and bumper spikes.

c. Power Actuated Tools

The following shall apply to all types of actuated tools:

a) Only employees who have furnished evidence of having been trained in its use shall be allowed to operate a power-actuated tool. Eye protection shall be worn by all personnel using the tool;

b) Tools shall not be loaded until just prior to use. Loaded tools shall not be left unattended;

c) Tools shall not be used in an explosive or flammable atmosphere. Cartridges (power source) shall be kept separated from all other material;

d) Power-actuated tools used on this project shall meet all applicable requirements of local and international standard.

d. Pneumatic Nailer/ Stapler

306. The following shall apply to all types of pneumatic Nailer/ Stapler:

a) To prevent accidental discharge, all pneumatically driven nailers and staplers shall have a safety device on the tool which shall prevent the tool from being operated unless the muzzle of the tool is in contact with the work surface;

b) When not in use, the nailer and/ or stapler shall be disconnected from the air supply and the magazine removed.

c) All personnel, who operate pneumatic nailers and/ or staplers, shall be trained in their safe operation. Documentation attesting to the training shall be on file in the Contractor's office and available upon request.

Welding, Flame-Cutting, Soldering and Similar Operations

307. No Contractor or user of machinery shall require or permit welding or flame cutting operations to be undertaken, unless:

a) the person operating the equipment has been fully instructed in the safe operation and use of such equipment and in the hazards which may arise from its use;

b) effective protection is provided and used for the eyes and respiratory system and, where necessary, for the face, hands, feet, legs, body and clothing of persons performing such operations, as well as against heat, incandescent or flying particles or dangerous radiation;

c) leads and electrode holders are effectively insulated; and

d) the workplace is effectively partitioned off where practicable and where not practicable, all other persons exposed to the hazards are warned and provided with suitable protective equipment.

308. No Contractor or user of machinery shall require or permit welding or flame cutting operations to be undertaken in a confined space, unless:

a) effective ventilation is provided and maintained; or

b) masks or hoods maintaining a supply of safe air for breathing are provided and used by the persons performing such operations.

309. No Contractor or user of machinery shall require or permit electric welding to be undertaken in wet or damp places, inside metal vessels or in contact with large masses of metal, unless:

a) the insulation of the electrical leads is in a sound condition;

b) the electrode holder is completely insulated to prevent accidental contact with current-carrying parts;

c) the welder is completely insulated by means of boots, gloves or rubber mats; and

d) at least one other person who has been properly instructed to assist the welder in case of an emergency is and remains in attendance during operations: Provided that the provisions of this sub-regulation shall not apply to a welding process where the maximum voltage to earth does not exceed 50 volts.

310. No Contractor or user of machinery shall require or permit welding, flamecutting, grinding, soldering or similar work to be undertaken in respect of any tube, tank, drum, vessel or similar object or container where such object or container:

a) is completely closed, unless a rise in internal pressure cannot render it dangerous; or

b) contains any substance which, under the action of heat, may-

i ignite or explode; or

ii react to form dangerous or poisonous substances, unless a person who is competent to pronounce on the safety thereof has, after examination, certified in writing that any such danger has been removed by opening, ventilating or purging with water or steam, or by any other effective means.

311. Where hot work involving welding, cutting, brazing, or soldering operations is carried out at places, other than workplaces which have been specifically designated and equipped for such work, the employer shall take steps to ensure that proper and adequate fire precautions are taken.

a. Welding

312. The following shall apply:

a) A suitable, approved fire extinguisher shall be available for instant use in locations where welding is done. Screens, shields or other safeguards shall be provided for the protection of personnel or materials below or otherwise exposed to sparks, slag, falling objects or the direct rays of the arc;

b) The welder shall wear approved eye and head protection. Persons assisting the welder shall wear protective glasses;

c) Electric welding equipment, including cable, shall meet the requirements of applicable regulations.

d) A Firewatch must be assigned to hot work activity, whose sole responsibility is to perform the duties of a Firewatch, without any additional responsibilities.

b. Burning or Cutting

313. The following shall apply:

a) When gas cylinders are stored, moved or transported, the valve protection cap shall be in place;

b) When cylinders are hoisted, they shall be secured and upright in an approved cage or basket;

c) All cylinders shall be stored, transported, and used in an upright position. If the cylinder is not equipped with a valve wheel, a key shall be kept on the valve stem while in use.

d) A flashback arrestor should be installed at the nozzle and at the other end for safety.

Access & Egress

314. Access/ egress to all working places shall be clear, free of obstruction and the use of any such access/ egress shall not give rise to additional hazards, e.g. falling debris on demolition sites, vehicular hazards on earth moving sites.Access/egress routes shall be clearly defined and/or marked out.

a. Gangways, Including Runs and Ramps

315. These may be necessary to afford access/egress between working places at different levels in an elevated position or across excavations, etc. The following shall be followed:

    a) Materials used in the construction of any gangway shall be in good condition;

    b) The access/ egress shall be constructed so that it is well able to support the loads being imposed upon it.

316. Minimum Width of Gangways:

    a) 430 mm if used for the passage of persons only;

    b) 600 mm if used for the passage of material.

317. Any slope on a gangway shall not be greater than 1 vertical in 1.5 horizontal. Where the slope of a gangway is such that persons may be likely to slip, and in any case where the gangway slope exceeds 1 vertical to 4 horizontals, stepping laths shall be used to provide a firm foothold. The laths shall extend over the full width of the gangway, with a gap of not more than 100mm, to allow free movement of wheelbarrows. Gangways shall not be allowed to become slippery.

318. Guard-rails and toe boards shall be provided where persons can fall more than 2m, or from where they can fall into water, and possibly drown.

b. Batters

319. The following shall apply:

    a) Consideration shall be given to the provision of suitable access across batters. Such an access extensively used by persons carrying material, and without suitable provision, is likely to become slippery;

    b) A scaffold handhold at a height of between 910mm and 1.15m shall be provided at the site of the access;

    c) Steps shall be cut into the batter, but on shallow batters, where material providing a firm foothold (e.g., blinding) is used, steps shall not be necessary.

c. Stairs

320. Where persons can fall from the step edge or edges of the stairway, a double guard-rail, i.e., one fixed at a height of between 910mm and 1.15m and another fixed halfway between the upper guard-rail and the stairs shall be provided.

321. Where persons cannot fall more than 2m, one edge of the stairway shall be provided with a scaffold handhold at a height of between 910mm and 1.15m.

d. Portable Ladders

322. The following shall apply:

a) Ladders shall be inspected on a daily basis and before use, and those with missing or damaged rungs or damaged strings shall not be used. To permit the inspection, ladders shall not be painted. Where it is possible to cut off the damaged part of the ladder, the shortened good part may be used;

b) Ladders shall be erected at a working angle of approximately 75º to the horizontal, i.e., one unit out of the base for every four units of height;

c) Ladders shall rest on a firm level base. If it is intended to rest the ladder on an uneven base or stairways etc., then a leveling device shall be used. Loose packing shall not be used;

d) Where possible, all ladders shall be secured near the top, (to prevent the base sloping outwards and the top slipping sideways or twisting) by lashing or clamping each stile to a convenient secure anchorage;

e) Ladders shall extend at least 1m above the stepping off point;

f) Ladders shall be placed so that there is a clear space behind each rung to permit the secure placing;

g) A resting platform shall be provided at vertical intervals of 9m. Where persons can fall from these platforms, then guardrails and toe boards shall be provided;

h) If a ladder protrudes through a working platform, then the opening shall be as small as possible, and in any case 500 mm maximum width;

i) Suitable access to a working place shall be provided at the stepping off poi nt. Persons shall not be required to climb over or through guardrails and toe boards. Gaps in toe boards and guardrails shall, however, be keptas small as possible;

j) Single board runs to ladders shall not be used;

k) Ladders that are used to gain access to scaffold platforms, working places, etc. Shall be single pole ladders. Extension ladders or aluminum ladders shall not be used;

l) Aluminum, wooden and extension ladders may be used where the ladder is used as a working place. Aluminum ladders, however, must never be used where electrical hazards exist;

m) Only one person shall be permitted on a ladder at any one time, another person shall always foot a ladder when anyone is climbing a ladder which is not secured at its top;

n) Ladders shall not be used to support a working platform other than that, which is supplied with the Ladder Limpet System;

o) Tools and materials shall not be carried by persons ascending or descending ladders except that tools may be carried in purpose designed pockets or special belts (waist belt), provided they do not impair movement;

p) A person working on or from a ladder shall always have both feet on the rungs and a secure handhold. If the work to be done necessitates the use of both hands, safety harness clipped to a secure anchorage shall be used.

Important Note: A ladder shall only be used as a workplace after careful consideration that it is suitable for the purpose.

e. Roof Work

323. The following shall apply:

a) Flat roofs (i.e., 10° or less pitch) from which persons can fall shall be provided with guard-rails to a height of between 910m and 1.15m, and toe-boards to a minimum of 150m. The gap between the top of the toe- board and the guardrail shall not exceed 765mm;

b) Sloping roofs (i.e., more than 10 o pitch) from which persons can fall shall be guarded in similar fashion or an external scaffold provided;

c) However, where work from a flat or sloping roof is not extensive (i.e. total duration of the activity less than one hour) and is of light nature, it may be possible for persons to work from crawling ladders with a safety harness attached;

d) On sloping roofs that are likely to become slippery, and in all cases when the pitch exceeds 30º crawling ladders shall be provided, secured; and

e) Walking on purlins, sheeting bolts etc. shall not be permitted.

f. Safety Harnesses

324. The following shall apply:

a) When a working platform cannot be provided, fitted with guard-rails and toe-boards then, full body safety harnesses shall be used where persons can fall;

b) All harnesses shall be in good condition and inspected prior to use;

c) Fixing points shall be established such that, persons have free movement without the need to constantly unclip the harness. A running line is recommended where free movement is required;

d) When the foregoing distances do not permit sufficient range of movement, then approved and certified inertia reels may be used, provided that the maximum free fall distances are not exceeded;

e) Employees shall be provided with full body harnesses used in conjunction with safety lanyards, for attachment to anchorage points. Harnesses may be built into lightweight carrier suits.

Confined Space

325. All confined spaces shall include areas which:

a) Have limited openings for entry and exit;

b) May contain or produce toxic air contaminants;

c) Have a high concentration of an inert gas;

d) Are not intended for continuous occupancy; and

e) May have an oxygen deficient atmosphere (less than 19.5%);

f) Have a space that could engulf or asphyxiate.

326. Examples include, but are not limited to, storage tanks, process vessels, pits, vats, vaults, sewers, tunnels, manholes, cells, ducts, shafts, trenches, and rooms

with less than proper size openings for easy access with no mechanical ventilation.

327. Confined space areas shall be identified and evaluated by the Contractor. A PTW and draft plan ensuring that the elements of the Confined Space Entry Policy are met shall be submitted by the Contractor to client's agent for approval.

328. Contractor shall comply with the requirements of the confined space entry procedure and ensure that their employees and supervisors are trained in Confined Space Entry Procedure and use most stringent standard for compliance. This includes all Contractor and Subcontractor personnel involved in confined space operation.

329. The Contractor or a user of machinery shall take steps to ensure that a confined space is entered by an employee or other person only after the air therein has been tested and evaluated by a person who is competent to pronounce on the safety thereof, and who has certified in writing that the confined space is safe and will remain safe while any person is in the confined space, taking into account the nature and duration of the work to be performed therein.

330. Contractor shall take steps to ensure that any confined space in which there exists or is likely to exist a hazardous gas, vapour, dust or fumes, or which has oris likely to have, an oxygen content of less than 20 per cent by volume (19.5% and below), is entered by an employee or other person only when:
    a) the confined space is purged and ventilated to provide a safe atmosphere therein and measures necessary to maintain a safe atmosphere therein have been taken; and

    b) the confined space has been isolated from all pipes, ducts and other communicating openings by means of effective blanking other than the shutting or locking of a valve or a cock, or, if this is not practicable, only when all valves and cocks which are a potential source of danger have been locked and securely fastened by means of chains and padlocks.

331. Where the conditions above cannot be complied with, the employer or user of machinery shall take steps to ensure that the confined space in question is entered only when the employee or person entering is using breathing apparatusof a type approved by a competent person and, further, that:

    a) any employee or person entering the confined space is using a safety harness or other similar equipment, to which a rope is securely attached which reaches beyond the access to the confined space, and the free end of which is attended to by another person;

b) at least one other person trained in resuscitation is and remains in attendance immediately outside the entrance of the confined space in order to assist or remove any or persons from the confined space, if necessary; and

c) effective apparatus for breathing and resuscitation of a type approved by the appointed competent person is available immediately outside the confined space.

332. The Contractor shall take steps to ensure that all persons vacate a confined space on completion of any work therein.

333. Where the hazardous gas, vapour, dust or fumes contemplated are of an explosive or flammable nature, the contractor shall further take steps to ensure that such a confined space is entered only if:

a) the concentration of the gas, vapour, dust or fumes does not exceed 25 per cent of the lower explosive limit of the gas, vapour, dust or fumes concerned where the work to be performed is of such a nature that itdoes not create a source of ignition; or

b) such concentration does not exceed 10 per cent of the lower explosive limit of the gas, vapour, dust or fumes where other work is performed.

334. The provisions of this requirements shall also apply, in so far as they can be so applied, to any work which is performed in any place or space on the outside of and bordering on or in the immediate vicinity of, any confined space, and in which place or space, owing to its proximity to the confined space, any hazardous article, oxygen-deficient atmosphere or dangerous concentration of gas, vapour, dust or fumes may occur or be present.

Lighting

335. Where poor or lack of illumination is identified as a hazard the lighting regulations must be complied with, and the following must be included in the H&S Plan:

a) How lighting will be ensured/ provided where daylight is not sufficientand/ or after hours are worked.

b) Planned maintenance programme for replacing luminaries.

c) Proof of illumination levels of artificial illumination equipment.

Radioactive Material/Elements

336. Prior to performing an operation with quantities of radioactive material which may produce significant external or internal exposure, Contractor shall consider precautionary measures including the use of remote handling devices, hoods, shielding, etc.

337. The following precautionary measures must be followed:

    a) A Radiation Safety Officer must be consulted before beginning any new use of radioactive material.

    b) There shall be no eating, drinking, smoking, or application of cosmetics or preparation of food in any location where radioactive materials are used or stored.

    c) Food, drink, or personal effects shall not be stored with radioactive materials.

    d) Pipetting of radioactive materials by mouth is prohibited.

    e) Lab coats and disposable gloves shall be worn during operations involving the handling of unsealed sources of radioactive material. The lab coat and gloves should be removed before leaving the laboratory or site. Care must be taken such that other items (i.e., pens, pencils, notebooks, doorknobs, telephones, etc.) are not handled with gloves used during work with radioactive materials.

    f) Work which may result in contamination of work surfaces shall be performed in such a manner so as to minimize any low-level radioactive waste generated and still provide for ease of decontamination. Trays made of impervious material (i.e., stainless steel, porcelain-coated, etc.) provide excellent work arrangements to help prevent the spread of contamination.

    g) Work surfaces and personnel should be monitored after working with radioactive materials.

    h) Where there has been a spill of radioactive material (see posted Spill Procedures) which may have produced contamination of the person or clothing, both the person and the clothing shall be monitored. Personnel shall be decontaminated as soon as possible.

    i) Where contamination above the limits established for area surveys is discovered during a laboratory survey, decontamination must be initiated immediately by the user.

j) After working with unsealed sources of radioactive material, hands should be monitored and washed before leaving the laboratory, eating, or smoking.

k) Objects and equipment that may have been contaminated with radioactive material shall be surveyed and demonstrated to be free of contamination prior to their removal from the laboratory, or transferred to other laboratories, repair shops, surplus, etc. If found to be contaminated, such items must be decontaminated as soon as practical.

l) If personnel monitoring devices (whole-body or ring badge) have been issued to you for your work with radioactive materials, they must be worn at all times when in areas where these materials are stored or used. A whole-body badge should be worn at chest or waist level and a ring badge should be worn on the dominant hand, with the detector turned to the palm side of your hand. When personnel monitoring devices are not beingworn to monitor occupational exposures, they should be stored in adesignated low background area.

m) Dispose of radioactive waste only in the manner designated by the Radiation Safety Officer and maintain records as instructed.

n) Store radioactive materials in covered containers plainly identified and labelled with the name of the compound, radionuclide, date, activity and radiation level (if applicable).

o) Always transport radioactive material in shielded containers.

Fume Hoods

338. Certain radionuclides and compounds are potentially volatile. These include Na [125]-I, Na [131]-I, [35]S-methionine, and [35]S-cysteine. Tritium (H-3) in large quantities (i.e., more than 100 mCi) is also dispersible. Work with these materials only in an approved fume hood. The Responsible Investigator is responsible to maintain the hood in good working order at all times. Contact Radiation Safety for further information.

339. Individuals who work with radioiodine in a dispersible form must submit for a bioassay within 72hrs. after use. Individuals involved in operations which utilize, at any one time, more 100 mCi of tritium (H-3) in an unsealed form (other than metallic foil) shall submit for a bioassay within one week following a single operation and at weekly intervals for continuing operations.

Shielding

340. Shielding shall be employed when using radionuclides that emit high energy beta particles (i.e., P-32, P-33) and/or gamma rays (Na-22, Fe-55, I-125, I-131, Cs-137, etc.). Shielding shall be appropriate for the type of radiation emitted and the expected dose rates. For example, beta-emitters such as P-32 can beeffectively shielded by ½ in of plastic. Gamma emitters such as I-131, require lead shielding. Contact the Radiation Safety Office for further guidance.

Blasting & Spray Painting

341. Blasting is done by entraining special grit in an air-stream and directing the stream against the surface to be prepared to remove existing coatings, corrosion and scale.

342. Spray painting uses materials, often containing volatile solvents, pumped at high pressures to apply coatings to surfaces prepared by blasting or by other means such as washing or wire brushing.

343. There are hazards associated with both activities and they include:

    a) Injury from the blasting and painting processes;

    b) Injury resulting from blasting holes in live pipelines;

    c) Health risk from exposure to harmful substances;

    d) Environmental pollution from grit and paint spillage;

    e) Flammable atmospheres from spray painting processes;

    f) Ignition sources from discharged static electricity.

344. All painting materials including paint, solvents, thinners, additives, and cleaners must be stored in a non-enclosed area remote from sources of heat and combustion and protected from direct sunlight.

345. In areas where major painting projects are undertaken, materials storage should be in a dedicated paint storage container fitted with explosion proof air conditioning and light fittings, and a fire extinguishing system. Portable fire extinguishers must be kept in the immediate vicinity of paint containers and areas where significant amounts of painting materials are stored.

346. Access to paint storage areas should only be made in accordance with an entry procedure and a notice of this requirement displayed at the entrances.

347. All materials must be contained in manufacturers original containers, durably and legibly marked with descriptions of the contents. This includes the specification number, colour reference number, method of application for which it is intended, batch number, date of manufacture, manufacturer's name, initials or recognised trademark, and any specific storage instructions.

348. Safety Data Sheets (SDS) must be available for all chemical or paint materials. Materials must be stored in accordance with manufacturers' special instructions or procedures and any stipulations set out in SAFETY DATA SHEETs. Incompatible volatile substances must be segregated. Unidentified paintingmaterials must not be accepted or kept in store.

349. In addition to basic personal protective equipment requirements, protectionshould be given by the use of air-fed helmets with a constant supply of breathingquality air. The addition of an air cooler to maintain the air supply within an acceptable temperature range is strongly recommended. Also recommended is the use of visor outer surface 'tear-offs' in acetate or similar material to enable operators to maintain full visibility.

350. The action of spray painting produces airborne paint particles in the form of a mist which can cause irritation to the eyes, nose, throat, and lungs and may possibly lead to more severe health problems.

Working Near Hydrocarbon Pipelines

351. When working in the vicinity of a hydrocarbon pipeline, the following should be considered:

    a) Prior to any excavation in the vicinity of the pipelines, the route of the pipeline shall be accurately established by the contractor;

    b) Excavate by hand only within a horizontal distance of 10 meters on either side of a pipeline;

    c) Utmost care shall be observed when excavating nearby and/or under the pipelines;

    d) Minimum clearance of any crossing to the pipelines shall be one meter from the pipe surface;

e) Vehicles are not allowed to cross the pipelines except along highways, and other specifically designated roads and crossings;

f) Contractor shall display all necessary safety warning signs and notices at the location of work;

g) In any case, the pipeline owner shall be notified before any work is done within the vicinity, and the work methodology shall be agreed.

Working Near Water

352. Drowning can occur in relatively shallow water and can also occur in other liquids. The primary aim should be to prevent people from falling in the first place. Prevention of drowning is the secondary aim!

353. The following precautions should be adhered to in addition to other control measures developed by the Contractor:

a) Never work alone near water – always employ the "buddy" system.

b) Prepare and implement an emergency response procedure.

c) All working platforms near water must be properly constructed including the required guard-rails and toe-boards. Consider securing boards where water or high winds could affect them.

d) All ladders must be firmly secured.

e) Ensure there is clear passage on all platforms and access/egress routes.

f) Safety harnesses should be employed where applicable.

g) If lighting is supplied for night work, note that it should be able to take in the surface of any water that an employee could fall into.

h) Ensure pontoons are properly loaded, stable, and securely moored.

i) Where applicable, only ever embark at suitable landing places.

j) Never work alone, always work in groups of at least two, and continually check on each other (never rely on a "shout" as an indication of someone falling – it may not happen, or you may not hear it).

k) Know how to raise the alarm and know the location of rescue equipment.

l) If there is a risk of falling in, then wear a life jacket or buoyancy aid (note that a life jacket will automatically turn an unconscious person face up in the water – a buoyancy aid will not!).

m) Ensure all rescue equipment is regularly inspected and maintained (visual check at the start of each shift).

n) Where safety boats are provided, they should be continuously manned by a competent (trained) person.

o) Know the emergency drills.

p) Be aware of dangers from Weil's disease (Leptospirosis).

Diving Operations

354. The diving contractor has responsibility for ensuring that all parts of a diving project are managed in such a way as to ensure the safety of the peopleinvolved in it. The diving contractor shall discharge the following duties:

a) Ensuring that a risk assessment is carried out and a diving project plan prepared.

b) Provide contingency procedures for any foreseeable emergency, including retrieving injured and unconscious divers from the water.

c) Diving carries an inherent risk of decompression illness (DCI). The incidence of DCI drops if the length of time that a diver spends at any particular depth is limited. Provide NT with evidence of how the risk of DCI would be managed.

d) Divers are vulnerable to water flow, suction or turbulence – whether natural or caused by water intakes or discharges. If there are any intakes or discharges, suitable measures, for example mechanical isolation, shouldbe taken to ensure that these cannot be operated while a diver is in the water unless the diver is protected by a suitable physical guard. Please ensure this is addressed in your diving plan.

e) The length of the diver's umbilical in relation to the worksite should be included in the diving project plan, particularly where an emergency situation might require rapid location and recovery of a diver.

f) A familiarisation programme should be included in the diving project plan. The personnel carrying out any explanations or training should be identified, and their names recorded in the diving project plan. Completionof the training by each individual in the dive team should be recorded.

g) All divers should have an up-to-date first-aid qualification.

h) At least one person in the dive team, other than the diver in the water, should be qualified to a diver medic standard. This person should not be the supervisor because of his or her need to be in direct control of the operation at all times.

i) All divers at work must have a valid certificate of medical fitness to dive issued by an HSE medical examiner of divers.

j) The diving project plan should state the language that is to be used during the diving project. All team members should be able to communicate clearly with each other at all times, particularly duringemergencies.

k) All divers in the water require a communication system that allows direct voice contact with the supervisor on the surface. A speech processing system is required for divers who are breathing gas mixtures containing helium because it distorts speech.

l) All such communications should be recorded, and the recording kept until 48 hours after the diver has returned to the surface or the saturation living chamber. If an incident occurs during the dive, the communication record should be retained for any subsequent investigation.

Demolition

a. Method Statement

355. Method Statement:

a) A detailed method statement shall be produced, prior to work starting;

b) The method statement shall identify problems and their solutions andform a reference for the site supervision.

356. The method statement shall be easy to understand, shall be known to all levels of supervision and employees involved in the demolition, and shall include such matter as:

a) the sequence and method of demolition or dismantling of the building or structure with details of personnel access, working platforms and machinery requirement;

b) specific details of any pre-weakening of structures which are to be pulled down or demolished with explosives;

c) arrangements for the protection of personnel and the public and the exclusion of un-authorized persons, with details of areas outside the site boundaries that may need to be controlled to improve safety during critical aspects of the work;

d) details of the removal or making safe of electrical, gas and other services and drains;

e) details of temporary services available or required to be used;

f) details of methods for dealing with flammable materials and gases which may have been retained or deposited as residue in process machinery, pipe work or storage;

g) details of methods to establish the presence of substances which may be hazardous to health and the environment, the methods to be used for their disposal and any necessary protective equipment;

h) arrangements for the control of site transport used for the removal of demolition debris;

i) identifying persons with responsibilities for the control and co-ordination of safety arrangements.

b. General Considerations and Precautions

357. Protection of the Public:

a) A fence shall be erected enclosing the demolition operation. The fence shall not be less than 2m high and shall not be capable of being easily climbed;

b) Access gates shall be secured outside working hours. Warning signs shall be installed along the fence;

c) At sites where it may not be reasonably practicable to erect a perimeter fence, excavations shall be fenced, vehicles and plant shall be effectively immobilized, and gas and electricity supplies shall be isolated or enclosed in locked compounds;

d) Outside of working hours, ladders which provide access from the ground to the fist landing place shall be removed and stored in a secure area;

e) Where necessary, debris fans and facade netting shall be provided to prevent persons being accidentally struck by falling objects. Debris fans shall not be used as a means of access or allowed to become loaded with debris.

c. Sequence of Demolition Operation:

358. The sequence of operations shall be established to clear the accumulated debris on a regular basis so that floors will not become overloaded and horizontal pressure on walls is avoided.

d. Controlled Areas and Safe Distances:

359. The method statement shall set out areas affected by each phase of the work, to which access will need to be controlled. Restrictions and control shall be necessary during:

    a) the dropping of debris;

    b) pre-weakening activities;

    c) deliberate collapse or pulling over of buildings;

    d) The use of explosives.

360. During debris dropping, a radius of 6m, or half the drop height (whichever is the greater), shall be used to determine the restricted area to be kept clear.

361. Similarly, a space of 6m minimum width from the face of the building to be demolished is allowed for the operation of cranes, grabs, balling machines, pusher arms and similar equipment. If wire rope pulling is used, three-quartersof the exposed length of pull rope shall be allowed on either side of the rope andalso behind the winch or pulling vehicle.

362. When tall structures are being felled, a distance of not less than one and a half times the total height shall be allowed from the proposed line of fall to cater for parts coming free in flight or bouncing and rolling on impact.

363. Structures shall be felled into clear areas. On slender structures, a 20-degree arc either side of the line of fall shall be clear of obstruction and an area of radius not less than one and a half times the total height shall be cleared of persons before the actual felling.

e. Hand Demolition Operations:

364. General precaution for hand demolition operations:

a) Buildings and other structures shall generally be demolished in the reverse order to which they were constructed;

b) Where work cannot be done safely from the ground or from part o f a building or structure, scaffolding shall be provided and maintained in a safe condition;

c) Where material is to be allowed to fall freely to the ground then the height of fall shall not exceed half the available horizontal distance, or 6m, whichever is the greatest, unless sufficient protection is made available to adjacent buildings, general public and site personnel;

d) Where material would otherwise be dropped from a structure into an area to which site personnel or members of the public may have access, then chutes shall be used;

e) Chutes shall be so positioned that all material will fall into the skip or other containers;

f) Chutes shall be totally enclosed and shall be constructed so that there is no projection inside which may cause a blockage of material;

g) When there is a risk of material ricocheting from skips, particularly as they become full, additional screens shall be fixed to the skips to contain such material;

h) Excessive debris shall not be allowed to build up on floors against lower walls or other parts of a building structure;

i) When only a portion of a building or structure is to be demolished, the stability of the remaining part shall be checked during and after demolition;

j) At all times, walls and supporting members shall be left in a stable condition;

k) Regular clearing operations shall be carried out;

l) Where sheeted scaffolds are provided to contain flying debris or dust the wind loading on the scaffold shall be taken into account;

m) Competent scaffolders shall only remove the ties securing any scaffold to the building or structure. As the building is demolished, scaffolds shall be reduced to the extent necessary to ensure that excessive scaffolds do not remain unsupported as the building height is reduced;

n) Checks shall be made to ensure that the structure to which the scaffold is tied is strong enough to provide a suitable anchorage during the period that the tie is required;

o) Care shall be taken to support beams or columns whilst they are being cut;

p) Members (beams) may spring, due to the removal of restraints. Each member shall be lowered to the ground.

Noise

365. Exposure to high noise levels and consequent noise induced hearing loss is one of the major health risks.

366. The standards for occupational noise exposure state that personnel without hearing protection must not be exposed to an intensity of noise exceeding 85 dB (A) based on an 8-hour time weighted average (TWA), as measured on the A-weighted scale. This means that if a person is working in an area where the intensity of noise exceeds an average of 85 dB (A) over 8 hours, the amount of time he may work in that area without hearing protection must be reduced in relation to the amount that the noise exceeds 85 dB (A). For example, if the noise in an area is measured at an average of 90 dB (A) over an 8-hour period, personnel may only work in that area without hearing protection for a maximum of 4 hours.

367. For a 12-hour work shift, unprotected personnel must not be exposed to noise intensity exceeding 83 dB (A).

368. The values below contain suggested criteria for noise limits in various types of environments.

Table 4: Suggested Noise Limits in Various Types of Environments.

Locations	**Noise Limit (dBA)**
Open Plan Offices	50
Maintenance Workshops	70
Workshop Offices	60
Control Rooms	60
Conference Rooms	45

Heat Stress

369. There is little that can be done to control ambient air temperatures but there are a number of measures that can be taken to minimise their effect.

370. In situations where engineering control may be impossible or impractical and where the exposure time can vary with the tasks and unforeseen critical events, e.g., working on pipelines etc., the following should apply:

    a) If possible, schedule hot jobs for the cooler part of the day;

    b) Alter rest/work regimen to permit more rest time;

    c) Provide cool (shaded) areas for rest and recovery;

    d) Consider the possibility of mechanisation of the physical components of the job, e.g., use a mechanical digger rather than a gang of men with shovels;

    e) Ensure an adequate supply of cool (not iced) water is available at the workplace and employees take fluids at least hourly;

    f) If workers diet is deficient in salt or an individual is susceptible to heat stress, the water may be salted (half a level teaspoon of salt to 1 litre of water). Salt tablets are not recommended;

    g) People on a salt restricted diet, e.g., high blood pressure, should consult a doctor before taking additional salt.

Transportation

371. Precautions for transportation activities:

    a) Drivers must be in possession of a current driving license issued by the Nigerian Federal Road Safety and carried on their person at all times;

    b) Drivers must be fully conversant with and comply with the requirements of all traffic regulations;

    c) All vehicle incidents must be reported in accordance with the Company Incident Reporting and Investigation Procedure;

    d) The number of passengers is to be strictly limited to the authorised seating accommodation provided;

    e) No more than one passenger is allowed to travel in the front of a vehicle unless a bench type seat suitable for three persons is fitted;

f) Under no circumstances are more than two people to be allowed to travel in the front of a vehicle where two bucket type seats are available;

g) Where only one seat is provided on a vehicle such as a tractor, forklift truck, dump truck, etc., only the driver shall ride on that vehicle;

h) No person may ride in any insecure position on a vehicle such as a tail-board, the side of a truck or pick-up, dump truck bucket, open flat bed, etc.

372. Vehicles not principally meant for carrying personnel but which are being used for that purpose must be used with the following precautions:

a) Seating arrangements are to be fitted to all vehicles. Seating can be permanent or temporary, but if temporary, then a means of securing them must be fitted;

b) No vehicle carries more passengers than the seating capacity provided;

c) Whilst a vehicle is in motion, persons remain seated;

d) A substantial and effective safety rail is provided on all open sides of flat beds, trailers, pick-ups etc.;

e) Vehicles and pedestrian's walkway must be segregated and designed in a way that prevents collision with pedestrians or other vehicles.

Training, Inspections and Records

373. The Contractor must be aware of the following requirements:

Table 5: Requirements for Training Inspections and Records

What	When	Output
Toolbox Talks	Every day before any hazardous work is carried out	Attendance Register
Health and Safety Committee Meetings	Monthly	Attendance Register and signed minutes of meeting

What	When	Output
Health and Safety Report	Fortnightly	Health and Safety Report to cover: • KPIs • Incident / Accident investigation • Non conformances • Updates on Loss Prevention Tracker • Health and Safety Training • HIRA Updates • Internal and External Audits
General Inspections	As per H&S Specification, Risk Assessment & Legislative Requirements	Report of H&S Specification and legislative compliance: • Scaffolding • Lifting Equipment • Excavations • Construction Vehicles
General Inspections	Monthly	Covering: • Fire Fighting Equipment • Portable Electrical Appliances • Hand Tools • Ladders
Record Keeping	On-going	Covering: • General Complaints • Fines • General Incidents • SAFETY DATA SHEET • Inspection Registers • Surveillance Report • Medical Certificates • Maintenance Records

Civil Unrest

374. During periods of civil unrest, construction sites can become attractive targets due to stored materials and employees may be exposed to aggression and violence from rioters and hoodlums. As a result, the potential for propertydamage, theft and related incidents increases. Losses that occur during times of civil unrest may also be more severe, as police, fire, and emergency response may take longer than expected to respond.

375. The Principal Contractor shall develop a site-specific action plan for dealing with civil unrest. The Civil Unrest Plan shall include arrangement for continuousanalysis of risks that may arise from civil unrest and identification of appropriate controls. The plan shall include means of communication and consultation with the necessary third parties to help develop and implement the plan.

376. More specifically, the plan must detail:

a) The evacuation policy and procedure.

b) Preferred methods for reporting civil unrest emergencies.

c) The potential impacts of civil unrest and appropriate safeguards in place.

d) The process of assessing known and anticipated risks that may arise.

e) Communication system to notify personnel before, during and after periods of civil unrest.

f) How to identify controls and respond to civil unrest events that occur without notice.

g) The evacuation plan, including identifiable muster points, primary and alternative evacuation routes.

h) Site security enhancement strategy.

i) Arrangement for updating crisis management plans and personnel contact information.

j) The specialized training to be provided to site personnel to improve civil unrest awareness.

k) How to communicate the civil unrest plan to ensure all potential impacted parties, including contractors and other third parties, understand the site-specific action plan.

l) Contact information of individuals within and outside the site with assigned duties for the effective delivery and implementation of the plan including parties responsible for implementing controls.

m) Arrangement for promoting cooperation, coordination and communication with applicable law enforcement and emergency agencies.

n) Arrangement for prevent unauthorised access to the site and protect the safety of workers, both on and off the jobsite.

o) Means of ensuring safety and well-being of potentially impacted parties.

p) Information about how site workers can quickly and safely access main roads, hospitals, police stations and public buildings.

q) Actions employees must take when caught up in a protest involving large group or mob of people.

377. The Principal Contractor shall maintain a Business Continuity Plan that must be updated regularly and shall outline:

a) Preparatory steps that can help limit losses.

b) Emergency response procedures to take when threatens.

c) Recovery steps to get the business and/ or the construction site back on track as quickly as possible.

3.2 Site Restoration

378. The principal contractor shall develop a site restoration plan in order prevent disruption to the environment and the area they are working in. The site restoration plan must be sufficiently developed and adequate to help preserves the land and local habitats of birds, fish, and other important species even after the construction work is completed. After construction, the goal of the principal contractor must be to restore the worksite to its pre-construction condition.

379. The contractor shall develop and apply a site restoration checklist to help better prepare for future construction project and the site restoration afterward. The checklists and plan must consider runoff reduction, water quality protection, restoration of the site topography, restoration of water table back to its original depth.

3.3 Pre-Commissioning

380. The principal contractor must have a documented safety pre-commissioning plan for ensuring that machines, equipment and systems can be safely used inreadiness for commissioning.

381. A detailed risk assessment and method statement for the pre-commissioning activities must be clearly defined and approved by the Safety Engineer work authorization at this stage. Test records for all machines, equipment or systems must be compiled and included as part of the health and safety file to be handed over to the client at the end of the construction project.

382. The principal contractor and contactors on the project must ensure the pre-commissioning stage does not pose a health and safety risk to the construction team or to anybody at this stage and that any risks arising from pre- commissioning stage have been assessed and adequate precautions are put in place to eliminated or reduce the risks to as low as reasonably practicable.

3.4 Commissioning

383. For safe commissioning of the facility, the principal contactor must ensure safety measures like **permit to work system** are implemented**.**

384. The construction area should be fenced to separate it from the existing operational facility and security and access control must be ensured. **Emergency response procedures** must be established and communicated to all commissioning teams and other related workforce.
385. A safe commissioning procedure must be developed and implemented at this stage by the principal contractor and all testing carried out at this stage must be assessed and conducted in a safe manner.

386. The safe commissioning procedure must cover all activities by contractors, vendor specialists and any consultants or personnel activities as part of the commissioning stage or activities. The principal contractor must demonstrate that the commissioning can be carried out safely and that the new or modified facility and site is ready for safe and continuous operation.

387. The principal contractor shall ensure that all as build drawings, test certificates, operations and maintenance (O&M) manual, documented critical system parameters, applicable licenses, documented methods of construction or installations, pre-Startup safety review (PSSR) report, surveys or design specifications as part of the commissioning stage are documented in the health and safety file and handover to the clients.

4.0 Phase Four - Post Construction

4.1 Final Site Restoration

388. The principal contractor shall restore the land surface within the area disturbed during construction. The principal contractor shall develop a final safe site restoration plan in order to secure the safety of everyone during the final site restoration activities. This plan must be sufficiently developed and adequate to address all health and safety risks personnel and those carrying out work at this stage might be exposed to.

389. The contractor must ensure the final site restoration can be carried out without risks to the workforce. A suitable risk assessment and safe working procedures must be established for this stage including safe methods of working and filing of relevant information into the health and safety file.

4.2 Demobilisation

390. The HSE Plan must take into account demobilization and where this is not in place, a safety demobilization plan must be developed to manage the hazards and risks associated with demobilization stage. The Plan must detail the arrangement for managing demobilisation hazards and should remind all involved about their roles and responsibilities for this phase.

391. The hazards and risks associated with demobilization should be reassessed, and updated with any new hazards, effects, impacts, and/or threats identified. The principal contractor must verify and confirm that the appropriate controls are in place to mitigate the risks and update the HSE plan accordingly.

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