Integrated Management System

Handbook - Contractor Management Guidance

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1. INTRODUCTION

1.1 PURPOSE

Contractor Guidance Documents (**CGD**) are designed ensure that Contractors, Subcontractors and Service Providers working at Motor Fuel Group's (**MFG**) Petrol Filling Stations are aware of the hazards associated to working at these sites and MFG's basic requirements for specific types of work that have been identified as involving significant risk (**Major Work**).

Note 1.1.1: For the purpose of this Contractor Guidance Document, Contractors, Subcontractors and Service Providers will be referred to collectively as **Contractors**.

Contractors are required to ensure that a task-specific Safe Method of Working is produced for a defined scope of work include, as applicable, relevant information from the guidance provided by MFG to ensure that:

- Work site and task-specific hazards and associated risks are identified
- Suitable and sufficient risk reduction measures (i.e., controls) are:
  - Identified; and
  - Detailed within in the relevant control documents
- Assigned work activities are:
  - Fully and adequately described
  - Adequately resourced; and
  - Performed safely

Note 1.1.2: A Safe Method of Work may include but is not limited to:

- Method Statement and fully completed Clearance Certificate; and
- Risk Assessment & Method Statement (**RAMS**)

1.2 INTENT

Contractor Guidance Documents are a useful guide to Contractors regarding MFG's expectations for the safe performance of a specified type of activity. They are designed to take account of the potential hazards present at Petrol Filling Stations and establish minimum performance standards for the work tasks that MFG is not sufficiently knowledgeable of, or experienced in, to allow MFG to develop task-specific Safe Method of Working.

The responsibility for ensuring work tasks are adequately defined and performed safely remains with the Contractor who must ensure that working practices are critically assessed against applicable legal obligations and with consideration given to the information provided in these Contractor Guidance Documents.

Note 1.2.1: Contractor Guidance Documents **DO NOT** override or relieve Contractors of their statutory obligations under applicable legislation.

1.3 CONTRACTOR OBLIGATIONS

Contractors have a legal obligation to work safely and not put themselves or affected or impacted by their work, at risk of harm, due to their actions or non-actions. Contractor compliance with applicable legal obligations is considered non-negotiable and MFG will not tolerate failures to meet this obligation.

Contractor will ensure that assigned work activities are properly evaluated and assessed and that appropriate Safe Methods of Working are developed, verified as meeting expectations, effectively communicated to workers who are competent to perform assigned tasks and proactively monitored for compliance.

Note 1.3.1: If clarification or further understanding of the content of this Contractor Guidance Document is required, Contractors must contact the HSE Manager (MFG) via HSE_Team@Motorfuelgroup.com.

2. PERSONAL PROTECTIVE EQUIPMENT (IMS-08.01.5-2)

2.1 GENERAL REQUIREMENTS

The following specific requirements will apply as applicable:

- Jewellery (e.g., rings, watches, bracelets, necklaces, earring, etc.), or other loose accessories, should not be worn within one (1) metre (3.37 feet) of:
  - Operating machinery
  - Rotating tools
  - Electrical switch gear; and
  - Other conditions or locations where these items could present a hazard
- Long hair (of a length that may become entangled in moving machinery), must be contained in a suitable manner to avoid entanglement; and
- Medical clearance for the use of specific types of PPE use will be obtained (e.g., Respiratory Protective Equipment)

PPE selected for use will:

- Conform to the relevant standard, for example:
  - BSI Standard, recognized by applicable regulations
  - National Standards, (e.g., local or government); and
  - MFG company standards
- Suitable for the user, with consideration given to:
  - Size, fit and weight; and
  - The health of the wearer, for example:
    - If PPE is heavy or is restrictive; or
    - Wearers with pre-existing health issues

2.2 MINIMUM PPE REQUIREMENTS

2.2.1 SITE VISITS OR ASSESSMENTS

The minimum PPE requirements for Contractors when conducting site visits or assessments at the pre-work or design stage of a project includes:

- Hi-Viz jacket or Hi-Viz banding on coveralls
- Suitable work clothes (e.g., jeans, coverall, etc); and
- Sturdy shoes

2.2.2 MANUAL WORK ACTIVITIES WITHIN RETAIL STORE

The minimum PPE requirements for Contractors performing manual work within the retail store includes:

- Hi-Viz jacket or Hi-Viz banding on coveralls
- Suitable work clothes (e.g., jeans, coverall, etc)

  Note 2.2.2.1: Contractors are **NOT** permitted to wear shorts while working at a MFG Petrol Filling Station.
- Safety footwear (e.g., steel, or composite toed boots or shoes)
- Safety glasses, when required by the hazards created by the work being performed; and
- Protective gloves, appropriate to the hazard created by the work being performed

Note 2.2.2.2: If work at height is taking place within a retail store in close proximity to other work activities and there is a dropped object potential, workers are required to wear a safety helmet and must not encroach the safety zone created beneath the work at height until such work is completed.

2.2.3 Minor Work on Petrol Filling Stations

The minimum PPE requirements for Contractors performing work activities identified as **NOT** involving significant risk (**Minor Work**) includes:

- Hi-Viz jacket or Hi-Viz banding on coveralls
- Suitable work clothes (e.g., jeans, long sleeved shirt, coverall, etc)

  Note 2.2.3.1: Contractors are **NOT** permitted to wear shorts while working at a MFG Petrol Filling Station.
- Safety footwear (e.g., steel, or composite toed boots or shoes)
- Safety glasses, when required by the hazards created by the work being performed; and
- Protective gloves, appropriate to the hazard created by the work being performed

Note 2.2.3.2: If work at height is taking place within a retail store in close proximity to other work activities and there is a dropped object potential, workers are required to wear a safety helmet and must not encroach the safety zone created beneath the work at height until such work is completed.

Note 2.2.3.3: Minor work includes but is not limited to:

- Infrastructure maintenance (i.e., work not involving significant risk)
- Ground and forecourt surface maintenance (i.e., work not involving significant risk)
- Equipment inspection and testing (e.g., dispenser pumps); and
- Painting, at heights not greater than 1.85 metres (6 feet)

2.2.4 Major Work on Petrol Filling Stations

The minimum PPE requirements for Contractors performing work activities identified as involving significant risk (**Major Work**) includes:

- Safety helmet
- Hi-Viz jacket or Hi-Viz banding on coveralls
- Suitable work clothes (e.g., jeans, long sleeved shirt, coverall, etc)

  Note 2.2.4.1: Contractors are **NOT** permitted to wear shorts while working at a MFG Petrol Filling Station.
- Safety footwear (e.g., steel toed boots or shoes)
- Flame resistant clothing (**FRC**) for tasks involving hot work (e.g., welding, grinding, etc.)
- Safety eyewear (e.g., glasses, goggles, face shield, welder's visor, etc.); and
- If specified in the task Risk Assessment & Method Statement (**RAMS**):
  - Full body harness and lanyard (i.e., working at height without fall prevention measures)
  - Respiratory protection (i.e., work involving exposure to hazardous atmospheres)
  - Hearing protection (i.e., work levels of noises above acceptable noise limits); and
  - Personal gas monitor (i.e., work involving potential exposure to hazardous vapours)

Note 2.2.4.2: Major Work includes but is not limited to:

- Forecourt Construction Projects, including EV Charging facilities
- Retail Redevelopment Projects
- Hot Work
- Confined Space Entry
- Working at Height
- Breaking Ground (i.e., Excavations and Trenching); and
- Mechanical Lifting Operations

2.2.5 Flame Resistant Clothing (FRC)

Flame Resistant Clothing (FRC) is required when hot work is being performed, and must be:

- Worn correctly (e.g., shirts tucked in, sleeves rolled down and buttoned, coveralls zipped, etc.)
- Replaced if torn, loose fitting or poorly fitted
- Worn as the outer most garment, unless other personal protective clothing (e.g., welder's apron) is being used; and
- Laundered, repaired, and taken out of service damaged or in poor condition

2.2.6 Chemical Resistant Clothing

Chemical resistant clothing must be worn when specified in the task-specific RAMS to reduce the risk of exposure to hazardous chemicals, for example:

- Polyvinyl Chloride (PVC) clothing
- Polyvinyl Chloride (PVC) or rubber gloves
- Chemical resistant or rubber safety boots; and
- Googles and/or face shield; and

Note 2.2.6.1: Safety goggles and a face shield to be worn when handling corrosive chemicals (e.g., acids and/or alkalis) or solvents.

2.2.7 Other Protective Clothing

The following minimum requirements apply to the use of other types of protective clothing (e.g., rain wear, wet suits, etc.) in the workplace:

- Polyvinyl Chloride (PVC) clothing is acceptable for general duty and specialised jobs; and
- Flame resistant rain wear is for work involving exposure to a fire hazard

2.3 Specific PPE Requirements

2.3.1 Head Protection

The following minimum requirements apply to the use of Head Protection:

- Protective headwear (i.e., safety helmet / hard hat) will:
    - Be worn by all personnel:
        - When detailed in the RAMS
        - During construction activities
        - While:
            - Inspecting construction work sites; and
            - Visiting construction work sites
    - Bear permanent markings:
        - Manufacturer's name
        - Date of manufacture; and
        - Any specific designation or class identification
    - Be properly maintained, for example:
        - Inspected immediately prior to use; and
        - Cleaned regularly (the shell)
    - Not used to carry objects while being worn
    - Stored where they will not become deformed or damaged by excessive heat
    - Not altered in any way that could reduce the effectiveness of the hat

- Replaced when the hat displays evidence of damage (e.g., cut, cracked, or dented)
- Have the suspension system replaced when it shows signs of wear/damage; and
- Taken out of service:
  - Five (5) years after the date stamped on the hat; or
  - If the hat has received a significant blow (even if damage is not visible)

2.3.2 Eye and Face Protection

The following minimum requirements apply to the use of Safety Glasses:

- The relevant specification will be printed on the frame
- Side-shields will be an integral part of the glasses
- Lenses will be scratch resistant (e.g., hardex glass or polycarbonate)
- Will:
  - Be light, strong, and adjustable to wearer's needs
  - Fit so that the eyes look through the centre of the lenses and be as close to the eyes as possible (for the widest possible field of vision); and/or
  - If specified in the task-specific RAMS

Note 2.3.2.1: Employees who wear prescription glasses will wear safety glasses that incorporate their prescription into the lens or will wear protection over their prescription glasses. Prescription safety glasses will comply with the requirements stated above for safety glasses.

The following requirements apply to the use of Safety Goggles:

- Will be worn when protection is required:
  - From flying particles including sparks
  - When handling chemicals (including sampling); and/or
  - If specified in the task-specific RAMS
- Specific requirements for safety goggles are:
  - Manufactured from soft, pliable vinyl plastic (including impact resistance where required)
  - Provision of ventilation ports for defogging, and
  - An adjustable headband

The following requirements apply to the use of Face Shields:

- Be worn when protection is required from:
  - Flying objects including sparks (i.e., welding and grinding)
  - Hazardous materials (e.g., toxic, corrosive, etc.); and/or
  - If specified in the task-specific RAMS

Note 2.3.2.2: When handling chemicals or working on equipment that may contain trapped pressure, safety goggles and face shield should be worn to provide the wearer with additional protection.

2.3.3 Safety Footwear

The following minimum requirements apply to Safety Boots and/or Safety Shoes:

- Safety toed puncture protection (i.e., steel, or composite toe protection)
- High rated anti-slip soles
- Sole material and tread suitable for the working surfaces and environmental conditions; and
- Oil and chemical resistance
- Personnel involved in work:

  - Near electrical equipment will wear non-conductive safety footwear that protects the toes and top of the feet; and
  - With a risk of exposure to sharp objects (e.g., nails) will wear footwear with a suitable mid sole plate
- Shoes and boots with laces, will be laced (e.g., to the top) to provide the full protection, including:
  - Support for the foot and ankle
  - Protection from harmful objects entering the boot; and
  - Prevention from tripping hazards
- Footwear will be inspected before/after each use and will be replaced if there are:
  - Any cracks in the sole
  - Breaks (splits) in the leather
  - Exposed toecaps; or
  - Other signs of damage that reduces the protective qualities of the footwear

Note 2.3.3.2: Where conditions demand, safety footwear will be a safety boot that offers protection for the ankle.

2.3.4 Hand Protection

The following minimum requirements apply to Hand Protection:

- When selecting gloves, consideration will be given to the potential hazards associated with the material or equipment being handled:
  - Select the glove size, style, material, thickness, and design to provide the best protection, (e.g., impact resistant, chemical resistant, etc.); and
  - For tasks that do not involve potential contact with hazardous materials, leather gloves will be used
- Gloves will fit correctly, be maintained in a good condition, checked regularly, and discarded if worn or damaged
- The following types of gloves will be worn when performing tasks that involve:
  - Handling objects with sharp edges or pulling wire rope: **Cut Resistant or Equivalent**
  - A potential exposure to pinch points or rotating parts: **Impact Resistant**
  - Handling chemicals, (e.g., oils, caustic soda, etc.): **Chemical Resistant**
  - Welding or gas cutting operations: **Welding Gloves (e.g., Leather Gauntlets)**
  - Working in the proximity of energised electrical equipment: **Electrical Rated Gloves**

    Note: 2.3.4.1: Electrical protective gloves will be replaced if they are torn, cut, or punctured, have an object embedded in the rubber, or if texture changes are evident (e.g., softening, hardening, swelling, stickiness, or loss of elasticity).

    Note 2.3.4.2: Some classes of electrical insulting gloves require periodic testing and certain types of electrical insulating gloves have an expiry date.
- Multi-use gloves may be required when a job hazard assessment indicates more than one hazard exists for the task

2.3.5 Hearing Protection

The following minimum requirements apply to Hearing Protection:

- Hearing protection is required while performing work with a potential exposure to noise levels exceeding:
  - 85 dBA for an eight-hour shift; and/or
  - 82 dBA for a twelve-hour shift

- Double hearing protection (e.g., ear defenders and ear plugs) is required while performing work with a potential exposure to noise levels exceeding 95 dBA
- Hearing protection will include:
  - Ear defenders (including those attached to a safety helmet); and
  - Ear plugs
- The minimum acceptable requirements are:
  - Must be corrosion free and able to withstand extreme temperatures
  - Ear plugs must fit properly and remain correctly seated to provide actual noise reduction
  - Disposable ear plugs are designed for one use only and should be disposed of after use
  - Re-usable ear plugs should be cleaned prior to each use
- Ear defenders must:
  - Fit properly (e.g., seal must not be compromised by hair or the frames of glasses); and
  - Pads must be replaceable and be made of soft material

2.3.6 Respiratory Protection

The following minimum requirements apply to Respiratory Protection Equipment (RPE):

- Respiratory protection will be worn in work environments where respiratory hazards are present, including:
  - Oxygen deficient atmospheres (e.g., below 19.5% oxygen)
  - Atmospheres containing airborne contaminants:
    - Solid particles or liquid particles (e.g., toxic or corrosive)
    - Gases and/or vapours (e.g., toxic or corrosive)
    - Fumes, dusts, or mists that could:
      - Pose an Immediate Danger to Life or Health (IDLH); or
      - Interfere with a person's ability to escape
- Two types of respirators are available for use, dependent upon the atmospheric hazards:
  - **Filtration** (i.e., Air Purifying Respirators):
    - Must not be used in an oxygen deficient atmosphere or flammable atmosphere
    - Range in type from:
      - Simple disposal dust mask; to
      - Half-face mask; to
      - High-performance full-face mask with filters suitable for organic vapor, acid gas, and/or particulates
    - These respirators are only designed to protect against low concentrations of toxic substances

      Note 2.3.6.1: If there is doubt about the level of protection required, select the higher level of protection (e.g., supplied air respirator).
  - **Supplied Air Respirator:**
    - Provide fresh breathing air from an uncontaminated supply source and will be used when:
      - The level of airborne contaminants is beyond the filtration capability of a respirator; or
      - The is an oxygen deficiency (below 19.5% oxygen level)
    - There are two types of supplied air respirators:
      - Supplied Air-Line Masks / Hoods

- Self-Contained Breathing Apparatus (SCBA)

Note 2.3.6.2: Supplied Air Respirators must not be used in a flammable atmosphere.

- Those required to wear respiratory protection in a potentially hazardous atmosphere must:
  - Be clean shaven (i.e., to ensure there is an adequate seal between the face mask and face; and
  - Undergo both a:
    - Medical fitness examination; and
    - Respirator fit test (either qualitative or quantitative)

2.4 PPE Inspection & Maintenance

The following minimum requirements to PPE Inspection and Maintenance:

- PPE will be inspected by the wearer immediately prior to, and after, use
- PPE inspections will be:
  - Appropriate to the type of equipment being used; and
  - Performed to confirm that the equipment is fit for purpose and/or continued use
- PPE will be maintained in accordance with manufacturers' recommendations
- Where required by applicable legal obligations or other requirements PPE maintenance, including repairs, will be performed by Competent Personnel; and

  Note 2.4.1: If there is a legal requirement to do so (e.g., respiratory protection and fall protection equipment) inspections and tests will be performed by Competent Personnel.
- PPE that is damaged (e.g., worn, torn, deformed, cracked, perished, etc.) to an extent that may compromise the integrity and effectiveness of the equipment, it will be replaced; and
- Records of PPE maintenance and repair will be retained, as appropriate to the type of inspection and maintenance performed:
  - Maintenance Performed (Wearer): **No** requirement to formally document.
  - Maintenance and Repairs (Qualified Inspector/Service Engineer): **Formal** record retained

3. CLEARANCE CERTIFICATE (IMS-08.01.5-3)

3.1 INTENT

This document is designed to provide guidance to Contractors who are awarded contracts to perform work at a MFG Petrol Filling Station. This guidance document specifically details expectations regarding the preparation, review, authorisation, and closure of **Clearance Certificates**.

Contractors are required to complete a Clerance Certificate prior to starting work on a daily basis. The certificate will clearly and accurately detail the work to be performed and associated controls. After completing the certificate, the Job Supervisor will notify the designated MFG Representative (e.g., Site Manager) of the intended work and ensure the Clearance Certificate is signed by the representative.

3.2 CLEARANCE CERTIFICATE

The Clearance Certificate is a document developed to ensure that immediately prior to the start of the any work on site, the assigned Contractor adequately considers:

- Work to be performed
- Equipment to be used
- Hazards related to the work, and the work site environment; and
- Associated risk reduction measures (i.e., control)

Clearance Certificates are:

- Completed by the Contractor's Job Supervisor
- Required for all work performed at by Contractors at MFG sites
- Valid for one working day, after which a new Clearance Certificate must be prepared and issued

Clearance Certificates provide an effective means of communications between the Job Crew, site staff, other Contractors, the designated MFG Representatives and other interested parties.

3.3 USE OF CONTRACTORS CLEARANCE CERTIFICATES

Contractors may use their own Clearance Certificate providing it achieves the same objectives as the MFG Clearance Certificate and approval to use it has been obtained from MFG's Risk & Compliance Manager or HSE Manager to use an alternative Clearance Certificate.

3.4 CLEARANCE CERTIFICATE PROCESS

3.4.1 ARRIVAL AT SITE

On arrival Contractors (i.e., Job Supervisor) will report to the designated MFG Representative and discuss the proposed scope of work. The designated MFG Representatives may include but are not limited to:

- Contract Manager (i.e., Site Manager) or employee
- Area Retail Manager
- Project Manager
- Construction Manager; and
- Infrastructure Manager

The Job Supervisor will ensure:

- The requirements of the work are fully explained, including:
  - Job specific hazards; and
  - Risk control measures to be implemented
- Mutual understanding of the work to be performed and supporting documents, for example:

- Safe Method of Working (i.e., Method Statement); and
- Risk Assessment and Method Statement (**RAMS**), where applicable.

Note 3.4.1.1: For work identified as involving significant risk (**Major Works**) Contractors will submit a suitable Risk Assessment and Method Statement (**RAMS**) to a designated MFG Representative:

- Five (5) days prior to arrival at the site; and
- On arrival at the site prior to commencing the works

3.4.2 Site Inspection (Hazard Assessment)

Following review of all relevant information (e.g., Safe Method of Working, RAMS, etc.) the designated MFG Representative and Job Supervisor will carry out a joint site inspection. The purpose of the inspection is will to:

- Discuss work activities to be performed
- Identify the task specific hazards
- Identify the work site specific hazards
- Determine the risk control measures necessary to reduce risks to an acceptable level
- Mutually agree the:
  - Safe Method of Working
  - Task specific hazards and controls
  - Work site specific hazards and controls
  - Work site preparation; and
  - Access controls (as necessary)

3.4.3 Certificate Preparation

The Job Supervisor is responsible for completing the Clearance Certificate and ensure that the following information, as applicable is accurately recorded on the certificate:

- Service Station Number
- Name of:
  - Service Station
  - Site Representative, including job title
  - Contracting Company
  - Contractor's Job Supervisor; and
- Date and Time
- Number of Workers
- Scope of Work (i.e., accurate and detailed scope of work required)
- Reference to Safe Method of Working or RAMS and other supporting documentation

  Note 3.4.3.1: If a Contractor has produced generic RAMS for the proposed work, they are responsible for ensuring that the RAMS are critically reviewed and revised to include site specific hazards, additional risk controls, or changes to the safe method of working identified during the pre-work site inspection.

- Equipment to be Used
- Personal Protective Equipment (PPE) Required (**Mark X**)
- Significant Work Documents and Task Checklist (**Mark X**)
- Work Specific Hazards Identified

  Note 3.4.3.2: Job Supervisor to identify the hazards associated to the work (**Mark X**) and ensure that the required risk reduction measures (i.e., control) are implemented. If any aspect of the

proposed work is considered potentially high risk, the work cannot proceed. The designated MFG Representative will contact the HSE Manager or Risk & Compliance Manager for guidance.

- Isolations Required (e.g., electrical, liquid, flammable, etc.)
- Contractor's Declaration:
  - Signed prior to starting work; and
  - Signed on completion of the work or end of working day
- MFG Acknowledgement:
  - Designated MFG Representative to print name and initial form

3.4.4 Certificate Review & Issue

Following completion of the Clearance Certificate the Job Supervisor will review the content to confirm accuracy with the MFG Representative prior to signing the certificate. Work will not commence until the certificate is fully completed and authorised.

3.4.5 Commencing Work

Immediately prior to commencing the work, the Job Supervisor will:

- Hold a pre-job safety meeting with the Job Crew and other affected personnel to:
  - Discuss the scope of work and content of the:
    - Safe Method of Working or RAMS
    - Clearance Certificate; and
    - Work Control Permit, when required
  - Confirm mutual understanding of the:
    - Safe Method of Working or RAMS, and Work Control Permit when required
    - Identified task and work site specific hazards; and
    - Risk reduction measures (i.e., controls)
- Assign the Job Crew duties and responsibilities; and
- Confirm all identified risk reduction measures (i.e., controls) have been implemented, and verified as effective (i.e., tested)

Following confirmation and verification that the required control measures have been implemented the Job Crew will progress the proposed works in accordance with planned arrangements, as detailed in:

- Safe Method of Working or RAMS
- Clearance Certificate; and
- Work Control Permit, when required

The Job Supervisor will monitor the work activities and ensure:

- A copy of the Clearance Certificate is retained at the work site for reference purposes
- Job Crew performs work in accordance with the:
  - Safe Method of Working or RAMS; and
  - Work Control Permit, when required
- Conformance with the content of the Clearance Certificate and Work Control Permit (when required)
- Maintenance of identified risk reduction measures (i.e., controls); and
- Suitable and appropriate level of job supervision

3.5 Certificate Validation

A Clearance Certificate is valid for a maximum period of **one (1) working day**.

If the work takes place over several days a separate Clearance Certificate must be prepared, reviewed, authorised, and issued, as detailed above, prior to the start of any work each day.

3.6 Deviation from Original Scope of Work

Deviations from the original scope of work, as detailed on the Clearance Certificate, Safe Method of Working or RAMS, are not permitted unless agreed with the designated MFG Representative, who may be required to consult with relevant MFG personnel prior to authorising a change. Relevant personnel may include but is not limited to:

- Project Manager
- Construction Manager
- Infrastructure Manager
- Regional Manager; and
- Risk & Compliance Manager

3.7 Certificate Closure

On completion of the work or at the end of a working day, the Job Supervisor will ensure:

- If the work has been fully completed:
    - Equipment worked on has been left in a safe condition, for example:
        - Guards or covers refitted; and
        - Energy Isolations removed
    - Work site has been left in a safe condition, for example:
        - Drain covers replaces
        - Barriers removed; and
        - Signage updated or replaced, etc.)
    - Waste has been removed (e.g., offsite or to suitable receptacle); and
    - Housekeeping standards meet MFG expectations
- If work has not been fully completed:
    - Required energy isolations remain in place
    - Other identified risk reduction measures (i.e., controls) remain in place
    - Work site has been left in a safe condition (e.g., barriers remain in place, etc.)
    - Waste has been removed (e.g., offsite or to suitable receptacle)
    - Housekeeping standards meet Company expectations

Note 3.7.1: Copies of Clearance Certificates will be retained either in hard copy format (i.e., paper) at the site or uploaded to MFG's Maintenance Software System.

4. Work Control Permit (IMS-08.01.5-4)

4.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts to perform work at a MFG Petrol Filling Station. This guidance document specifically details expectations regarding the preparation, review, authorisation, and closure of a **Work Control Permit**

4.2 Work Control

Work tasks assigned to Contractors will be assessed to identify potential hazards and the associated risk. Work identified as involving significant risk will be categorised as **Major Works**, requiring a **Work Control Permit** (**WCP**) to be prepared, authorised and issued. Work identified as **Major Work** includes**:**

- Confined Space Entry:
  - Storage tanks
  - Drains
  - Interceptors; and
  - Excavation (greater than 5 feet deep, etc.)

  Note 3.2.1: Excavation of a lower depth will be classified as a confined space if work being performed requires the Job Crew to bend or knell within the excavation.
- Hot Work in a designated Hazard Zone (i.e., DSEAR), for example:
  - Welding and grinding
  - Open flame burning; and
  - Shot blasting
- Excavation and Trenching; in a designated Hazard Zone (i.e., DSEAR):
  - Mechanical hand breaker (i.e., pneumatic breaker)
  - Use of 360 Excavator
  - Ground compaction equipment (e.g., Mechanical compaction (Wacker) plate)
- Significant Work at Height:
  - Canopy repair or replacement
  - Building roof repair or replacement; and
  - Use of motorised equipment in a designated Hazard Zone (i.e., DSEAR)
- Asbestos Removal and Remediation:
  - Building demolition; and
  - Major building remediation
- Mechanical Lifting:
  - Use of crane or cranes working in tandem
  - Involving lifts over infrastructure and access and egress routes; and
  - Use of motorised equipment in a designated Hazard Zone (i.e., DSEAR)
- Working in Close Proximity to Overhead Powerlines

4.3 Work Control Permit

The Work Control Permit is designed to minimise the possibility of harm to people, the environment, assets, and MFG's reputation during the performance of works undertaken by Contractors, and will typically identify as a minimum the:

- Scope of the work to be carried out
- Equipment to be used

- Hazards associated to the scope of work and the work environment; and
- Risk reduction measures (i.e., controls) required to ensure that the work can be carried out safely.
- Additional information, which may include:
  - Supporting documentation requirements
  - Person Protective Equipment (PPE)
  - Controls for types of significant work (e.g., hot work and confined space entry)
  - Atmospheric monitoring reading (gas testing)
  - Hazardous energy isolations
- Relevant declarations, approvals, and authorisations; and
- Period of validity

The Work Control Permit has been developed to ensure the effective identification and communication between different parties of work to be performed, the equipment to be used, the hazards associated to the work, and the associated risk reduction measures (i.e., controls). Work Control Permits are:

- Completed by trained personnel (MFG employee or designated third-party)
- Required for work identified as involving significant risk (**Major Work**);and
- Valid for a maximum of 16 working days, subject to appropriate revalidation activities being carried out prior to each issue

4.4 Use of Contractors' Permit to Work

Contractors may use their own Permit to Work providing it achieve the same objectives as MFG's Work Control Permit, and approval to has been obtained from MFG's Risk & Compliance Manager or HSE Manager to use the alternative document.

4.5 Work Control Permit Process

4.5.1 Arrival at Site

Contractors (i.e., Job Supervisor) will report to the designated MFG Representative to discuss the proposed work. Designated MFG Representatives will include for example:

- Project Manager
- Construction Manager
- Infrastructure Manager
- Area Retail Manager
- HSE Manager or Advisor; and
- Assigned Specialist Service Provider

The Job Supervisor will ensure:

- The requirements of the work are fully explained, including:
  - Safe Method of Working or RAMS, and other supporting documentation, for example:
    - Equipment Certificates; and
    - Training Record
  - Task specific hazards; and
  - Risk reduction measures (i.e., controls) to be implemented
- Mutual understanding of the work to be performed, Safe Method of Working or RAMS, and other supporting documentation

The designated MFG Representative will ensure:

- Contractor is aware of Company's Safety Rules and Regulations for Contractors; and

- For CDM Projects, that a Construction Phase Health & Safety Plan has been:
  - Developed by the Principal Contractor
  - Reviewed and:
  - Is available and retained at the site

4.5.2 Site Inspection (Hazard Assessment)

Following review of the information provided by the Contractor the designated MFG Representative and Job Supervisor will carry out a site inspection, the purpose of which is to:

- Discuss work activities to be performed
- Identify the:
  - Task specific hazards
  - Identify the work site specific hazards; and
  - Risk reduction measures (i.e., controls) required to reduce risks to an acceptable level
- Discuss the:
  - Safe Method of Working or RAMS
  - Task specific hazards and risk reduction measures (i.e., controls)
  - Work site specific hazards risk reduction measures (i.e., controls)
  - Work site preparation requirements; and
  - Access controls (as necessary)

4.5.3 Atmospheric Monitoring

For work identified as involving significant risk (**Major Work**) with a potential exposure to hazardous atmospheres, atmospheric monitoring (i.e., gas testing) will be required as a risk reduction measure (i.e., controls). Such work will include, but is not limited to:

- Hot Work, within or in close proximity to a designated DSEAR Hazardous Area; and
- Confined Space Entry (e.g., tank or separator entry, excavation greater than 5 feet deep, etc.)

The following minimum requirements apply if a potential hazardous atmosphere is identified as a risk, an **Authorised Person** (i.e., trained, and competent) will:

- Be aware of the proper use of gas detection equipment
- Use gas detection equipment that is fit for purpose and correctly calibrated
- Identify the potential atmospheric vapour hazards and related risks associated with the:
  - Work site; and
  - Those created by the work to be performed
- Perform all required gas tests in a safe and proper manner
- Record gas test results accurately and legible on the Work Control Permit or other approved form
- Confirm that the atmosphere at the work site is safe to perform the identified work

Note 4.5.3.1: The following are considered safe levels to allow work to proceed:

- Oxygen: **19.5 to 23.0%**
- Flammable Vapor: **<5% LEL**
- Hydrogen Sulphide: **<10 ppm**
- Carbon Monoxide **<30 ppm**
- Benzene: **<1 ppm**

Following commencement of the works atmospheric monitoring will be performed at least two hourly (or at frequency if specified by the Authorised Person) and the results recorded on the Atmospheric Monitoring Log or designate report form.

4.5.4 Permit Preparation

The designated MFG Representative is responsible for preparing the Work Control Permit following a review of relevant work control documentation and site inspection. Work Control Permits will be task specific, recording the following information, as applicable to the scope of work:

- Service Station (FS Number and Location Name)
- Date of issue
- Name of Contractor
- Scope of work
- Tools and equipment to be used during performance of the proposed works
- The type of Work Control Permit being issued, for example:
    - Hot Work
    - Confined Space Entry
    - Breaking Ground
    - Working at Height
    - Asbestos Remediation; and
    - Major Shop Refit, specifically aspects of the work identified as involving significant risk

  Note 4.5.4.1: For Confined Space Entry involving tank cleaning, lining, or other types of hot work, the Work Control Permit will identify that both Confined Space Entry and Hot Work are covered by the Work Control Permit.
- Name of MFG Representative
- Work control documentation receipt and review verification
- Significant hazards and associated risk reduction measures (i.e., controls)
- Energy isolations required

  Note 4.5.4.2: Record that the required energy isolations have been implemented and verified as effective (e.g., tested).
- Personal Protective Equipment (PPE) required, including respiratory protection
- Additional task specific:
    - Risk reduction measures (i.e., controls)
    - Equipment certification; and
    - Training records
- UKPIA SPA Card verification
- Initial atmospheric testing and monitoring required for hazardous vapours

  Note 4.5.4.3: The Authorised Person will ensure that the required atmospheric testing is carried out safely and that the results are legibly recorded on the Work Control Permit or designated report form prior to commencing the works.

The Job Supervisor is responsible for ensuring the:

- Information provided for the preparation of the Work Control Permit is:
    - Relevant to the scope of work
    - Current and within date
    - Meets the requirements of any applicable legislation, for example:
        - Equipment certification (i.e., PUWER, LOLER, etc.)
        - Training records (i.e., equipment Operator, confined space entry, etc.)
        - Risk assessments (i.e., Management of Health & Safety at Work Regulations)
- The Job Crew are trained and competent to perform their assigned duties

- Equipment (including hand tools) is:
  - Properly certified
  - Inspected and maintained fit for intended purpose, throughout the work; and
  - The right (i.e., correct specification) equipment for the task

4.5.5 Permit Review & Issue

Following preparation the Work Control Permit will be reviewed by the designated MFG Representative and Job Supervisor to confirm:

- Full and accurate completion of all aspects of the Work Control Permit, and
- Mutual understanding of the:
  - Scope of work
  - Risk Assessment and Method Statement (**RAMS**)
  - Risk reduction measures (i.e., controls) required to adequately reduce identified risk
  - Responsibilities assigned to the Job Supervisor and Job Crew; and
  - Work Control Permit

Following the review of the permit the designated MFG Representative will advise the Job Supervisor of the information contained in the Work Control Permit Declaration and confirm mutual understanding prior to the:

- Designated MFG Representative completing and dating the MFG Representative's Section of the permit (i.e., Authorisation & Handover Declaration); and
- Job Supervisor will complete the Contractor's Section of the permit (i.e., Authorisation & Handover Declaration)

Note 4.5.5.1: Work is not permitted to start until the Work Control Permit and daily Clearance Certificate have been completed and authorised.

4.5.6 Commencing Work

Prior to commencing the work, the Job Supervisor will:

- Hold a pre-job safety meeting with the Job Crew and other affected personnel to:
  - Discuss the scope of work and content of the:
    - Safe Method of Working or RAMS
    - Work Control Permit
    - Clearance Certificate; and
    - Any other relevant work control documents
  - Confirm mutual understanding of the:
    - Duties assigned to Job Crew
    - Safe Method of Working or RAMS
    - Work Control Permit
    - Clearance Certificate; and
    - Any other relevant work control documents
    - Risk reduction measures (i.e., controls); and
    - Any requirements for site preparation
- Confirm:
  - Identified risk reduction measures (i.e., controls) have been implemented
  - Effectiveness of the identified controls once implemented; and
  - Any atmospheric monitoring has been:

- Fully completed
- Accurately recorded (e.g., Work Control Permit or designated report form); and
- Verified within acceptable limits to allow the work to proceed

Following confirmation and verification that the required control measures have been implemented the Job Supervisor will progress the work in accordance with the agreed work control documents, for example:

- Safe Method of Working or RAMS
- Work Control Permit
- Clearance Certificate; and
- Any other relevant work control documents

The Job Supervisor will monitor the work activities and work site, and ensure:

- Copies of the:
  - Safe Method of Working or RAMS
  - Work Control Permit; and
  - Clearance Certificate; are retained at the work site for reference purposes
- Work activities are performed in accordance with the controls defined in the:
  - Safe Method of Working or RAMS
  - Work Control Permit
  - Clearance Certificate; and
  - Other relevant work control documents
- Safe and effective:
  - Application of risk reduction measures (i.e., controls)
  - Maintenance of identified risk reduction measures (i.e., controls) throughout the work
  - Use of equipment, including hands tools and machinery; and
  - Work supervision
- The timely reporting and correction of:
  - Unsafe acts
  - Unsafe conditions; and
  - Incidents; that occur at the work site during performance of the work

4.6 PERMIT VALIDATION PERIOD

Work Control Permits are valid for a maximum period of **fifteen (15) days** following the initial issue of the permit. Initial authorisation (**Day 1**) will be approved by the MFG Representative, thereafter, permit revalidations will be approved by the Job Supervisor.

Work Control Permits can only be revalidated by the Job Supervisor if conditions regarding work control and the work site remaining the same as at the time of the initial authorisation of the permit, specifically:

- **Content of the Work Control Documents,** remains the same:
  - Safe Method of Working or RAMS
  - Work Control Permit; and
  - Other relevant work control documents
- **Conditions at the Work Site,** remain the same as the time of initial authorisation, for example:
  - No new hazards identified
  - No adverse weather conditions that create new hazards or concern; and
  - Same equipment, tools, and machinery is being used

4.7 Work Control Permit Closure

4.7.1 General Requirements

Work Control Permits will be closed and not be used again under the following circumstances:

- On completion of the assigned work requiring the issue of the permit
- At the end of the maximum period of revalidation (i.e. sixteen 16 days including first day of issue)
- If conditions at the time of issue of the permit change, for example:
    - Change of, or deviation from, work scope
    - Safe Method of Working or RAMS no longer suitable for the work
    - Conditions as detailed in the Work Control Permit cannot be maintained; and
    - New hazards and associated risk are identified

4.7.2 Permit Closure: Work Completed

The Job Supervisor will carry out a site inspection and confirm:

- The scope of work has been achieved in accordance with planned specifications, for example:
    - Plans
    - Specifications; and
    - Piping and Instrumentation Drawings (P&IDs); and
- Equipment worked on has been left in a safe condition, for example:
    - Guards or covers or panels refitted
    - Energy isolation removed; and
    - Appropriate notices and warning labels have been replaced
- The work site has been left in a safe condition, for example:
    - Drain covers replaced
    - Barriers removed and signage updated or replaced; and
    - Waste removed (e.g., offsite or to receptacle)
- Equipment and tools have been removed from site and secured
- Machinery has been made safe and secured in preparation of removal from site
- Housekeeping standards meet the Company's expectations
- Clearance Certificate is closed

Having verified that the above requirements have been met the Job Supervisor will close the Work Control Permit in accordance with the following requirements:

- Identify the reason for closing the permit as **Work Completed**
- Enter the following details on the permit:
    - Date and Time
    - Reason for Closure (i.e., Work Completed); and
    - Supervisor Signature

4.7.3 Permit Closure: Change of Conditions

If the daily site inspection and review of the relevant work control documents identified that there has been a change in conditions the Work Control Permit is no longer valid. The Job Supervisor will ensure:

- Required energy isolations remain in place
- Other identified risk reduction measures (i.e., controls) remain in place
- Work site has been left in a safe condition (e.g., barriers remain in place, etc.)

- Waste has been removed (e.g., offsite or to suitable receptacle); and
- Housekeeping standards meet MFG expectations

Having verified that the above requirements have been met Contractors (i.e., Job Supervisor) will close the Work Control Permit in accordance with the following requirements:

- Identify the reason for closing the permit as **Change of Conditions**
- Enter the following details on the permit:
  - Date and Time
  - Reason for Closure (i.e., Change of Conditions); and
  - Supervisor Signature

4.7.4 Permit Closure: End of Validation Period (16 Days)

At the end of period of validity (i.e., total of 16 issues of the permit) the Work Control Permit will become no longer valid and must a new permit be issued. The Job Supervisor will ensure:

- Required energy isolations remain in place
- Other identified risk reduction measures (i.e., controls) remain in place
- Work site has been left in a safe condition (e.g., barriers remain in place, etc.)
- Waste has been removed (e.g., offsite or to suitable receptacle); and
- Housekeeping standards meet MFG expectations

Having verified that the above requirements have been met, Contractors (i.e., Job Supervisor) will close the Work Control Permit in accordance with the following requirements:

- Identify the reason for closing the permit as Work Control Permit **Expired**
- Enter the following details on the permit:
  - Date and Time
  - Reason for Closure (i.e., Expired); and
  - Supervisor Signature

4.8 Deviation from Original Scope of Work

Deviations from the original scope of work, as detailed on the RAMS, Work Control Permit, and Clearance Certificate are not permitted unless agreed with the designated MFG Representative, who may be required to consult with relevant personnel (e.g., Regional Manager, Department Head or Director, HSE Manager and Group Director Infrastructure & Technical Services) prior to authorising a change.

4.9 Work Control Permit Retention

Completed Work Control Permit will be retained for a minimum period of twelve (12) months. Copies of Work Control Permits be retained either in hard copy format (i.e., paper) at the site or uploaded to MFG's Maintenance Software System by the Contractor.

5. HOT WORK (IMS-08.01.5-5)

5.1 INTENT

This section is designed to provide guidance to Contractors who are awarded contracts to perform hot work at MFG Petrol Filling Stations. This guidance document specifically details expectations regarding work site evaluation and preparation, work control and authorisation and safe performance of **Hot Work**.

5.2 DEFINITION OF HOT WORK

Any work or use of equipment that introduces sparks or potential ignition sources to the work site. This includes, but may not be limited to, any work or use of equipment that could produce a spark or generate sufficient heat to ignite combustible materials, liquids, or vapors and/or flammable liquids or vapors that may be present in the work area and/or may come to be present in the work area, including any engine powered equipment, whether petrol, propane or diesel if their use is located within a potentially hazardous area.

Examples of the types of hot work include but may not be limited to:

- Acetylene or gas burning, welding, brazing, or soldering, open flames and grinding
- Abrasion blasting (e.g., shot blasting)
- Use of non-explosion proof equipment (e.g., laptops, battery powered equipment) in a designated Hazardous Zone (i.e., DSEAR)
- Operating motorised engines or equipment in a designated Hazardous Zone (i.e., DSEAR); and
- Use of electrical or air driven power tools capable of producing hot sparks

5.3 CONTROLS FOR HOT WORK

Hot work will be coordinated, managed, and controlled by the issue of the following documents:

- Contractors Safe Method of Working or Risk Assessment and Method Statement (**RAMS**)
- Clearance Certificate; and
- Where determined by risk assessment to be required a fully completed Work Control Permit

Note 5.3.1: Determination of the need for a Work Control Permit to be prepared, authorised and issued for hot work outside, or not in close proximity to, designated Hazardous Zones will be subject to a suitable and sufficient risk assessment being performed and a safe method of working agreed.

Note 5.3.2: Contractors will ensure that the RAMS produced for a defined scope of work are suitable and sufficient and meet their legal obligations. A designated MFG Representative will ensure that the RAMS adequately detail the work to be performed (e.g., step-by-step) and that site specific hazards that may impact the work have been fully considered.

5.4 HOT WORK QUALIFICATIONS

Contractors will provide trained and competent personnel to perform hot work activities. Where required by applicable legal obligations and/or industry codes and standards, those performing hot work will hold the required qualifications for the work being performed.

Note 5.4.1: In situations where a worker is properly trained but may not have the required experience to perform their assigned duties without supervision, Contractors will ensure that the worker is teamed up with, and work under the direct supervision of, a Competent Person.

5.5 HOT WORK RESPONSIBILITIES

5.5.1 DESIGNATED MFG REPRESENTATIVE (PERMIT ISSUER)

A designated MFG Representative will prepare, authorise, and issue a Work Control Permit. Duties of the designated representative include but may not be limited to:

- Reviewing the Contractors' Safe Method of Working or RAMS, to:
  - Determine their suitability for the proposed work; and
  - Acknowledge that they meet Company expectations
- Conducting a work site inspection with the Contractor (i.e., Job Supervisor) to:
  - Identify work site and job specific hazards and risks
  - Determine any additional risk reduction measures (i.e., controls) necessary; and
  - Confirm mutual understanding of the work scope, hazards, associated foreseeable risks, and relevant risk reduction measures (i.e., controls)
- Preparing, authorising, and issuing a Work Control Permit for the defined scope of work
- Confirming:
  - Those performing the hot work are trained and competent to do so
  - The identified risk reduction measures (i.e., controls) have been effectively implemented
  - Work site conditions are acceptable, and will allow the proposed work to proceed safely
  - Other tasks that may impact the hot work are referenced on the Work Control Permit
  - Any required signage (e.g., Do Not Enter), and/or barriers are installed
  - An Authorised Person has completed and recorded all required gas testing, and confirmed the test results are acceptable for the hot work to begin
- Ensuring that the Job Supervisor:
  - Understands their responsibilities regarding revalidating the Work Control Permit
  - Signs the Work Control Permit Authorisation & Declaration Section; and
  - Accurately completes a Clearance Certificate for the defined scope of work

5.5.2 CONTRACTOR (I.E., JOB SUPERVISOR)

The Job Supervisor will:

- Understand their responsibilities for work involving hot work, as detailed in the:
  - Safe Method of Working or RAMS
  - Work Control Permit
  - Clearance Certificate; and
  - Any other associated documentation
- Confirm the:
  - The work scope with the designated MFG Representative
  - Equipment to be used
  - Associated hazards
  - Proposed risk reduction measures (i.e., control) have been effectively implemented

    Note 5.2.1: Hazardous energy will be physically isolated at all points of potential exposure to sources of hazardous energy. Physical isolation includes but may not be limited to:
    - Physical disconnection; and
    - Valve or supply (e.g., electricity, gas, etc.) using Lockout and Tagout (i.e., LOTO)
  - Approved Safe Method of Working or RAMS are available to the Job Crew
  - Job Crew are:
    - Trained and competent to perform the tasks assigned to them; and
    - Aware of their roles and responsibilities
  - Equipment (including PPE) provided for the safe performance of the work is maintained, certified (as applicable), and remains fit for purpose throughout the hot work
  - The work site is adequately prepared for the work:

        - Any required energy isolations have been installed and verified as effective
        - Cleaning and ventilation requirements have been effectively met
        - Gas tested has been performed when required and confirm it is safe to proceed
- Hold a pre-job safety meeting with relevant personnel (e.g., Job Crew, affected personnel and other interested parties) to:
    - Explain the content of the:
        - Safe Method of Working or RAMS
        - Work Control Permit; and
        - Clearance Certificate
    - Ensure the Job Crew understands the:
        - Duties assigned
        - Work to be performed, including any work within a confined space
        - Risk reduction measures (i.e., controls); and
        - Action to be taken if an incident occurs in a confined space
- Hot work is coordinated with other activities
- Periodically monitor the status of the work being performed
- Suspend work and correct unsafe acts or unsafe conditions immediately
- Maintain the identified control measures; and
- Inspect the work site, equipment, or facilities prior to closing the:
    - Work Control Permit; and
    - Clearance Certificate

5.5.3 FIREWATCH

Contractors will assign trained and competent individual Firewatch duties. The Firewatch will:

- Be positioned so that they are able to observe the:
    - Hot work activities taking place; and
    - Work site
- Not to carry out other tasks while performing Firewatch duties
- Understand their responsibilities and duties during hot work
- Be aware of the:
    - Hazards and associated risks of the work
    - Risk reduction measures (i.e., controls) to be implemented
- Verify that any required energy isolations (i.e., lockout / tag-out or LOTO), are in place
- Comply with the conditions detailed in the:
    - Safe Method of Working or RAMS
    - Work Control Permit
    - Clearance Certificate; and
    - Any other associated documentation
- Confirm:
    - PPE and respiratory protection (where required) are used correctly and maintained fit for purpose
    - The tools and equipment to be used are maintained fit for purpose
    - Equipment is properly grounded and/or bonded to reduce the static electricity hazard

- Attend the pre-job safety brief, and confirm mutual understanding of the proposed work and associated control measures
- Be aware of equipment shutdown requirements in the event of an emergency
- Verify that gas testing results are, and remain within tolerance for entry, where required
- Only allow authorised personnel to enter the work site
- Maintain regular communication with the Job Crew
- Use the identified safety equipment correctly
- Alert the Job Crew to unsafe situations when required
- Raise the alarm if an emergency occurs within the confined space and request support as needed
- Report unsafe acts or unsafe conditions to the Job Supervisor
- Suspend the hot work if:
    - Conditions changes
    - Identified risk reduction measures (i.e., controls) cannot be maintained
    - Equipment issues or defects are identified
    - An incident or injury occurs at the work site; and
    - Adverse weather (e.g., electrical storm) may impact the work or personal safety

5.5.4 Authorised Person (Gas Testing)

Contractors will assign a trained and competent person Authorised Person responsibilities for the safe and proper performance of gas testing activities (where required) and the accurate reporting of hazardous vapours.

5.6 Pre-Work Hazard Assessment

Prior to starting hot work, the designated MFG Representative and Job Supervisor will perform a hazard assessment that is appropriate to the proposed scope of work and the designated work site. The objective of the assessment will be to determine the potential hazards and the associated risk reduction measures (i.e., controls) needed to reduce risks to an acceptable level.

The assessment process will include the:

- Identification of any requirements for:
    - Hazardous energy isolations; and/or
    - the containment, dissipation, and removal of:
        - Explosive
        - Flammable
        - Combustible materials; and/or
        - Toxic liquids or vapors; from work site; and
- Determination of any requirement for atmospheric monitoring (i.e., gas testing) to be performed to confirm a safe work environment

Hazards associated with hot work may include, but are not limited to:

- Accumulation of chemicals or fumes
- Improper isolation of energy or chemical sources
- Moving parts, obstructions, or voids within the confined space
- Presence of flammable or toxic liquids or vapours (e.g., gasoline, benzene or H_2S)
- Poor lighting or access and egress; and
- Unstable physical containment or surroundings (e.g., trenches and excavations)

The designated MFG Representative and Job Supervisor will:

- Discuss the:
  - Identified hazards
  - Required risk reduction measures (i.e., controls); and
  - Any other relevant information to ensure mutual understanding
- Agree the actions necessary to safely perform hot work; and
- Confirm the requirements for safe performance of the hot work are documented in the:
  - Safe Method of Working or RAMS
  - Work Control Permit (where required); and
  - Clearance Certificate; prior to hot work taking place.

5.7 Work Site Preparations

The designated MFG Representative and Job Supervisor will confirm that the work site is adequately prepared for the proposed work. Preparation will be appropriate to the nature of the work site and equipment, or facilities involved, and the work to be performed, including as applicable to the scope of work and site conditions:

- Energy isolations (LOTO) of process equipment and piping
- Cleaning, draining, purging, venting, or flushing of equipment
- Removal or containment of combustible or flammable materials
- Barricading of the work site, erection of warning notices and welding tents
- Placement of fireproof blankets and fully charged fire extinguishers
- Gas testing, including follow-up gas testing and continuous monitoring
- Suspension of hydrocarbon transfers during hot work, where applicable; and
- Sealing of drains and culverts

Prior to authorising the start of the hot work, the designated MFG Representative, and Job Supervisor will confirm that the required pre-hot work preparation activities have been completed, and the specified risk reduction measures (i.e., controls) have been verified as effective (e.g., tested).

5.8 Work Control Permit Issue

When determined by risk assessments to be necessary the designate MFG Representative and Job Supervisor will review the Safe Method of Working or RAMS, Work Control Permit, and Clearance Certificate to confirm:

- Mutual understanding; and
- The work control documents are complete in all aspects

Note 5.8.1: Both will sign the **Authorisation and Declaration Section** of the Work Control Permit and the Clearance Certificate prior to their issue.

The Job Supervisor will ensure that copies of the Safe Method of Working or RAMS, Work Control Permit (where required) Clearance Certificate and other relevant documentation are retained at the work site and are available to the Job Crew and other affected personnel for reference purposes.

5.9 Pre-job Safety Brief

Following issue of the Work Control Permit (where required) Clearance Certificate, and other relevant documents the Job Supervisor will hold a pre-job safety brief with Job Crew and other affected personnel to discuss the content of, and ensure mutual understanding of the:

- Safe Method of Working or RAMS
- Work Control Permit (where required)

- Clearance Certificate; and
- Other relevant documents; to ensure mutual understanding

Note 5.9.1: If additional workers arrive after the initial safety brief, Contractors (i.e., Job Supervisor) will repeat the pre-job safety brief with these workers before they start work.

5.10 Conditions For Hot Work

5.10.1 Cleaning, Purging and Ventilation

Exposure to hazards during hot work will be controlled by cleaning, purging, or venting of piping and/or equipment (as applicable) prior to the work starting. Methods available for preparing piping and/or equipment for hot work include, but are not limited to:

- Draining or pumping out
- Hot or cold-water flushing
- Forced or natural ventilation, and/or
- Inert gas purging

Contractors will ensure a Safe Method of Working or RAMS are:

- Developed for pre-hot work cleaning, purging, or venting of piping and equipment; and
- Submitted to the designated MFG Representative for review and acknowledgement prior to the preparation work starting

Note 5.10.1.1: When required a Work Control Permit and Clearance Certificate will be prepared, reviewed, approved, and issued to control these activities.

Note 5.10.1.2: Where this is not possible to adequately clean, purge, or vent equipment prior to hot work alternative arrangements including use of respiratory protection, if necessary, will be considered, the hazards assessed, and suitable risk control measures implemented.

5.10.2 Energy Isolations (LOTO)

The Job Supervisor will ensure that any sources of hazardous energy (e.g., electrical, chemical, mechanical, hydraulic, etc.) with the potential to impact the hot work are physically isolated.

Physical isolation includes but may not be limited to:

- Electrical isolation (e.g., removal of a fuse or shutdown of energy supply box)
- Physical disconnection of pipelines or electrical components
- Closure, and locking in the closed position, of valves; and
- Installing blinds between valves or components

5.10.3 Atmospheric Monitoring (Gas Testing)

Where identified through risk assessment as a risk reduction measure (i.e., control) atmospheric gas testing for oxygen, flammable and toxic vapors will be carried out by an Authorised Person, who will:

- Perform the range of gas tests necessary to confirm that the atmosphere at the work site and within the confined space (where applicable) is acceptable to allow the work to safely proceed:
- Consider the need for continuous (gas) monitoring during hot work
- Accurately record the gas test results on the Work Control Permit or designate report form
- Confirm that the gas test results are acceptable for confined space entry

Note 5.10.3.1: Continuous (gas), monitoring will be required if there is a potential for a change in atmospheric conditions during entry and/or when hot work is being performed within the confined space.

The following parameters are to be used as minimum standards:

- Hot work will be permitted if:

  - Oxygen; **19.5% to 23.0%**
  - Flammable Vapour; **<5% LEL**
  - Hydrogen Sulphide; **<10 ppm**
  - Carbon Monoxide; **<30 ppm**
- Confined space entry is not permitted, even wearing suitable respiratory protection, if:
  - Lower Explosive Limit (LEL) readings exceed **10% of LEL**
  - Oxygen level is greater than **23.0%**
- Confined space entry is not permitted without respiratory protection if:
  - Oxygen level is **<19.5%**; and
  - Toxic vapor is identified greater than the Worker Exposure Limit (WEL), for example:
    - Hydrogen Sulfide (H_2S): **>10 ppm**
    - Benzene: **>1 ppm**; and
    - Carbon Monoxide: **>30 ppm**

5.10.4 Respiratory Protection

Where identified as a hazard control measure, respiratory protection will be worn by the Job Crew during hot work. The use, inspection, maintenance, and testing of respiratory protection equipment will be in accordance with the Safe Method of Working or RAMS developed for the work and legal obligations.

5.11 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities involving hot work
- Confirm that:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method or Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks (e.g., alignment, etc.) are performed and recorded
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit, when required

6. CONFINED SPACE ENTRY (IMS-08.01.5-6)

6.1 INTENT

This section is designed to provide guidance to Contractors who are awarded contracts to perform confined space entry work at MFG Petrol Filling Stations. This guidance document specifically details expectations regarding confined space evaluation and preparation, entry control and authorisation, and safe performance of **Confined Space Entry.**

6.2 DEFINITION OF CONFINED SPACE

A Confined Space is an enclosed or partially enclosed space, not designed or intended for continuous human occupancy that has a restricted, limited or impeded means of entry or exit and may become hazardous to personnel entering it because of its design, construction, location or materials or substances in it, or a condition or changing set of circumstances within the space that presents a potential for harm and/or an atmosphere that is or may be injurious by reasons of oxygen deficiency or enrichment, flammability, explosiveness, or toxicity.

Examples of the types of confined spaces include, but may not be limited to:

- Underground Storage Tanks
- Above Ground Storage Tanks
- Oil / Water Separators
- Excavations and Trenches (i.e., of a depth **five (5) feet (1.5m)**, or greater
- Manhole Chambers; and
- Drainage Pits and Sewers

6.3 CONTROLS FOR CONFINED SPACE ENTRY

Entry into a confined space will be controlled by the issue of the following documents:

- Contractors:
  - Safe Method of Working; or
  - Risk Assessment and Method Statement (**RAMS**)
- Work Control Permit specifying the controls related to the work activities taking place within the confined space, for example:
  - Storage Tank:
    - Cleaning
    - Inspection
    - Lining
  - Excavation or Trench
    - Pipe laying
    - Cable laying
- Rescue Plan, as applicable to the scope of work; and
- Clearance Certificate

Note 6.3.1: Contractors will ensure that a Safe Method of Working or RAMS, produced for a defined scope of work, are suitable and sufficient and meet their legal obligations. A designated MFG Representative will ensure that the Safe Method of Working or RAMS adequately detail the work, and that site specific hazards that may impact the work, are considered.

6.4 CONFINED SPACE ENTRY QUALIFICATIONS

Contractors will provide trained and competent personnel to perform confined space entry activities.

Where required by applicable legal obligations and/or industry codes and standards, those performing confined space entry will hold the required qualifications for the work being performed.

Note 6.4.1: In situations where a worker is properly trained but may not have the required experience to perform their assigned duties without supervision, Contractors will ensure that the worker is teamed up with, and work under the direct supervision of, a Competent Person.

6.5 Confined Space Entry Responsibilities

6.5.1 Designated MFG Representative (Permit Issuer)

A designated MFG Representative will be assigned responsibility for the safe and proper preparation, authorisation and issue of a Work Control Permit, other duties will include but may not be limited to:

- Reviewing the Contractors' Safe Method of Working or RAMS to:
  - Determine their suitability for the proposed work; and
  - Acknowledge that they meet Company expectations
- Conducting a work site inspection with the Contractor (**Entry Supervisor**) to:
  - Identify work site and job specific hazards and risks
  - Determine any additional risk reduction measures (i.e., controls) necessary; and
  - Confirm mutual understanding of the work scope, hazards, associated foreseeable risks, and relevant risk reduction measures (i.e., controls)
- Preparing, authorising, and issuing a Work Control Permit for the defined scope of work
- Confirming:
  - Those performing confined space entry are trained and competent to do so
  - The identified risk reduction measures (i.e., controls) have been effectively implemented
  - Work site conditions are acceptable, and will allow the proposed work to proceed safely
  - Other tasks that may impact safe confined space entry are referenced on the Work Control Permit
  - Any required signage (e.g., Do Not Enter), and/or barriers are installed
  - An Authorised Person has completed and recorded all required gas testing, and confirmed the test result are acceptable for confined entry to proceed, and
  - A Rescue Plan has been developed and communicated to affected personnel
- Ensuring that the Entry Supervisor:
  - Understands their responsibilities regarding revalidating the Work Control Permit
  - Signs the Work Control Permit **Authorisation & Declaration Section**; and
  - Accurately completes a **Clearance Certificate** for the defined scope of work

6.5.2 Entry Supervisor

The Entry Supervisor will:

- Understand their responsibilities for work involving confined space entry, as detailed in the:
  - Safe Method of Working or RAMS
  - Work Control Permit
  - Clearance Certificate; and
  - Any other associated documentation
- Confirm:
  - The work scope, the equipment to be used, the associated hazards, the proposed risk control measures, and the identified Safe Method of Working or RAMS

  - The Entry Attendant and Authorised Entrants are aware of their roles and responsibilities and are trained and competent to perform tasks assigned to them
  - Equipment (including PPE) provided for the safe performance of the work is maintained, certified (as applicable), and remains fit for purpose throughout the entry work
  - The work site and confined space are adequately prepared for the work:
    - Any required energy isolations have been installed and verified as effective
    - Cleaning and ventilation requirements have been effectively met; and
    - Gas testing has been performed, and result are acceptable for entry to proceed
  - A Rescue Plan has been developed and communicated to affected personnel, if applicable
  - Rescue personnel are trained and competent
- Hold a pre-job safety meeting with relevant personnel (e.g., Job Crew and any other affected personnel) to:
  - Explain the content of the:
    - Safe Method of Working; or RAMS
    - Work Control Permit; and
    - Clearance Certificate
  - Ensure the Job Crew understand the:
    - Duties assigned
    - Work to be performed within the confined space
    - Risk reduction measures (i.e., controls); and
    - Action to be taken if an incident occurs in a confined space
- Ensure that:
  - Entry work is coordinated with other activities
  - A list of persons entering and exiting the confined space is maintained
  - Personnel are accounted for when the entry work is completed or suspended
- Periodically monitor the status of the work being performed
- Effectively monitor and maintain the identified risk reduction measures (i.e., controls); and
- Inspect the work site, confined space, equipment, or facilities:
  - At the end of the working day prior to ensure site housekeeping standards are acceptable and that the confined space is secured against unauthorised entry; and
  - Prior to closing the Work Control Permit after ensuring that
    - Housekeeping standards are acceptable
    - Equipment, tools, and debris (i.e., waste) have been removed; and
    - The confined space is secured against unauthorised entry

6.5.3 Authorised Entrants

Authorised Entrant will:

- Be trained and competent to perform entry into a confined space
- Understand their responsibilities and duties during confined space entry work
- Be aware of the following:
  - Hazards and associated risks of confined entry and work within the confined space
  - Risk reduction measures (i.e., controls) to be implemented and maintained
- Verify that any required hazardous energy isolations (i.e., LOTO), are in place
- Comply with the conditions detailed in the:
  - Safe Method of Working or RAMS

  - Work Control Permit; and
  - Clearance Certificate, for entry and the work within the confined space
- Confirm:
  - PPE and respiratory protection are used correctly and maintained fit for purpose
  - The tools and equipment to be used are maintained fit for purpose
  - Communication requirements with the Entry Attendant
- Attend the pre-job safety brief with the Entry Supervisor, and confirm mutual understanding of the proposed work and associated control measures
- Report unsafe acts or unsafe conditions to the Entry Supervisor
- Exit the confined space:
  - If instructed to do so
  - If symptoms of exposure to hazardous materials are recognized
  - If conditions within the confined space change, that may impact personal safety
  - Upon malfunction of respiratory protection equipment
  - If increased breathing resistance of the respirator is noted
  - If severe discomfort, including ill health, is detected
  - To change filer/cartridge elements or replace respiratory protection equipment as per manufacturer's instructions

6.5.4 Entry Attendant (Safety Watch)

The Entry Attendant will:

- Be positioned at the entrance to the confined space
- Continuously monitor those working within the confined space
- Understand their responsibilities and duties during confined space entry
- Be aware of the following:
  - Hazards and associated risks of the entry work; and
  - Risk control measures to be implemented
- Verify that:
  - Any required energy isolations (LOTO), are in place; and
  - The identified control measures are implemented prior to entry and effectively maintained throughout the work
- Comply with the conditions detailed in the:
  - Safe Method of Working or RAMS
  - Work Control Permit; and
  - Clearance Certificate, for entry and the work within the confined space
- Be aware of equipment shutdown requirements in the event of an emergency
- Verify that gas testing results are, and remain, within tolerance for entry

  Note 6.5.4.1: Where required, the Entry Attendant will record gas test readings in accordance with instructions issued by the Authorised Person (e.g., Work Control Permit or other report form).
- Only allow authorised personnel to enter the confined space
- Maintain regular communications with the entrants
- Use the identified safety equipment correctly:
- Alert entrants to unsafe situations and instruct them to exit the space when required
- Raise the alarm if an emergency occurs within the confined space and request support as needed

- Be familiar with the Rescue Plan, know who is providing rescue services, and ensure that the identified rescue equipment is maintained ready for use, close to the confined space

  Note 6.5.4.2: The Entry Attendant is not permitted to enter a confined space to attempt a rescue on their own, they must wait for support to arrive and/then only attempt the rescue if trained and competent to do so.

6.5.5 Authorised Person (Gas Testing)

Contractors will assign a trained and competent person Authorised Person responsibilities for the safe and proper performance of gas testing activities (where required) and accurate reporting of hazardous vapours.

6.6 Pre-Entry Hazard Assessment

Prior to the issue of a Work Control Permit for work involving confined space entry the designated MFG Representative and Entry Supervisor will perform a hazard assessment that is appropriate to the proposed scope of work, the space to be entered and the work site. The objective of the assessment will be to determine the potential hazards and the associated risk control measures needed to reduce risks to an acceptable level.

The assessment will include the identification of any required:

- Energy isolations
- Containment, dissipation, and removal of:
  - Explosive
  - Flammable
  - Combustible materials; and/or
  - Toxic liquids or vapors; from the confined space and work site.

The hazard associated with confined space entry may include, but are not limited to:

- Accumulation of chemicals or fumes
- High levels of noise or heat (heat stress)
- Improper isolation of energy or chemical sources
- Moving parts, obstructions, or voids within the confined space
- Oxygen depletion or enrichment
- Presence of explosive, flammable or toxic liquids and vapours (e.g., benzene, H_2S, CO, etc.)
- Poor lighting or access and egress; and
- Unstable physical containment or surroundings (e.g., trenches and excavations)

The designated MFG Representative and Job Supervisor will:

- Discuss the:
  - Identified hazards
  - Required risk reduction measures (i.e., controls); and
  - Any other relevant information to ensure mutual understanding
- Agree the actions necessary to safely perform confined space entry; and
- Confirm the requirements for safe confined space entry are documented in the:
  - Safe Method of Working or RAMS
  - Work Control Permit (where required); and
  - Clearance Certificate; prior to hot work taking place.

Note 6.6.1: If changes with the potential to cause harm to personnel, the environment, or assets, occur at any time following issue of the Work Control Permit the Permit and Clearance Certificate will be

suspended. Work will not recommence until approval from the designated MFG Representative is obtained.

6.7 Work Site (Including Entry) Preparations

The designated MFG Representative and Entry Supervisor will confirm:

- The confined space and work site have been adequately prepared for the proposed work
- All pre-entry preparation activities have been completed; and
- The specified risk reduction measures (i.e., controls) have been verified as effective (e.g., tested); prior to authorising the Work Control Permit

Note: 6.7.1: Preparation will be appropriate to the nature of the confined space to be entered and scope of work to be performed during entry.

6.8 Work Control Permit Issue

The designated MFG Representative and Entry Supervisor will review the Safe Method of Working or RAMS, Work Control Permit, Clearance Certificate and Rescue Plan (where applicable) developed for the confined space entry, confirm the work control documents are complete in all aspects, and there is mutual understanding of the content.

Note 6.8.1: Both will sign the **Authorisation and Declaration Section** of the Work Control Permit and the Clearance Certificate prior to their issue.

The Entry Supervisor will ensure that copies of the Safe Method of Working or RAMS, Work Control Permit and Clearance Certificate and other relevant documentation are retained at the work site and are available to the Job Crew and other affected personnel for reference purposes.

6.9 Pre-Job Safety Brief

Following issue of the Work Control Permit, Clearance Certificate, and other relevant documents the Entry Supervisor will hold a pre-job safety brief with the Job Crew and other affected personnel. At the meeting, the Entry Supervisor will discuss the content of the:

- Safe Method of Working or RAMS
- Work Control Permit
- Clearance Certificate; and
- Other relevant documents; to ensure mutual understanding

6.10 Conditions For Entry into a Confined Space

6.10.1 When Does Entry Occur

Confined space entry is considered to have occurred when an individual's **breathing zone** is in, or immediately adjacent to, the opening to the confined space. The entire body does not have to be inside the space for entry to have occurred.

Note 6.10.1.1: Openings in vessels and equipment too small for entry are not considered confined spaces, but precautions must be taken to protect personnel from hazardous atmospheres near such openings.

6.10.2 Cleaning, Purging & Ventilation

Exposure to hazards within a confined space will be controlled by cleaning, purging, or venting the space prior to entry wherever possible. Methods for preparing a confined space for entry include, but are not limited to:

- Draining or pumping out
- Hot or cold-water flushing

- Forced or natural ventilation; and
- Inert gas purge

Contractors will ensure Safe Method of Working or RAMS are:

- Developed for pre-entry cleaning, purging or ventilation of a confined space; and
- Submitted to MFG for review and acknowledgement prior to preparation work commencing

Note 6.10.2.1: When required a Work Control Permit and Clearance Certificate will be prepared, reviewed, approved, and issued to control these activities.

Note 6.10.2.1: Where this is not possible to adequately clean, purge, or vent a confined space prior to entry, alternative arrangements, including use of respiratory protection, will be considered, the hazards assessed, and suitable risk control measures implemented.

6.10.3 Energy Isolations (LOTO)

The Entry Supervisor will ensure that any sources of hazardous energy (e.g., electrical, chemical, mechanical, hydraulic, etc.) with the potential to impact the confined space entry are physically isolated.

Physical isolation includes but may not be limited to:

- Electrical isolation (e.g., removal of a fuse or shutdown of energy supply box)
- Physical disconnection of pipelines or electrical components
- Closure, and locking in the closed position, of valves; and
- Installing blinds between valves or components

6.10.4 Atmospheric Monitoring (Gas Testing)

Atmospheric gas testing for oxygen, flammable and toxic vapors will be carried out prior to confined space entry taking place by Authorised Person who will:

- Perform the range of gas tests necessary to confirm that the atmosphere at the work site and within the confined space is acceptable for safe entry
- Consider the need for continuous (gas) monitoring during confined space entry
- Accurately record the gas test results on the Work Control Permit or designate report form
- Confirm that the gas test results are acceptable for confined space entry

Note 6.10.4.1: Continuous (gas), monitoring will be required if there is a potential for a change in atmospheric conditions during entry and/or when hot work is being performed within the confined space.

The following parameters are to be used as minimum standards:

- Confined space entry is not permitted, even wearing suitable respiratory protection, if:
  - Lower Explosive Limit (LEL) readings exceed **10% of LEL**
  - Oxygen level is greater than **23.0%**
- Confined space entry is not permitted without respiratory protection if:
  - Oxygen level is **<19.5%**; and
  - Toxic vapor is identified greater than the Worker Exposure Limit (WEL), for example:
    - Hydrogen Sulfide (H_2S): **>10 ppm**
    - Benzene: **>1 ppm**; and
    - Carbon Monoxide: **>30 ppm**
- If hot work is required within a confined space a LEL reading of **<5% LEL** is required prior to starting the work

6.10.5 Respiratory Protection

Where identified as a hazard control measure, respiratory protection will be worn by the Job Crew during hot work within the confined space. The use, inspection, maintenance, and testing of respiratory protection equipment will be in accordance with the safe method of Working or RAMS developed for the work and applicable legal obligations.

6.10.6 Rescue Plan

Contractors will determine specific requirements for rescue that will be defined within a Rescue Plan, Safe Method of Working, and/or RAMS. At a minimum, the plan will address:

- The personnel required to perform a rescue
- The equipment to be used
- The method(s) of communication
- How the rescue will be affected; and
- Access and Egress Routes

Those assigned responsibilities for rescue must be:

- Trained and competent in confined space entry and rescue
- Properly equipped and capable of safely completing their duties (including First Aid if applicable)
- Informed of potential hazards, trained in hazard recognition in relation to those hazards they may encounter and aware of the relevant risk reduction measures (i.e., controls) to be used

Note 6.10.6.1: If trained as a rescuer the Entry Attendant may enter a confined space to affect a rescue, only if another qualified standby person with suitable PPE and/or respiratory protection is positioned at the entrance to the confined space prior to the Entry Attendant entering the space.

6.11 Other Considerations

6.11.1 Compressed Gas Cylinders

Compressed gas cylinders are not permitted inside a confined space, except:

- A cylinder of compressed air supplied to a respirator
- Medical resuscitation equipment
- Handheld aerosol spray containers
- Fire extinguishers; or
- Other equipment permitted by relevant regulatory agencies

6.11.2 Welding and/or Burning Equipment

Torches and hoses used for welding, brazing, or cutting must be removed from a confined space when not in use and/or when the confined space is vacated.

6.11.3 Electrical Equipment

Electrical tools and equipment must be grounded or double-insulated. If wet or damp conditions exist inside the space, electrical equipment must be protected by an approved ground fault circuit interrupter.

Only non-sparking tools may be used in a confined space where flammable or explosive gases, vapors or liquids are present.

Note 6.11.3.1: Activities involving the use of high-pressure steam or air hoses, inert gases or sand blasting equipment have the potential to generate static electricity. Adequate precautions (e.g., grounding), will be implemented when such equipment is used during entry work.

6.11.4 HEATERS

Heaters must be located outside the confined space and hoses secured to prevent tripping hazards within the confined space. Direct-fired heaters that discharge exhaust gases with the heated air are not permitted for use in confined spaces.

Note 6.11.4.1: Gas testing for Carbon Monoxide (CO) will be performed if motorised (petrol or diesel driven) is used in close proximity to a confined space, or when heated air is introduced into a confined space.

6.12 MONITORING WORK PERFORMANCE & WORK COMPLETION

Contractors (i.e., Job Supervisor) will:

- Monitor work activities involving confined space entry
- Confirm that:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method or Working or RAMS
    - Work Control Permit; and
    - Clearance Certificate
  - Any required field checks (e.g., gas freeing, inspections, etc.) are performed and recorded
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, signage, and floodlighting are removed; and
    - The confined space in effectively secured to prevent unauthorised entry
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit

7. Atmospheric Monitoring (Gas Testing) (IMS-08.01.5-7)

7.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, which includes a requirement to provide trained and competent individuals to perform atmospheric gas testing and periodic gas monitoring for work involving significant risk (**Major Works**).

7.2 Authorised Person

Gas testing and periodic gas monitoring at MFG Petrol Stations will be performed by a Contractor's designated representative, who will be referred to as the **Authorised Person**. The Authorised Person will be trained and competent to perform the range of gas tests and periodic gas monitoring activities required, including gas detection equipment inspection, maintenance, certification, and use.

7.3 Gas Detection Equipment

7.3.1 General

Portable gas detection equipment will be used to test and monitor atmospheric conditions at a work site, and include use of the following types of gas detection equipment:

- Battery operated handheld pump type gas detectors; or
- Personal monitors worn by workers to protect against identified vapours of concern, for example:
  - Flammable vapour
  - Hydrogen Sulphide; and
  - Carbon Monoxide

Note 7.3.1: Typically, handheld pump type gas detectors are used to test for potentially hazardous atmosphere in the workplace prior to starting work, while a personal monitor is worn during specific tasks jobs or in specific work environments to alert the wearer to a potentially hazardous condition.

The Authorised Person will ensure that portable gas detection equipment is inspected, maintained, tested, and used in accordance with the manufacturer's recommendations. Depending on the type of gas detection equipment selected for use, the inspection and test requirements may include but are not limited to:

- **Visual Inspection:**
  Immediately prior to use to ensure that the instrument is complete in all aspects, undamaged and functions correctly.
- **Functional Check:**
  Self-calibration check that is performed in a clean atmosphere, immediately prior to use.
- **Bump Test:**
  Where recommended by the manufacturer, a qualitative functional check will be carried out prior to daily use, during which a challenge gas is passed over the sensors, at a concentration and exposure time sufficient to activate all alarm settings.
- **Periodic Calibration (Manufacturer's Recommendations):**
  Performed by an authorised service provider to verify that the sensors and alarms respond within the manufacturer's acceptable limits though exposing the instrument to test gases.

7.3.2 Alarm Settings

Gas detection equipment will be set to alarm at a specified gas concentration, or when a set point is exceeded. Alarms will:

- Be audible and visible

- Not stop or reset unless deliberate action is taken by the user
- Set to alarm at a level designed to ensure the health and safety of personnel

Table 7.4.1 provides guidance for portable gas detector alarm settings.

Table 7.4.1: Alarm Settings

Recommended Alarm Settings for Portable Gas Detection Equipment			
Oxygen	**Flammable Vapour**	**Hydrogen Sulfide**	**Carbon Monoxide**
<19.5 and > 23.0%	10% Lower Explosive Limit	10 ppm	30 ppm

7.3.3 Personal Monitors

Personal gas monitors will be worn by workers while performing potentially hazardous work at a work site. The types of personal monitor available include, but may not be limited to:

- **Single Gas Monitor:**

  Used to continuously monitor, and detect the presence of a single hazardous vapour, typically Hydrogen Sulfide (H_2S).
- **Four (4) Head Gas Monitor:**

  Used to continuously monitor, and detect the presence of, four (4) different hazardous vapours/gases, for example:
  - Oxygen (O_2)
  - Low Explosive Limit (LEL), for flammable vapours
  - Hydrogen Sulfide (H_2S)
  - Carbon Monoxide (CO)

If specified as a risk reduction measure (i.e., control) **wearers** will ensure that personal monitors are:

- Maintained fit for purpose
- Inspected immediately prior to and after use for signs of damage and/or defect

  Note 7.3.3.1: Damaged or defective monitors will not be returned to service until they have been repaired by Competent Personnel and recertified as fit for purpose.
- Routinely bump tested in accordance with the manufacturer's recommendations, if designed to be bump tested
- Worn in front of the upper body (i.e., upper chest area) to provide protection against vapours entering the wearer's breathing zone

  Note 7.3.3.2: Personal monitors must not be attached to hard hats, placed in pockets not designed to carry a monitor and/or carried in a manner that prevents effective operation of the instrument.

When use of a personal monitor is identified as a risk reduction measure (i.e., control) Contractors will:

- Provide their employees with the:
  - Appropriate type of monitor for the job and work environment; and
  - Information and training required, to safely use and properly maintain the monitor
- Maintain appropriate records of inspection and test; and
- Provide the MFG Representative with records of monitor inspection and test on request

7.4 Atmospheric Monitoring (Gas Testing)

7.4.1 Authorised Person

The Authorised Person will:

- Be properly trained and competent to:
  - Perform gas testing and periodic gas monitoring
  - Inspect and maintain the gas detection equipment
  - Use the gas detection equipment safely and effectively in the workplace
- Use gas detection equipment that is fit for purpose and correctly calibrated
- Identify the potential and actual hazards and related risks associated with the:
  - Work site; and
  - Those created by the work to be performed
- Use proper procedures and precautions for gas testing and periodic gas monitoring
- Perform all required gas tests; and
- Confirm that the atmosphere at the work site is safe to allow the proposed work to proceed

The following are considered safe levels to allow work to proceed:

- Oxygen: **19.5 to 23.0%**
- Flammable Vapour: **<5% LEL**
- Hydrogen Sulphide: **<10 ppm**
- Carbon Monoxide: **<30 ppm**; and
- Benzene: **<1 ppm**

Note 7.4.1.1: As a minimum gas testing and periodic gas monitoring will include oxygen and flammable vapour. The Authorised Person is responsible for ensuring that all vapours of concern are identified prior to performing gas testing activities, and that relevant and proper testing for each hazardous vapour identified is performed.

7.4.2 Performing Gas Tests

The Authorised Person will:

- Perform a work site hazard assessment to identify the:
  - Potential hazardous vapour exposure hazards
  - Hazardous vapours to be tested; and
  - Types of testing required for each of the identified hazardous vapours
- Review planned scope of work and Safe Method of Working or RAMS
- Select and use the necessary Personal Protective Equipment (PPE), including respiratory protection when required
- Ensure the gas detection equipment is suitable for intended use:
  - Correct type and range of gas detectors
  - Visually inspected for signs of damage
  - Calibrated, and within test; and
  - Bump tested, if applicable
- Only use the manufacturer's recommended accessories
- Allow sufficient time for the instrument to stabilise if stored at a temperature significantly different **(+/-10°C**), to the area in which gas testing is to be carried out
- Switch on the gas detector in a clean atmosphere, and allow the instrument to self-test
- Take readings from the:
  - Perimeter of the work site to the actual work site, entering the work location from an up-wind direction; and
  - Work site and surrounding area (e.g., within a 25-feet radius)

Note 7.4.2.1: This distance may vary depending on the nature and complexity of the job and hazards created.

- Take vapour reading, as applicable, at:
  - Ground level
  - Breathing zone (consider position of worker when performing the job)
  - Drain covers
  - Pipeline openings and/or flanges
  - Equipment connections and/or disconnections
  - Vent facilities (e.g., pressure relief valve / thermal relief valve)
  - Sumps, pits, gullies, or drainage channels
  - Within a confined space (**Do Not Enter**, use an extension wand)
- Allow sufficient time for a representative sample to be drawn through the gas detector equipment
- Avoid drawing water and/or other chemicals into gas detector or exposing the instrument to chemicals or substances that may poison the instrument's sensors
- Continually monitor the gas detector and record the highest readings obtained

  Note 7.4.2.2: Immediately exit the work location on detecting any reading of flammable or toxic vapours that are outside the permitted limits.
- Record the gas test results (e.g., Work Control Permit or other designated report form)
- Only authorise work to commence if the gas test results provide a positive indication that the work site is free of hazardous vapours
- Ensure the gas detection equipment is stored in a dry, clean, and dust-free environment and away from chemical vapours

7.4.3 Periodic Gas Monitoring

The Authorised Person will identify and advise the affected personnel (e.g., Job Supervisor, Job Crew and others impacted by the proposed work) any requirement for periodic gas monitoring. Requirements for periodic gas monitoring include:

- Gas testing to be performed and the test results recorded at intervals not exceeding two (2) hours

  Note 7.4.3.1: The Authorised will identify acceptable intervals for periodic gas monitoring based on work site conditions, the work being performed and the potential for unplanned releases of hazardous vapours.
- If periodic gas monitoring test results differ significantly (e.g., ≥10% LEL or +/- 2% oxygen) from the previous test results:
  - All works will be suspended
  - The work site evacuated
  - An investigation carried out to identify the source of the change; and
  - Corrective actions are implemented to return the work site to a safe condition.

  Note 7.4.3.2: Work will not restart until the work site is confirmed via gas testing, to be safe.

7.4.4 Continuous Monitoring

Continuous monitoring refers to the placement of gas detection equipment at a work site (including within a confined space during entry) while the identified work is performed to allow the continuous monitoring of the atmosphere for hazardous vapours. Continuous monitoring is required, at a minimum, when:

- Personnel are required to wear supplied air respiratory protection in a confined space
- Specific types of hot work are taking place in a classified area place; and

- Identified in the:
  - Safe Method of Working or RAMS; and/or
  - Work Control Permit; as a control measure

If continuous monitoring is required, the following minimum requirements will be met:

- The gas detection equipment will be positioned by the Authorised Person
- The Job Crew and other affected personnel at the work site will be advised of the actions to be taken if the gas detector goes into alarm mode
- Periodic readings will be recorded (e.g., Work Control Permit or designated report form)
- The Authorised Person will attend the work site periodically (based on scope and duration of job), throughout the work to confirm the correct functioning of the gas detector and that conditions have not changed

Note 7.4.4.1: Continuous monitoring of a work site will not be used during work activities that involve high pressure water jetting, grit blasting or steam cleaning as these activities may affect the accuracy of the gas detector. Under such circumstances periodic follow-up testing will be carried at intervals, appropriate to the potential hazards created by the work, but not greater than hourly.

8. HAZARDOUS ENERGY ISOLATIONS (IMS-08.01.5-8)

8.1 INTENT

This section is designed to provide guidance to Contractors who are awarded contracts to perform work with a potential exposure to sources of hazardous energy at a MFG Petrol Filling Station. The guidance details expectations regarding the identification of sources of hazardous energy, their physical isolation and subsequent de-isolation, to ensure personal safety during work that involves potential exposure to sources of hazardous energy.

8.2 WORK CONTROL

Work tasks assigned to Contractors will be assessed to identify potential hazards and the associated risk. Work identified as involving potential exposure to sources of hazardous energy will require an assessment to identify these sources and determine an efficient and effective method to safely and effectively isolate each potential source of hazardous energy to allow work to performed without risk of harm.

Note 8.2.1: Typically, there will be no requirement to prepare, review, authorise and issue a Work Control Permit, however if an assessment identified exposure to work that involves significant risk (**Major Work**) for example hazardous energy isolation involving high voltage electricity, work at height hot work, or confined space entry a Work Control Permit (**WCP**) will be required.

8.3 HAZARDOUS ENERGY ISOLATIONS

Hazardous energy isolations will be installed by a trained and competent person (**Authorised Person**) who will be knowledgeable of the relevant hazardous energy isolation techniques, associated hazards, the required risk reduction measures (i.e., controls) and infrastructure, equipment and system shutdown requirements.

Note 8.3.1 Infrastructure, equipment and systems will include, but may not be limited to:

- Storage tanks and associated piping systems
- Pumps and compressors
- Electrical equipment, including:
  - Lighting
  - Tank gauges
  - Power supplies
  - Electric Vehicle (EV) facilities; and
  - Car wash and jet wash

Hazardous energy isolations will be installed prior to the repair, maintenance, replacement, entry, and/or servicing of infrastructure, equipment and systems where the following could occur:

- Release of stored energy or harmful levels of electrical or thermal energy or chemicals; and/or
- The unexpected start-up or movement of mechanical components

When potential sources of hazardous energy are identified the following measures will be implemented to physically isolate the source of energy and prevent inadvertent starting or activation of equipment:

- Affected personnel will be notified before hazardous energy isolation is applied
- Infrastructure, equipment and systems will be prepared for hazardous energy isolation by a person who is knowledgeable in shutdown requirements
- Isolation devices will, as necessary:
  - Be located and secured by an Authorised Person
  - Be secured in a **Safe** or **Off** position

  - Have tagout devices fitted to indicate that the operation or movement of the energy isolating device from the **Safe** or **Off** position is strictly prohibited
- Following installation of isolation devices any potentially hazardous stored or residual energy must be relieved, restrained or otherwise made safe

  Note 8.3.2: If there is a potential for re-accumulation of stored energy, a mechanism for identifying and/or relieving such energy throughout the period of the isolation will be established.
- Hazardous energy isolations will be:
  - Verified as secure and effective (bump tested); and
  - Documented using applicable reporting tool, for example using:
    - Clearance Certificate; or
    - Work Control Permit

8.4 AUTHORISED PERSON

The assigned Authorised Person will:

- Be knowledgeable of the:
  - Purpose and importance of energy isolations in assuring a safe work environment
  - Potential sources hazardous energy
  - Techniques for isolating or controlling the energy
  - Types of energy isolation lockout or tagout devices, their use, and their significance
  - Responsibilities associated to the:
    - Installation and removal of hazardous energy isolations; and
    - Prohibition of starting or energising infrastructure, equipment or systems that are isolated from energy sources
- Notify affected personnel of the intention to install hazardous energy isolations and the purpose of the isolations

  Note 8.4.1: Affected Personnel are defined as individuals who:
  - Are required to use infrastructure, equipment or system on which maintenance or servicing is being performed following energy isolations; or
  - Perform other work duties in an area where such maintenance or servicing is required
- Identify the hazardous energy isolations required to safely isolate infrastructure, equipment or systems
- Safely install the initial hazardous energy isolations
- Confirm that the identified infrastructure, equipment or system:
  - Has been correctly isolated
  - Are free of trapped or hazardous energy; and
  - Isolations are recorded (e.g., Clearance Certificate and/or Work Control Permit)

8.5 HAZARD ASSESSMENT

If energy isolations are required the designated MFG Representative and Contractor (i.e., Job **Supervisor**) will carry out a hazard assessment at the work site, to determine the location of any required hazardous energy isolations. Where applicable, the assessment will include a review of current drawings or operating manuals to ensure that all potential isolation points are identified.

Note 8.5.1: Hazardous energy isolations must be utilised in the most efficient manner and provide effective containment and dissipation of all potential energy sources.

A Safe Method of Working (e.g., Clearance Certificate) as a minimum is required prior to installing hazardous energy isolations and must be completed by the Job Supervisor following the site hazard assessment.

Note 8.5.2: If Contractors produce work-specific Risk Assessment & Method Statement (**RAMS**) that include the identified sources of energy isolations and the process (i.e., method to be used to isolate) the Clearance Certificate detailing the proposed work must include the energy isolations that need to be installed.

8.6 First Break

The **First Break Policy** applies to piping, infrastructure, equipment or systems containing, or likely to contain, potentially hazardous sources of energy (e.g., liquid, vapour, pressure, electricity, etc.). Breaking into a pipeline or infrastructure equipment is any technique that may allow the potentially hazardous sources of energy to escape, for example:

- Unbolting a flange
- Unbolting in-line components such as valve or non-return (check) valve
- Cold cutting with a saw; or
- Disconnecting electrical supply

The minimum requirements for performing first break activities involving infrastructure, equipment or system are:

- Conduct work site hazard assessment and identify:
  - Potential work specific and work site specific hazards; and
  - Suitable and sufficient risk reduction measures (i.e., controls)
- Develop Safe Method of Working (e.g., Clearance Certificate) as a minimum if hazardous energy isolation requirements are not recorded within Contractors' RAMS
- Clearly define risk reduction measures (i.e., controls), to include as necessary:
  - Physical isolation of all potential sources of energy; and
  - Purging, venting, and draining excess pressure
  - Verification of:
    - Effective isolation (bump test); and
    - Zero pressure in the infrastructure, equipment or system
  - Proper containment of any liquids released
  - Gas monitoring of the work site, if applicable
  - Use of proper tools for the task; and
  - Correct Personal Protective Equipment (PPE) for the task

  Note 8.6.1: First break activities may require the use of respiratory protection if there is a potential for exposure to a hazardous atmosphere.

Additional risk reduction measures (i.e., controls) may include, but are not limited to:

- Be aware of potential line of fire hazards
- Take precautions against trapped pressure:
  - Reduce tension on bolts to allow trapped pressure to be released away from the body/face
  - Do not assume that a pressure indicator provides an accurate indication of pressure
- Where necessary (e.g., confined space entry) continually monitor the atmosphere for hazardous vapours

8.7 Isolation Devices

8.7.1 Lockout Devices

Lockout devices will provide a positive means (e.g., a lock and key) to hold a hazardous energy-isolating mechanism in a safe position and prevent infrastructure, equipment or system from being energised. Lockout devices will:

- Only be used for energy isolations
- Be uniquely keyed and designed to withstand the conditions in which they are used; and
- Include a means of identifying the person responsible for installing and removing the device

8.7.2 Tagout Devices

Tagout devices will:

- Allow the recording of pertinent information relating to the lockout
- Include a warning, for example **Do Not Operate** or **Do Not Energise**; and
- Be substantial enough to prevent inadvertent removal

8.8 Tagout Only Isolations

A tagout isolation (tags only) may be used if:

- Applicable legal obligations allow for tagout only isolations
- The infrastructure, equipment or system is not configured to accept a physical lockout device
- The tagout process provides protection from inadvertent energising as effectively as a lockout process; and
- Approved by the MFG Risk & Compliance Manager or HSE Manager

If tagout only isolations are approved for use, consideration will be given to providing additional risk reduction measures (i.e., controls), for example:

- Removal of:
    - The valve handle to reduce the likelihood of inadvertent operation
    - A circuit element or component, installed between the energised and the isolated systems
- Restricting access to system control switches

8.9 Personal Locks

Personal locks refer to the isolation devices that are under the control of an Authorised Person, these will be:

- Installed by an assigned Authorised Person
- Uniquely keyed; and
- Installed and removed by an assigned Authorised Person

The Authorised Person will:

- Use their Personal Lock(s) to install the initial isolations
- Confirm:
    - The required hazardous energy isolations:
        - Have been made correctly; and
        - Are sufficient to allow the identified work to proceed safely
    - The effectiveness of the energy isolations (e.g., bump test); and
    - Verify zero energy in the isolated infrastructure, equipment or system

- Will remove their Personal Lock(s) on completion of the assigned work
- Record the hazardous energy isolations (e.g., Clearance Certificate or Work Control Permit)

8.10 Energy Isolations

8.10.1 Single Point Energy Isolations

A single point energy isolation is the simplest and most direct procedure for controlling infrastructure, equipment or system and will only be used when a single point energy isolation provides adequate and effective safeguards to personnel.

Single point isolations enable the assigned Authorised Person to secure a lockout device and/or the infrastructure, equipment or system isolation point with a single personal lock. The Authorised Person will:

- Identify the infrastructure, equipment or system to be isolated
- Carry out a work site hazard assessment to identify the risk reduction measures (i.e., controls) needed to effectively control the identified hazards
- Advise affected personnel of the scope of work and the infrastructure, equipment or system to be de-energised and isolated
- Safely:
  - Shutdown the infrastructure, equipment or system
  - Carry out any flushing, draining, or purging required
  - Contain and dispose of any drained or purged product as specified in the product's Safety Data Sheet (SDS)
- Safely install a personal lock and verify:
  - The effectiveness of the energy isolation (e.g., bump test); and
  - Zero energy in the infrastructure, equipment or system

  Note 8.10.1.1: Do Not use a pressure gauge as a positive indicator of pressure within a system.
- De-energise the breaker or isolate the lockout point and check for zero energy

  Note 8.10.1.2: A qualified electrician may be required to complete electrical isolations.
- Not start work on isolated infrastructure, equipment or system until isolation has been confirmed.

If there are requirement other Contractors (i.e., Job Crews) to work on isolated infrastructure, equipment or system the Authorised Person will confirm:

- The infrastructure, equipment or system is safely isolated to allow others to perform assigned task; and
- Those required to perform additional work on the isolated infrastructure, equipment or system are aware of any work site or process hazards and how to deal with them

8.10.2 Initial Energy Isolations

When hazardous energy isolations are required on infrastructure, equipment or system the assigned Authorised Person will install their personal locks on the equipment as the initial energy isolation. When installing the initial isolations, the assigned Authorised Person will:

- Discuss the scope of work with the Job Crew, where applicable
- Based on the scope of work perform a work site hazard assessment to identify:
  - infrastructure, equipment or system to be worked on
  - Energy sources requiring isolation to ensure Job Crew safety:
    - Electrical
    - Pressure (pneumatic, hydraulic, gas)

        - Mechanical motion
        - Mechanical tension (springs)
        - Chemical
        - Thermal (heat and radiation)
        - Gravity
    - Potential hazards, for example:
        - Job specific (e.g., manual handling, chemical exposure, etc.); and
        - Lockout specific (e.g., trapped pressure, pinch points, line of fire, etc.)
    - Required risk reduction measures (i.e., controls), for example:
        - Job specific (e.g., proper lifting technique, PPE, etc.)
        - Lockout specific (e.g., draining, venting , purging, chaining, etc.)
    - The main energy isolation points for each energy source

    Note 8.10.2.1: If the hazard assessment determines that energy isolations are not required, the Authorised Person will ensure the following requirements are met:
    - A task-specific Safe Method of Working or RAMS must be in place:
        - Detailing the steps involved in work
        - Identifying the hazards and associated hazard controls; and
        - To establish the Job Crew's duties and responsibilities
- Install the required isolations to effectively isolate the infrastructure, equipment or system
- Where required secure tags to the isolation devices detailing the required information
- Safely dissipate stored energy (e.g., purge, vent, etc.) and verify:
    - The effectiveness of the energy isolations (e.g., bump test); and
    - Verify zero energy within the isolated infrastructure, equipment or system

    Note 8.10.2.2: Do not rely on a Pressure Indicator Gauge as a positive indicator of pressure retained within a system.
- Record the initial energy isolations (e.g., Clearance Certificate or Work Control Permit)

8.11 Hazardous Energy Isolation Removal

8.11.1 General

On completion of work requiring hazardous energy isolation:

- infrastructure, equipment or system will be correctly reinstated
- Guarding will be replaced
- Non-essential items will be removed from the work site, and
- Affected personnel will be advised that the isolation devices will be removed; and
- Removal of isolation devices will be recorded (e.g., Clearance Certificate or Work Control Permit)

Where applicable, isolation devices will be removed in sequence (e.g., **first on** are **last off**) by the Authorised Person.

8.11.2 Removal of Personal Locks

On completion of assigned work tasks performed by individuals on infrastructure, equipment or system the following minimum requirements apply to the removal of Personal Locks:

- Personal Locks will be removed from the isolation devices as soon the assigned work has been completed

- If work is not complete, a **Do Not Operate** sign should be hung on the infrastructure, equipment or system and affected personnel advised that the isolation device(s) must remain in place until the required work has been completed
- Following removal of Personal Locks affected personnel will be advised that the isolation devices have been removed; and
- Removal of personal locks will be recorded (e.g., Clearance Certificate or Work Control Permit)

8.11.3 Removal of Initial Energy Isolation Devices

Hazardous energy isolations installed as initial isolations will be the last isolation devices removed from infrastructure, equipment or system. As a minimum the following safeguards must be applied to the removal of the initial isolations:

- The Authorised Person who installed the initial isolation devices is responsible for removing the devices when all work activities have been fully completed
- The Authorised Person will:
    - Confirm with affected personnel that all required work has been completed
    - Verify all personal locks have been removed from the infrastructure, equipment or system
    - Carry out a visual inspection to:
        - Verify that the infrastructure, equipment or system is ready in all aspects for the initial isolation devices to be removed; and
        - Identify the sequence for removal of the isolation devices
    - Remove the initial isolation devices
    - Record removal of isolation devices (e.g., Clearance Certificate or Work Control Permit)
    - If authorised to do so, prepare the infrastructure, equipment or system for a return to normal operations
    - Advise affected personnel:
        - That the initial energy isolation devices have been removed; and
        - Of the current operational status of the infrastructure, equipment or system following removal of the initial isolation devices

8.11.4 Removal of Locks By Person Other Than Lock Installer

If the person who installed an isolation device is not available, the designated MFG Representative will:

- Make every reasonable effort to contact the individual who installed the lockout device
- Conduct a field review of the infrastructure, equipment or system to identify any reason for the lockout device to have been left in position
- Determine, through inspection and hazard assessment, if it is acceptable to remove the lockout device
- Notify affected personnel that an isolation device needs to be removed
- Assign a Competent Person to remove the lockout device; the assigned person will:
    - Perform a work site hazard inspection
    - Confirm that it is safe to remove the lockout device
    - Remove the identified lockout device
    - If authorised to do so, reinstate the infrastructure, equipment or system for normal operation
    - Record removal of the isolation device (e.g., Clearance Certificate or Work Control Permit)
    - Advise affected personnel:
        - That the lockout device has been removed; and

    - Of the operational status of the infrastructure, equipment or system
- Advise the Authorised Person who installed the isolation that their device has been removed

Note 8.11.4.1: Failure to remove isolation devices following job completion may result in the individual being called back to site to remove it.

8.12 Energy Isolation Safety

8.12.1 General Guidance

The following guidance is designed to enhance personal safety during hazardous energy isolation activities and should be considered, as appropriate, at the time of installing energy isolations:

- Closed valves are chained and must be secured against inadvertent movement, so that they cannot be inadvertently opened
- Only Competent Personnel (qualified in the task) are permitted to work on **live equipment** (i.e., equipment that has not been isolated from energy sources)

  Note 8.12.1.1: Tasks that may be required to be performed on **live equipment** may include, but may not be limited to:
    - Racking out breakers
    - Checking amp draws
    - Heat scanning
    - Vibration checks and balancing prime movers
    - Panel light lamp change; and
    - Performing compression tests on engines

  Note 8.12.1.2: A Clearance Certificate and Work Control Permit as a minimum will be issued and will clearly state that the equipment is live and what additional precautions are required.
- Remove and de-activate each source of hazardous energy

8.12.2 Mechanical Isolations

Positive isolation is regarded as the most secure method and should be used for mechanical isolations:

- Positive isolation includes:
    - **Spool Removal:**

      The removal of a section of pipe or a spool piece and blanking of the **live end**.
    - **Blind Isolation:**

      Insertion of a line rated blind (i.e., spade) between flanges.
    - **Physical Disconnection:**

      The disconnection of electrical cables.
- Positive isolation will be used as the preferred method of isolation for:
    - Confined Space Entry; and
    - Hot Work
- Valve actuators, when used for energy isolations:
    - Manually operated valves will be locked and tagged to prevent unauthorised or inadvertent operation
    - Electrically actuated valves will have the power supply isolated, and any manual override manually locked
    - Pneumatic and hydraulic operated valves which:
        - Fail **Closed** will have the control lines isolated and physically disconnected; or
        - Fail **Open** or fail **'As Is'** will not be used for isolation purposes

- Other energy sources (e.g., heat, gas, steam, and pressure) will be isolated by a physical break, for example:
  - Positive isolation (open ends will be blanked or capped)
  - Double block and bleed; and
  - Shutdown of the source (including electrical isolation)

8.12.3 Pressure Systems

Guidance for the safe and effective isolation of pressure equipment:

- Confirm that any closed energy isolation valves are providing an effective seal:
  - Utilise double block and bleed
  - Ensure that there is an open bleed valve between two closed valves or install blinds
  - Confirm bleed valve remains open to relieve any trapped pressure
  - Be aware of hazardous fluid/gas during critical venting

    Note 8.12.3.1: Do Not rely on a pressure indicator gauge as a positive indicator of pressure within a system or pipeline.
  - Safely dissipate any residual energy from the system

    Note 8.12.3.2 Release pressure away from the body and in a manner, which does not affect other personnel.
- Test and confirm lockout are effective, verify that:
  - System pressure is **Zero**
  - Do not rely on a pressure gauge as a positive indication of pressure.
  - Equipment cannot be moved by rotation or gravity
  - Activate electrical on/off switch to confirm no electricity from breaker and conduct local switch start test; and/or
  - Ensure a qualified electrician tests the circuit with a meter to confirm that there is no energy beyond the breaker

8.12.4 Hydraulic and Pneumatic Systems

Guidance for the safe and effective isolation of hydraulic and pneumatic systems:

- Safely shutdown the hydraulic or pneumatic system, this is likely to include:
  - Mains isolation switch
  - Hydraulic/Pneumatic supply valve; and
  - Drain valve
- Dissipate any stored energy via drain valves
- Confirm that there is no residual pressure in the line, reservoirs or accumulator feeding the cylinder
- Lockout:
  - Hydraulic and pneumatic supply valves in the closed position; and
  - Drain valves in the open position

Note 8.12.4.1: Be aware that hydraulic and pneumatic energy can remain in a system indefinitely after it has been switched off.

8.12.5 Electrical Energy

Guidance for the safe and effective isolation of electrical energy:

- Electrical equipment will be considered to be energised (**live**) until proven de-energised
- The electrical equipment to be worked on will be isolated from all sources of supply by either:

  - Opening switches
  - Removing fuses; or
  - Switching circuit breakers
- Removable or rack-out circuit breakers, combined fuse switches or removable fuses, should be:
  - Racked out; or
  - Removed to provide a visible break for isolation verification
- Where isolation is provided by the removal of fuses in a distribution board or motor starter:
  - Removed fuses will not be stored in the same panel as the fuse holder
  - Fuses should be tagged and stored securely
  - Where practical, blank fuse cartridges, preferably tagged **For Isolation Purposes** should be inserted into the fuse holder
- When isolating an electrical source using the breaker switch:
  - Stand to the side of the switch facing away from the unit, then disconnect and pull the breaker switch:
  - Place the main electrical disconnect switch in the **Off** position
  - Secure in the off position (e.g., scissor adapter) and lock and tag
  - Check for alternate sources of power

    Warning: Stop Buttons on control circuits cannot be used as an energy isolating device.
- Only Qualified Personnel are permitted to work on **live equipment**:
  - Racking out breakers
  - Checking amp draws
  - Heat scanning
  - Vibration checks and balancing prime movers
  - Panel light lamp change; and
  - Performing compression tests on engines

8.12.6 Control Systems

SCADA (Supervisory Control and Data Acquisition) and PLC (Programmable Logic Controller) systems and automatic operated equipment that is activated with power, gas, and pneumatic, hydraulic, or electrical power, are not considered locked-out unless:

- Rendered inoperable by physically disabling or disconnecting the control medium; and
- Locked out and tagged at the control point

8.12.7 Solenoids and Electrical Assist Devices:

Are not considered locked-out or fail-safe unless:

- Electrical power supply is disconnected
- Hydraulic, pneumatic gas or other control medium is completely disconnected; and
- Stored energy has been safely dissipated

Note 8.12.7.1: If isolated correctly this should ensure that leakage through the solenoid device will not activate the device.

9. WORKING AT HEIGHT: GENERAL (IMS-08.01.5-9)

9.1 INTENT

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to perform work at height which has been identified as involving significant risk (**Major Works**).This guidance document specifically details expectations regarding use of **fall prevention** and **fall protection** systems and equipment,

9.2 SUSPENSION TRAUMA

Orthostatic intolerance, (e.g., development of symptoms such as light-headedness, palpitations, fatigue, poor concentration, nausea, dizziness, headache, sweating, weakness, and fainting during upright standing) may be experienced by personnel using fall arrest systems.

Following a fall a worker may remain suspended in a harness and sustained immobility may lead to a state of unconsciousness. Depending on the length of time the suspended worker is unconscious and/or immobile and the level of venous pooling, the resulting orthostatic intolerance may lead to death. While not common, such fatalities often are referred to as suspension trauma.

Suspended workers with head injuries or who are unconscious are particularly at risk. The worker must be rescued quickly (under ten minutes) and gradually brought to a horizontal position to avoid potential cardiac arrest. For this reason, it is critical to have a rescue plan with procedures for rescuing a worker who is suspended by a personal fall protection system.

9.3 HAZARD ASSESSMENT

Contractors (i.e., **Site Manager or Job Supervisor**) will carry out a work site hazard inspection and determine the risk reduction measures (i.e., controls) required whenever a need for work at height is identified. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Working at height
  - Access and egress
  - Equipment to be used; and
  - Potential for dropped objects
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 9.3.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cable**s the minimum safe working distance is **three (3) metres (9.8 feet).**
- Equipment to be used, for example:
  - Mechanical equipment, including hand tools
  - Hand tools
  - Temporary fall prevention system
  - Fall protection equipment (i.e., full-body harness and lanyard)
  - Anchor points for fall protection systems; and
  - Mobile Elevated Work Platform (MEWP)

- Duration of the work
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment & Method Statement (**RAMS**) that include as a minimum:

- Identified hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely

Note 9.3.1: If residual risk is determined, after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

9.4 Rescue Plan

Contractors performing work at height which required the use of fall protection equipment will develop a **Rescue Plan** that will be initiated if a worker falls while working at height and is suspended. The nature and types of work at height requiring the use of fall protection, specifically the height at which workers are required to use fall protection make it likely that **Self-Rescue** or **Assisted Self-Rescue** is possible.

9.4.1 Self-Rescue

Self-rescue should involve:

- The fall protection system user climbing back up to the level from which the fall occurred
- An evaluation to determine if medical attention is required
- Removal of the fall protection system (i.e., full-body harness and lanyard)

Note 9.4.1.1: The components of a fall protection system that has been involved in a fall from height will be removed from service and not returned to service until a thorough inspection has been carried out by a Competent Person and the components certified as fit for purpose.

9.4.2 Assisted Self-Rescue

Dependent on the work being performed and the nature and location of the fall from height there may be a requirement for members of the Job Crew to provide assistance to the person who has fallen from height and is suspended to aid their self-rescue. Such assistance may include:

- Supporting the suspended worker until they are able to regain their balance and self-rescue
- Moving vehicles, equipment or materials that may be hampering self-rescue
- Lowering an Mobile Elevated Work Platform (**MEWP**) to allow the fall protection system user to be rescued at ground level
- Utilising a MEWP to assist the fall protection system user to recover to a protected surface; and
- Provision of suitable equipment to aid the rescue, for example ladders

9.5 Fall Prevention

Where practical a professionally designed and installed fall prevention system will be the primary method of protecting personnel when working at height. Fall prevention systems will include:

- Fixed guardrail system composed of:
  - Top rail
  - Mid-rail
  - Toe-board; and
  - Enclosed walkway / work platform

Examples of **Fall Prevention** systems include, but are not limited to

- Properly designed permanent structure, for example:
  - Access tower
  - Walkway
  - Work platform; and
  - Perimeter protection (i.e., building roof tops)
- Properly designed temporary work structure, for example:
  - Fix scaffolding
  - Mobile scaffolding; and
  - Mobile Elevated Work Platforms, for example scissor lift

  Note 9.5.1: Boom lifts require those working at height to be wearing full body harness and short lanyard attached to identified anchor points.

9.6 Fall Protection

9.6.1 General Requirements

In the absence of a fall prevention system, fall protection will be used to protect personnel working at height. Fall protection equipment will include:

- Full-body harness; and
- Lanyard

The following minimum requirements (as applicable) apply to the safe and proper use of fall protection equipment:

- Workers using fall protection equipment must be trained and competent in its use, including any related equipment inspection requirements
- A full-body harness will be:
  - Worn in accordance with the manufacturer recommendations; and
  - Used in conjunction with a lanyard, designed to be secured to an anchor point and prevent:
    - A fall distance of more than **1.22 metres (4 feet)**; and/or
    - Contact with a lower level (including structures, equipment, piping, etc.)
- Lanyard length should be kept to a minimum based upon the scope of work

  Note 9.6.1.1: When using Mobile Elevated Work Platforms (MEWP) lanyards will be secured to the designated anchor points when determined as required by task-specific risk assessment).
- The type and location of anchorage points will be determined by:
  - The nature and location of the task
  - Type of construction of the building or supporting structure
- Where practical anchorage points will be designed to be:
  - Above the head of the wearer

    Note 9.6.1.2: Ensuring that if a fall occurs the wearer will not swing or touch the ground.
  - Tested and/or approved by Competent Personnel

Note 9.6.1.3: Fall protection equipment guardrail components (e.g., handrails and mid-rails) will not be used as anchor points, unless specifically designed and designated as an anchor point.

- Fall protection equipment will be:
  - Maintained by a Competent Person
  - Certified as fit for purpose at intervals not exceeding six (6) months
  - Inspected by the user immediately prior to use
  - inspected, tested and re-certified by a Competent Person following a fall; and
  - Repaired, destroyed where inspection indicates excessive wear or mechanical malfunction
  - Worn and used correctly, when:
    - Being raised or lowered in a man basket
    - Working from Mobile Elevated Work Platform (MEWP); or
    - Portable ladder at a height of **1.83 metres (6 feet)** or greater

      Note 9.6.1.4: If it is not reasonably practical to use a personal fall protection equipment, a worker may work from a portable ladder without fall protection if the:
      - Work is a light duty task of short duration
      - Worker's centre of balance is always kept at the centre of the ladder, even with an arm extended beyond the side rails of the ladder; and
      - Worker has one hand available to hold on to the ladder or other support.
- Fall protection systems:
  - **MUST NOT BE USED** to hoist (lift) materials and/or equipment; and
  - Does not include a Body Belt

    Body Belts **MUST NOT BE USED** in place of a of full-body harness

9.6.2 Full-Body Harness

A five-point full-body harness is to be worn whenever a risk assessment identifies the need for personal fall protection equipment to be worn to safely perform work at height. A full-body harness must:

- Consist of compatible and suitable components
- Be sufficient to support the fall restraint or arrest forces
- Meet and be used in accordance with all applicable standards in effect when the equipment was manufactured, subject to any modification or upgrading considered necessary by National or International Regulations, for example **British Standards Institute** (**BSI**)
- Be used in conjunction with a suitable lanyard, which will conform to the following minimum requirements:
  - Lanyards will be properly rated and approved shock-absorbing type (e.g., BSI)
  - The free end of the lanyard will be securely attached to a structure that:
    - That can withstand the impact to which it may be exposed; and
    - Is no lower than the worker's shoulder height
  - Only one worker is to be attached to a lifeline at one time unless the manufacturer's specifications allow for the attachment of more than one worker to the lifeline
  - All connectors and components must be approved, and able to withstand any impact to which they may be expose
  - Lanyards must be made of a material appropriate to potential hazard (e.g., if use could result in damage to the lanyard, such as by a corrosive agent, abrasion, burning, electrical shock, etc.)

10. Working At Height: Fixed Scaffold (IMS-08.01.5-10)

10.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a MFG Petrol Filling Station, that includes a requirement to perform work at height. This guidance specifically details expectations regarding use of **Fixed Scaffolds**.

10.2 Hazard Assessment

Contractors (i.e., Site Manager or Job Supervisor) will carry out a work site hazard inspection and determine the risk reduction measures (i.e., controls) required when a need for work at height is identified. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Working at height
  - Access and egress
  - Equipment to be used; and
  - Potential for dropped objects
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 10.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Equipment to be used, for example:
  - Scaffolding, including:
    - Poles
    - Connectors
    - Boards; and
    - Securing plates and rope
  - Mechanical equipment, including hand tools
  - Hand tools
  - Fall protection equipment (i.e., full-body harness and lanyard); and
  - Anchor points for fall protection systems
- Duration of the work
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment and Method Statement (**RAMS**) that include as a minimum:

- Identified hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)

- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely, including scaffold construction, maintenance and dismantling

Note 10.2.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

10.3 Preparing to Erect Scaffold

When determined to be the safest and most effective option for gaining access to work at height, fixed scaffolding will be used to control the risk associated to work at height. Prior to starting to erect scaffolding Contractors (i.e., Site Management or Job Supervisor) will:

- Confirm the design of the required scaffold (i.e., type, shape, etc.)
- Review the Safe Method of Working (supported by Clearance Certificate) or RAMS for the work, to:
  - Ensure mutual understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS

  Note 10.3.1: The Safe Method of Working or RAMS developed for the work may be provided by a Subcontractor, if scaffolding activities have been assigned to a Scaffolding Specialist.
- Review the Work Control Permit when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit when required; and
  - Clearance Certificate
- Ensure:
  - Sufficient materials and equipment are available to safely construct the scaffolding
  - Job Crew:
    - Are trained and competent to safely construct the scaffold; and
    - Have the required Personal Protective Equipment (PPE)

      Note 10.3.2: PPE will include fall protection equipment if specified in the Safe Method of Working or RAMS, Clearance Certificate and/or Work Control Permit.
  - Effective implementation of the identified risk reduction measures, including work site secured against unauthorised access
  - Work site, materials and Job Crew are ready in all aspects to perform the work

10.4 Scaffold Design & Construction

Contractors (i.e., Job Supervisor) will ensure fixed scaffolds are:

- Designed, assembled, maintained, and dismantled by Competent Personnel
- Used in accordance with the designer's and/or manufacturer's specifications
- Able to support (without failure) its own weight and at least four (4) times the maximum intended load
- Constructed on a firm, level foundation, with consideration given to:

  - Voids such as basements or drains; and
  - Patches of soft ground, which could collapse when loaded

Note 10.4.1: The ground or foundation must be capable of supporting the weight of the scaffold and any loads likely to be placed on it. Extra support will be provided as necessary.

- Braced and tied into a permanent structure or otherwise stabilised

  Note 10.4.2: Rakers only provide stability when they are braced and footed adequately; single tube rakers alone do not usually provide this and need to be braced to prevent buckling.

  Note 10.4.3: Ties must be used within their safe working load limit. Install ties as the scaffold is erected and only remove them in stages as it is struck. If a tie is removed to allow work to proceed, an equivalent tie must be provided nearby to maintain stability.

- Constructed with:
  - Correctly designed (i.e., as per code) guardrails installed, which will include:
    - Horizontal top rail
    - Horizontal intermediate rail installed midway between the top rail and base
    - Intermediate vertical supports; and
    - Toe boards, of sufficient height to prevent slipping under the intermediate rail and/or dropped objects
  - Complete decking (e.g., scaffolding grade timber), which is adequately secured to prevent movement (e.g., closed tied or nailed)
  - Rigid footing or anchorage points that can support the scaffold without settling or displacement
  - Poles, legs, or uprights that are secure and rigidly braced to prevent swaying and displacement
- Not designed to encroach over the highway (including pavements)

  Note 10.4.4: Scaffold encroachment over a highway (including pavements) require a license under Section 169 of the Highways Act (1980) to be issued by the local Highway Authority.

- Not erected or dismantled over people or busy pavements
- Not fitted with sheets or debris netting attached unless the scaffold has been designed for their inclusion; and
- Inspected to confirm:
  - Platforms are:
    - Fully boarded
    - Wide enough for the work and for access (usually at least 600 mm wide)
    - Properly supported; and
    - Not overhanging excessively (e.g., no more than four times the thickness of the board)
  - Safe access to the work platforms, preferably secured ladder(s)
  - Loading bays are fitted with fall protection, preferably gates, which can be safely moved in and out of position to place materials on the platform; and
  - Scaffold is confirmed as suitable in all aspects for work at height before it is used
  - Inspected and confirmed fit for continued use whenever it is:
    - Substantially altered; and/or
    - Adversely affected (e.g., by high winds)

Note 10.4.5: Until a scaffold is complete in all aspects, fall protection (e.g., full body harness and safety line) will be worn by those erecting the scaffold. Once complete the use of fall protection is only required when:

- An unguarded fall from height hazard is present; and
- Modifying or dismantling a scaffold.

10.5 Scaffold Inspection & Certification

Contractors (i.e. Job Supervisor) will ensure fixed scaffolds are:

- Inspected by a Competent Person:
  - On completion of the erection process
  - Prior to each working shift (i.e., Job Crew using the scaffold)
  - Following:
    - Modification from original design
    - Adverse weather; and
    - Impact or structural damage

  Note 10.5.1: Scaffolding Inspectors will be appropriately qualified and will inspect each scaffold on completion and subsequently every seven days until it is dismantled. The Inspector will record the details of the inspections in the Contractor's Scaffolding Register.
- Tagged at each point of entry to indicate its status and condition as follows:
  - **Green Tag:**

    Bearing the words **Safe for Use** or similar wording to indicate it is safe to use.
  - **Yellow Tag:**

    Bearing the words **Caution: Potential or Unusual Hazard** or similar wording to indicate the presence of a potential or unusual hazard.
  - **Red Tag:**

    Bearing the words **Unsafe for Use** or similar wording to indicate it is not safe to use.

10.6 Scaffold Dismantling

When dismantling fixed scaffolds Contractors will:

- Check:
  - The stability of the scaffold

    Note 10.6.1: Scaffold components should firmly be connected to each other. If individual parts have been removed or severely damaged during the service life, replace them for safe scaffold dismantling.
  - That scaffold decks are still firmly in place
  - The anchors and all fasteners on the scaffold for stability.
- Determine the Personal Protective Equipment (PPE) required for scaffold dismantling, include fall protection equipment when required
- Ensure:
  - Building materials or tools are no still lying on the scaffold to avoid the potential for these to become dropped objects during dismantling; and
  - A safe storage area for dismantled scaffold parts

  Note 10.6.2: Also consider the needs for a safe and clear access and egress route for the vehicle collecting the dismantled scaffold.
- Remove dismantled scaffold parts from the scaffold immediately during dismantling
- Safely remove scaffold components from top to bottom:
  - Remove the tubes and safety railings before dismantling the scaffold decks

- Dismantled scaffold parts should be safely lowered to the ground and not stored on the scaffold during dismantling

  Note 10.6.3: This will be achieved by hand-to-hand transfer or carefully use of rope or hoist.

- Safely remove anchors

  Note 10.6.4: Ensure scaffold stability at all times during the dismantling stage and only remove anchors after dismantling the scaffold.

- Remove all scaffold components and boarding from site

10.7 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to the use of fixed scaffold
- Confirm that:
  - Activities are carried out in accordance with the work control documentation
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit when required

11. Working At Height: Mobile Scaffold (IMS-08.01.5-11)

11.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a MFG Petrol Filling Station, that includes a requirement to perform work at height. This guidance specifically details expectations regarding use of **Mobile Scaffolds**.

11.2 Hazard Assessment

Contractors (i.e., Site Manager or Job Supervisor) will carry out a work site hazard inspection and determine the risk reduction measures (i.e., controls) required when a need for work at height is identified. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Working at height
  - Access and egress
  - Equipment to be used; and
  - Potential for dropped objects
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 11.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Equipment to be used, for example:
  - Mobile Scaffold, including:
    - Guard rails
    - Connectors and securing plates
    - Platforms or boards
    - Outriggers; and
    - Wheels and locking mechanisms
  - Mechanical equipment, including hand tools
  - Hand tools
  - Personal Protective Equipment (PPE)

    Note 11.2.2: Fall protection equipment (i.e., full-body harness and lanyard) including anchor points, will be used if determined through risk assessment to be required as a risk reduction measure (i.e., control).
- Duration of the work
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment and Method Statement (**RAMS**) that include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely, including scaffold construction, maintenance and dismantling

Note 11.2.3: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

11.3 Preparing to Erect Mobile Scaffold

When determined to be the safest and most effective option for gaining access to work at height, mobile scaffolding will be used to control the risk associated to work at height. Prior to starting to erect mobile scaffolds Contractors (i.e., Job Supervisor) will:

- Confirm the type of mobile scaffold to be used
- Review the Safe Method of Working (supported by a Clearance Certificates) or RAM for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit when required; and
  - Clearance Certificate
- Ensure:
  - Component parts of the mobile scaffold are available to safely construct the scaffold
  - Job Crew:
    - Are trained and competent to safely construct the mobile scaffold; and
    - Have the required Personal Protective Equipment (PPE)

    Note 11.3.1: PPE will include fall protection equipment if specified in the Safe Method of Working or RAMS, Clearance Certificate and/or Work Control Permit.
  - Effective implementation of the identified risk reduction measures, including work site secured against unauthorised access
  - Work site, materials and Job Crew are ready in all aspects to perform the work

11.4 Scaffold Design & Construction

Contractors (i.e., Job Supervisor) will ensure mobile scaffolds:

- Comply with the standard required for all types of scaffolds, for example:
  - Double guardrails
  - Toe-boards
  - Work platform

  - Bracing; and
  - Access ladder
- When purchased or rented are supplied with all of the components to:
  - Prevent collapse or toppling of the scaffold; and
  - Ensure scaffold stability
- The height of the scaffold does not exceed more that than **three (3) times** its smallest base dimension

  Note 11.4.1: If outriggers are used to attain the **3:1 ratio**, the outriggers must be firmly attached and ensure scaffold stability.
- Are braced by cross, horizontal, diagonal braces, or combination of these, to:
  - Prevent racking or collapse of the scaffold; and
  - Ensure scaffold remain plumb, level and squared
- All casters are provided with a positive locking device to hold the scaffold in position while:
  - Stationary; or
  - Employees are on the scaffold
- Caster stems and wheel stems are:
  - Pinned; or
  - Otherwise secured in scaffold legs, or a properly designed facility
- Stability is maintained by ensuring the:
  - Scaffold is resting on firm, level ground; with
  - Locked castors or base plates properly supported

    Note 11.4.2: Never use bricks or building blocks to support the weight of a mobile scaffold.
  - Stabilisers or outriggers are installed when required by the manufacturer; and
  - Scaffold is never erected to a height above that recommended by the manufacturer

11.5 MOBILE SCAFFOLD: USE

Contractors (i.e., Job Supervisor) are responsible for the safe and proper use of a mobile scaffold, specifically the Job Crews will ensure:

- Mobile scaffolds are used:
  - On level, smooth surfaces free of major defects; or alternatively
  - With the wheels contained in wood or channel iron runners
- Mobile scaffolds are never used:
  - In strong winds
  - As a support for ladders, trestles, or other access equipment
  - With broken or missing parts; or
  - With incompatible components
- The following requirements are implemented when moving a mobile scaffold:
  - Check that:
    - There are no powerlines or other obstructions overhead; and
    - The ground is firm, level and free from potholes
  - Push or pull using safe manual handling techniques from the base only
  - The height of a scaffold during movement does not exceed twice (2) the minimum base width; and
  - Workers do not ride on the scaffold

Note 11.5.1: Forklift-trucks or other similar motorised vehicles will not be used to move mobile scaffolds unless the scaffold is specifically designed to be moved in this manner.

11.6 Mobile Scaffold: Inspection & Certification

Contractors (i.e., Job Supervisor) are responsible for performing inspections of mobile scaffolds and confirming (when required) they are certified as fit for purpose. The Job Supervisor will ensure:

- Mobile scaffolds are inspected:
  - Following assembly; and
  - At suitable regular intervals by a Competent Person

  Note 11.6.1: If used for construction work, and a person could fall **two (2) metres or more** from the working platform, the scaffold must be inspected **following assembly** and then **every seven (7) days** until dismantled.
- Inspection records are retained until the next inspection is recorded; and
- Mobile scaffolds are not used if identified as defective or unsafe in any other way to use

11.7 Scaffold Dismantling

When dismantling fixed scaffolds the Job Supervisor and Job Crew will:

- Check:
  - The stability of the scaffold
  - Outriggers are fitted and secure
  - That scaffold decks are still firmly in place; and
  - Caster stems and wheel stems are:
    - Pinned; or
    - Otherwise secured in scaffold legs, or a properly designed facility
- Determine the Personal Protective Equipment (PPE) required for scaffold dismantling, include fall protection equipment where required
- Ensure:
  - Materials or tools are not still lying on the scaffold, to avoid the potential for these to become dropped objects during dismantling; and
  - A safe storage area for dismantled scaffold components

  Note 11.7.1: Also consider the needs for a safe and clear access and egress route for the vehicle collecting the dismantled scaffold.
- Remove dismantled scaffold parts from the scaffold immediately during dismantling
- Safely remove scaffold components from top to bottom:
  - Remove the scaffold toe-board set
  - Relocate braces, as necessary to allow the work platform to be relocated to lower level
  - Remove guarding rails
  - Remove access ladder when safe to do so, if fitted
  - Lower dismantled components to the ground

    Note 11.7.2: This will be achieved by hand-to-hand transfer or carefully lowering with a rope.
- Safely remove outriggers and work platform

  Note 11.7: To be completed when guard rails and bracing above the outriggers have been removed and the work platform is no longer required for safe work at height.
- Safely remove caster stems and wheel stems, if fitted; and

- Remove all mobile scaffold components, fittings and fixtures from site

11.8 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to the use of mobile scaffold
- Confirm that:
  - Activities are carried out in accordance with the work control documentation
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks and inspections are performed and recorded
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit when required

12. Working At Height: Mobile Elevated Work Platform (IMS-08.01.5-12)

12.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a MFG Petrol Filling Station, that includes a requirement to perform work at height. This guidance specifically details expectations regarding use of **Mobile Elevated Work Platforms**.

12.2 Hazard Assessment

Contractors (i.e., Site Manager or Job Supervisor) will carry out a work site hazard inspection and determine the risk reduction measures (i.e., controls) required when a need for work at height is identified. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Working at height
  - Access and egress
  - Equipment to be used; and
  - Potential for dropped objects
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 12.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cable**s the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Equipment to be used, for example:
  - Mobile Elevated Work Platform (**MEWP**) for example:
    - Scissor Lift,
    - Boom Lift
    - Personal Cage; and
    - Skyjack
  - Mechanical equipment, including hand tools
  - Hand tools
  - Personal Protective Equipment (PPE)

    Note 12.2.2: Fall protection equipment (i.e., full-body harness and short lanyard) will be used if when Boom Lifts, Personal Cages or Skyjacks are used and if a risk assessment identifies the need when using a Scissor Lift.

    Note 12.2.3: Though not specifically required when using a scissor lift, fall protection (i.e., fully body harness and short lanyard) will be required if scissor lifts are used on an operational forecourt and a risk of collision or is identified and/or in the event that ground conditions present a risk of scissor lift toppling.
- Duration of the work
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment and Method Statement (**RAMS**) that include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls (e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely, including safe use of MEWP

The risk assessment will include consideration of the hazards associated with MEWP, for example:

- **Entrapment:**
  Operator may become trapped:
  - Between part of the basket and a fixed structure; and/or
  - Against the MEWP controls

  Leading to an inability to stop or operate the MEWP.
- **Overturning:**
  The MEWP may overturn throwing the Operator from the basket.
- **Falling:**
  An Operator may fall from the basket during work activities.
- **Collision:**
  The MEWP may collide with:
  - Pedestrians
  - Overhead cables
  - Infrastructure; and/or
  - Stationary of moving vehicles.

Note 12.2.4: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

12.3 Operator Training and Competency

Contractors (i.e., Job Supervisor) will ensure MEWP Operators have:

- Attended a recognised Operator training course; and
- Received a certificate, card, or license, listing the categories of MEWP the Operator is trained to operate

Note 12.3.1: Contractors (i.e., Job Supervisor) will check the expiry date of the training certificate, card, or licence, prior to a MEWP being operated at a MGF Petrol Filling Station.

12.4 MEWP Maintenance & Examination

Contractors will ensure:

- MEWP are properly maintained, for example:
  - Pre-use daily inspections by the Operator
  - Regular inspections and servicing by a Competent Person: and
  - **Six (6) monthly** (minimum frequency) thorough inspection by a Competent Person

  Note 12.4.1: Thorough Inspections will be scheduled and performed by the owner of the MEWP.

- Records of MEWP inspections and maintenance are retained

  Note 12.4.2: Typically, these inspections will be scheduled and performed and reported by the owner of the MEWP.

- Operators are encouraged to report defects or issues with a MEWP

  Note 12.4.3: Defects and issues should be addressed in a timely manner, or the MEWP taken out of service if the item is safety critical.

12.5 Preparing to Use Mobile Elevated Work Platform

When determined to be the safest and most effective option for gaining access to work at height, a MEWP will be used to control the risk associated to work at height. Prior to using MEWP Contractors (i.e., Job Supervisor) will:

- Give consideration to the following:
  - The type of ground the MEWP have to travel across for example:
    - Hard, firm, soft or sloping
    - Uneven terrain, soft spots
    - Kerbs
    - Subsurface hazards (e.g., tanks, inspection covers, sewers and service trenches)
    - Paved areas including footpaths; and
    - Waterlogged or frozen ground
  - Is a banksman required when moving the MEWP across the site to its work position
  - Is the ground sufficiently level at the work location?
  - What is the ground bearing capacity at the work site and along the route to and from it
  - Is there enough space for outriggers to be deployed
  - What is the maximum point load (e.g., under a wheel, outrigger or jack pad)
  - Are spreader plates required
  - Will the MEWP have to:
    - Pass beneath any overhead powerlines and if so, is there enough clearance and has the route of travel been clearly marked; and/or
    - Operate on ground floor slabs or slabs at other levels in a structure
  - Is there a potential for the MEWP to encroach into or over live vehicle or pedestrian routes
- Assign a trained and competent person as the Operator of the MEWP, and who will:
  - Ensure that the MEWP is certified following thorough inspection as fit for purpose
  - Carrying out a basic daily/pre-use function check prior to operating the MEWP
  - Identify defects of faults with the MEWP; and
  - Isolate the controls, tag the MEWP as defective, and report the defect Job Supervisor
- Review the Safe Method of Working (supported by a Clearance Certificate) or RAMS for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the Safe Method of Working or RAMS
- Review the Work Control Permit when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS

- Work Control Permit, when required; and
- Clearance Certificate

12.6 Using Mobile Elevated Work Platforms

Contractors (i.e., Job Supervisor and Job Crew) will ensure:

- Operators are trained and competent (qualified if necessary) to operate the MEWP
- MEWP are only used on firm and level ground
- Temporary covers are strong enough to withstand the weight of the MEWP and Operator
- Barriers are placed around trenches, manholes and areas of uncompacted backfill
- Outriggers are properly extended and secured before raising the platform

  Note 12.6.1: Spreader plates will be used in accordance with Manufacturers' recommendations regarding their use.

- The work platform must have suitable guarding, for example:
  - Top Rail.
  - Mid-Rail; and
  - Toe-boards
- Those using the MEWP to perform work at height are wearing a full body harness and short lanyard that is secured to the designated anchor point

  Note 12.6.2: It is acknowledged that use of a fall protection equipment is not specifically required for Scissor Lifts, however a decision regarding it use is subject to a suitable and sufficient risk assessment being completed, which also include the potential for impacts from other vehicles and ground conditions.
- Consideration is given to:
  - Prevention of dropped objects from the work platform when elevated
  - Placing barriers around the area in which the MEWP is operating; and
  - Prevailing weather conditions

    Note 12.6.3: MEWP will not be used during periods of adverse weather (e.g., high winds, snow, and ice, etc.).
- MEWP are not to be operated in close proximity to overhead powerlines (OHPL) without consideration being given to the potential risk of personnel or equipment contacting the OHPL and suitable risk reduction measures (i.e., controls) being implemented

12.7 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to MEWP use
- Confirm that:
  - Activities are carried out in accordance with the work control documentation
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
- On completion of the work activities:
  - Confirm and verify:
    - All materials, equipment and tools have been removed from the MEWP to avoid the potential for dropped objects
    - The MEWP is safely parked in a safe location in preparation for collection

- All waste and/or excess materials are removed from the work site
- All handheld tools are removed and stored securely
- Barriers, warning tape, flagging, signage, and floodlighting are removed; and
- The work site is left in a safe condition

- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit when required

13. Working At Height: Portable Ladders (IMS-08.01.5-13)

13.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a MFG Petrol Filling Station, that includes a requirement to perform work at height. This guidance specifically details expectations regarding use of **Portable Ladders**.

13.2 Hazard Assessment

Contractors (i.e., Site Manager or Job Supervisor) will carry out a work site hazard inspection and determine the risk reduction measures (i.e., controls) required when a need for work at height is identified. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Working at height
  - Access and egress
  - Equipment to be used; and
  - Potential for dropped objects
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 13.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Equipment to be used, for example:
  - Portable ladders, including step ladders
  - Mechanical equipment, including hand tools
  - Hand tools
  - Personal Protective Equipment (PPE)

    Note 13.2.2: The risk assessment regarding working from a portable ladder will consider the need to fall protection equipment (i.e., full-body harness and short lanyard) to be worn while performing work tasks at height.
- Duration of the work
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment and Method Statement (**RAMS**) that include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls (e.g., High, Medium or Low); and

- Step by step description of how work tasks will be performed safely, including safe use of the Portable Ladders

Note 13.2.3: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

13.3 Preparing to Use Portable Ladders

When determined to be the safest and most effective option for gaining access to work at height, **Portable Ladders** will be used to control the risk associated to work at height. Prior to using portable ladders Contractors (i.e., Job Supervisor) will:

- Give consideration to the use of personal fall protection equipment when working at vertical heights of **1.83 metres** (**6 feet**) or greater, where practical to use such equipment

  Note 13.3.1: If it is not reasonably practical to use personal fall protection equipment, a worker may work from a portable ladder without fall protection providing the:
  - Work is a light duty task of short duration
  - Worker's centre of balance is always kept at the centre of the ladder, even with an arm extended beyond the side rails of the ladder; and
  - Worker has one hand available to hold on to the ladder or other support
- Confirm the risk reduction measures required to reduce risk to an acceptable level and that they have or will be effectively implemented

  Note 13.3.2: The use of conductive ladders must be avoided wherever possible especially when the potential for electric shock is present due to live electrical power sources (e.g., powerlines or cables, electrical generators, etc.) in the surrounding area.
- Determine the specifications for the type of portable ladder required, for example:
  - Type
  - Height; and
  - Stability measures
- Approve the type of portable ladder to be used
- Review the Safe Method of Working or RAMS for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit, when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the work control documents to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit, when required; and
  - Clearance Certificate

13.4 Using Portable Ladders

13.4.1 Ladder Management & Control

Contractors (i.e., Job Supervisor) will ensure:

- The Job Crew (i.e., workers) are trained and competent to use ladders
- Ladders are only used on secure, firm and level ground

- Temporary covers are strong enough to withstand the weight of the ladder and worker
- Barriers are placed around trenches, manholes and areas of uncompacted backfill
- Ladder:
  - Outriggers are properly extended and secured before using the ladder; and
  - Securing mechanisms are correctly positioned and locked while in use

13.4.2 Ladder Inspections

Contractors (i.e., Job Supervisor and Job Crew) will:

- Inspect ladders:
  - Immediately prior to use
  - At the beginning of the working day
  - Immediately prior to use; and
  - After something has changed, for example when the ladder has been:
    - Dropped; or
    - Moved from a dirty area to a clean area

  Note 13.4.2.1: When identified damaged ladders will be removed from service and repaired if practical or permanently disposed of.
- Ensure that ladder inspections include:
  - **Stiles**

    Confirm that they are not bent or damaged, as the ladder could buckle or collapse.
  - **Feet**

    If they are missing, worn or damaged the ladder could slip.

    Note 13.4.2.2: Check the ladder feet when moving from soft or dirty ground to a smooth, solid surface (e.g., paving slabs) to make sure the feet and not the dirt (e.g., soil, chippings, or embedded stones) are in contact with the ground.
  - **Rungs**

    If they are bent, worn, missing or loose, the ladder could fail.
  - **Locking Mechanisms**
    - Does the mechanism work properly?
    - Are components or fixings bent, worn or damaged?
    - Are any locking bars are fully engaged?
  - **Stepladder Platform**

    If it is split or buckled, the ladder could become unstable or collapse
  - **Stepladder Steps or Treads**
    - If they are contaminated, they could be slippery; and
    - If the fixings are loose on the steps, they could collapse

13.4.3 Safe Use of Ladders

Contractors (i.e., Job Supervisor and Job Crew) will:

- Fully extend a stepladder, do not lean it against something
- Maintain **3-points of contact** with the ladder
- Not work from the top step of a stepladder or the top three rungs of an extension ladder
- Position an extension ladder **1 metre** away from the vertical for every **4 metres** in height
- Ensure at least **1 metre** of overlap between the sections of an extension ladder

- Extend an extension ladder at least **1 metre** beyond a platform if used to access the platform
- Secure an extension ladder before use:
  - Secured at the bottom, for example:
    - Second person holding the ladder; or
    - Designed ladder securing and locking system
  - Tied off at the top:
    - Ensure an adequate amount of ladder above the tie-off point; and
    - Do stand on section of ladder above the tie-off point
- Ensure that painted ladders are not used (i.e., paint may hide cracks or other damage)
- Not carry tools or equipment up and down ladders (i.e., use a bucket and rope)
- Always face the ladder when ascending and descending
- Not overreach from side to side, move the ladder to a location to avoid this
- Consideration is given to:
  - Prevention of dropped objects while using ladders
  - Placing Warning Tape around the area in which ladders are being used; and
  - Prevailing weather conditions

  Note 13.4.3.1: Portable ladders must not be used outdoors during adverse weather (e.g., electric storms, high winds, heavy snow falls, and ice, etc.).
- Ladders are not used in close proximity to overhead powerlines (OHPL) without consideration being given to the potential risk of personnel or equipment contacting the OHPL and suitable risk reduction measures (i.e., controls) being implemented

13.4.4 Safe Use of Stepladders: Additional Controls

Contractors (i.e., Job Supervisor and Job Crew) will:

- Carry out a hazard assessment to justify the use of stepladder, giving consideration to:
  - The height of the task
  - Whether:
    - A handhold is still available to steady yourself before and after the task
    - It is light work
    - It avoids side loading and overreaching; and
    - The stepladder can be tied (e.g., when side-on working)
- Check all four stepladder feet are in contact with the ground and the steps are level
- Only carry lightweight materials and tools
- Not overreach
- Not stand and work on the top three steps, including a step forming the very top of the stepladder, unless there is a suitable handhold
- Ensure any locking devices are engaged
- Try to position the stepladder to face the work activity and not side on

  Note 13.4.4.1: There are occasions when a risk assessment may show it is safer to work side on because the locking mechanism cannot be engaged to work face on (e.g., narrow work area) but can fully engaged (locked) to work side on.
- Try to avoid work that imposes a side loading, such as side-on drilling through solid materials
- Tie the stepladder if side loadings cannot be avoided to prevent the steps from tipping over; and
- Maintain three points of contact at the working position

Note 13.4.4.2: This means two feet and one hand, or when both hands need to be free for a brief period, two feet and the body supported by the stepladder.

13.5 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to portable ladder use
- Confirm that:
  - Activities are carried out in accordance with the work control documentation
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit, when required

14. Dropped Object Prevention (IMS-08.01.5-14)

14.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a MFG Petrol Filling Station, that includes a requirement to perform work at height, creating a potential for dropped objects. This guidance specifically details expectations regarding the prevention of **Dropped Objects**.

14.2 Hazard Control

Contractors (i.e., Site Manager or Job Supervisor) are responsible for identifying activities or tasks that involve the potential for dropped objects, and for identifying the risk reduction measures (i.e., controls) necessary to reduce any risks associated with these hazards to an acceptable level. Risk reduction measures to ensure a safe working environment will be selected from the hierarchy of controls, for example:

- Elimination, remove the potential for a dropped object
- Substitution, use alternative methods and/or processes to avoid dropped objects
- Engineering:
  - Facility design, primary securing method, or secondary retention measures
  - Guarding, for example toe boards and guard rails
  - Barriers barricades around the hazardous area); and
  - Netting and other secondary safety systems
- Administrative Controls:
  - Safe Method of Working or Risk Assessment and Method Statement (**RAMS**);
  - Work Control Permit
  - Clearance Certificate (JSA)
  - Workforce education; and
  - Good housekeeping practices
- Personal Protective Equipment (PPE)

Note 14.2.1: The Dropped Objects Hazards Assessment Tool (**Appendix A**) can be used as a guide in assessing the potential harm associated with objects that fall from height to help determine the potential severity of a dropped object.

14.3 Maintaining a Safe Work Environment

14.3.1 Controlled Access Areas

Controlled access areas will be established when a potential dropped object hazard is identified in the workplace. Contractors must establish and monitor conformance with the precautions identified when work activities are performed in these areas.

14.3.2 High-Risk Area

An area with a high potential risk (i.e., fatality, permanent disability, amputation, etc.) of a dropped object incident occurring is considered a **High-Risk Area**. The minimum risk reduction measures (i.e., controls) for work activities in these areas are:

- Contractors (i.e., Job Supervisor) will ensure:
  - The placement of **Danger Tape** or other form of physical barrier, around the work area to prevent unauthorised access
  - Only personnel
    - Involved in the actual work taking place at height; and/or
    - Required to be there to perform their assigned duties; are allowed in the work area

- Scheduled and routine inspections of the work area to:
  - Assess the status of the work; and
  - Confirm the specified risk reduction measures (i.e., controls) remain effective
- A formal process is used to authorise and control access and work activities in these areas, for example:
  - Site Induction
  - Clearance Certificate; and
  - Work Control Permit, when required

The Job Supervisor and Job Crew members are responsible for:

- Ensuring effective implementation of these risk reduction measures (i.e., controls); and
- Identifying any additional control measures required on a task-by-task basis

14.3.3 Moderate Risk Area

An area with moderate potential risk (i.e., restricted work or medical treatment injury) of a dropped object incident occurring is considered a **Moderate Risk Area**. The minimum hazard risk reduction measures (i.e., controls) for work activities in these areas are:

- Contractors (i.e., Job Supervisor) will ensure:
  - The placement of **Warning Tape** around the work area, to control unauthorised access
  - Only personnel assigned specific tasks within the work area can enter the area
  - Scheduled and routine inspections of the work area to:
    - Assess the status of the work; and
    - Confirm the specified risk reduction measures (i.e., controls) remain effective
  - A formal process is used to authorise and control access and work activities in these areas, for example:
    - Safety Induction
    - Clearance Certificate; and
    - Work Control Permit, when required

The Job Supervisor and Job Crew members are responsible for:

- Ensuring effective implementation of these risk reduction measures (i.e., controls); and
- Identifying any additional control measures required on a task-by-task basis

14.3.4 Low Risk Area

An area with a minimal or low potential risk for dropped object hazards is considered a **Low-Risk Area** (i.e., beneath the forecourt canopy, etc.). Routine work activities (e.g., equipment inspections, cleaning, pump maintenance, etc.) in these areas:

- Do not require additional dropped object risk reduction measures (i.e., controls); and
- May be entered by anyone provided there is no:
  - Warning tape
  - Danger tape
  - Signage; and/or
  - Barricades; in place

Non-routine activities (e.g., repairing or replacing light fittings, repairing the canopy, etc.), in these areas:

- Require the designated MFG Representative and Contractor (i.e., Job Supervisor) to review the work site prior to work commencing to identify any:
  - Potential dropped object hazards; and

- Implement any required risk reduction measures (i.e., controls)

The output of these assessments, including additional risk reduction measures (i.e., controls) will be recorded, for example within the:

- Safe Method of Working or RAMS
- Work Control Permit, when required; and
- Clearance Certificate

Note 14.3.4.1: Working in such areas does not mean that there is no exposure to dropped object hazards. Personnel must remain vigilant and assess all potential hazards prior to and during any work activities in these areas and ensure that adequate measures are implemented to protect them from harm.

14.3.5 Working with Tools and Equipment at Height

When work involving the use of tools and equipment at height is required, the following dropped object hazard risk reduction measures (i.e., controls) will be utilised:

- Select tools and tool accessories that are appropriate to the needs of the task, including lanyard (tethers), and tool bags

  Note 14.3.5.1: For work activities in a designated **High-Risk Area** a **Tool Inventory** will be used to record the tools and equipment being used at height.
- Ensure that loose parts are secured to minimise the potential for drops
- Extend the radius of the **Controlled Access Area** to provide protection against the potential distance travelled by a dropped object
- Check tubular items (e.g., piping, etc.), for items that may have been left inside and use end caps where practical
- Confirm the integrity of the work platform, including toe boards, and use mats where there is a potential for small items/objects to fall through grating; and
- Maintain good standards of housekeeping during and after working at height activities

Note 14.3.5.2: When a need to work with tools and/or equipment at height is identified, Contractors (i.e., Job Supervisor) will assess the need to establish controlled access areas and will also ensure the control measures required to ensure the elimination or satisfactory reduction of risk are implemented and effectively maintained.

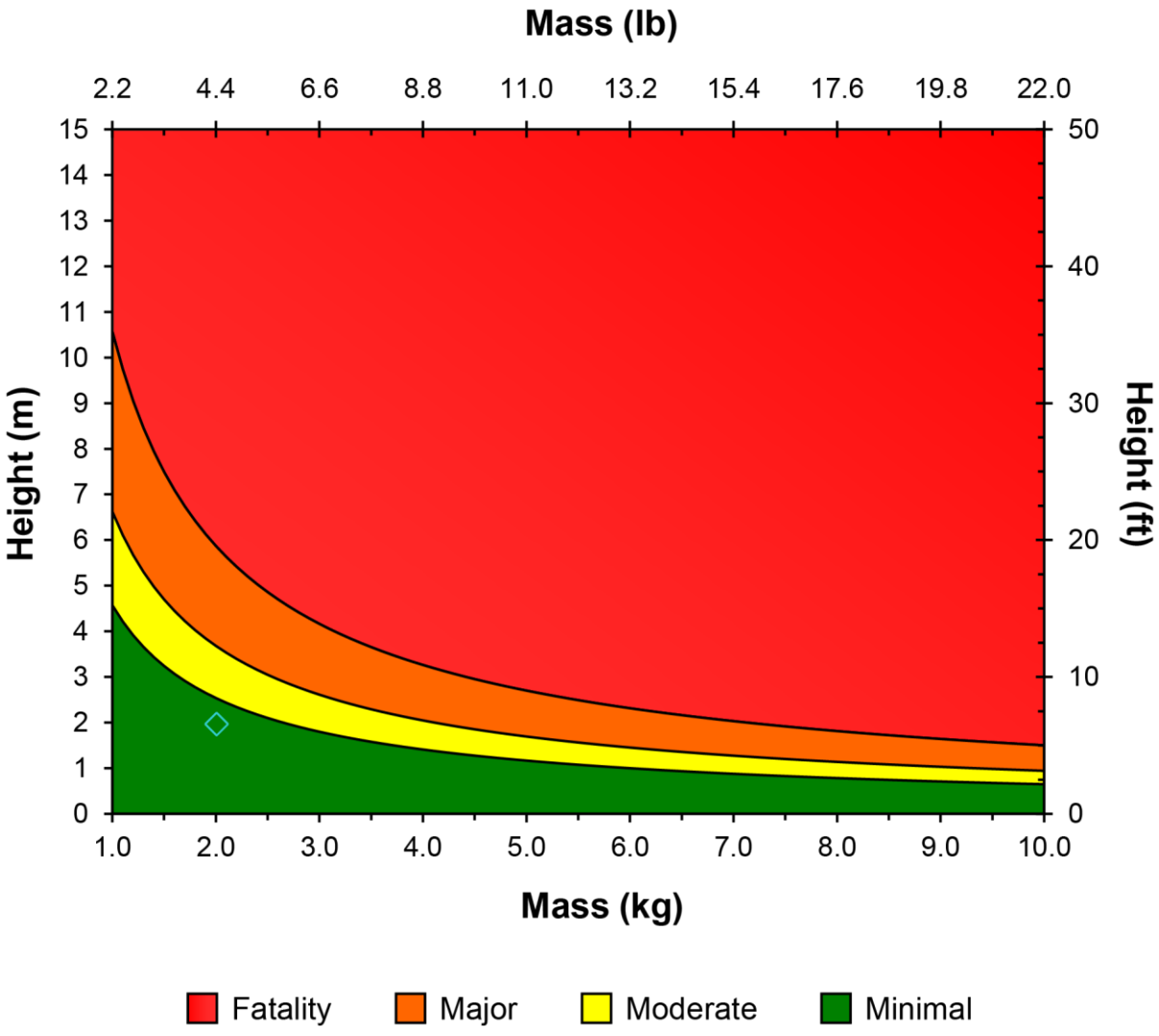
14.4 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to working at height with a potential for dropped objects
- Confirm that:
  - Activities are carried out in accordance with the work control documentation
    - Safe Method of Working or RAMS
    - Work Control Permit, if required; and
    - Clearance Certificate
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:

- Clearance Certificate; and
- Work Control Permit (WCP) when required

Appendix A – Dropped Objects Hazard Assessment Tool



Definitions:

Major	Injury resulting in fatality or permanent/long-term disability (e.g., amputation, paralysis, loss of motor skills, lost time, etc.).
Moderate	Injury affecting work performance on a limited or longer-term basis (e.g., medical treatment, restricted work, chronic back injury, etc.).
Minimal	Injury not affecting work performance (e.g., minor first aid injury).

15. Working Near Overhead Powerlines (IMS-08.01.5-15)

15.1 Intent

This section is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a MFG Petrol Filling Station, that includes a requirement to perform work in close proximity to overhead powerlines. This guidance specifically details expectations regarding **Working in Close Proximity to Overhead Powerlines**.

15.2 Hazard Assessment

Prior to starting work near overhead powerlines (**OHPL**) Contractors (i.e., Site Manager or Job Supervisor) will perform a hazard assessment at the work site to, the assessment will involve:

- Identifying the site specific:
  - Hazards; and
  - Associated risk reduction measures (i.e., controls)
- Determining the maximum height and maximum vertical reach of machinery being used
  - Obtaining advice from the Distribution Network Operator (**DNO**) and/or National Grid on:
    - Line heights
    - Minimum vertical clearance distances
    - Operating voltages (i.e., High, or Low); and
    - Risk reduction measures (i.e., controls) recommended

    Note 15.2.2: The Distribution Network Operator will arrange for the height of the overhead powerlines to be confirmed.
  - Identifying the routes of all overhead powerlines, which will be marked on a site plan
  - Confirming the maximum working heights permitted under each span of the overhead powerlines on the site, and next to any structures
  - Recording relevant information on a site plan, which can then be used as a reference when:
    - Assessing risks
    - Planning work
    - Instructing Machine Operators and Contractors; and
    - Planning access routes

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment and Method Statement (**RAMS**) that include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls (e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely, including safe use of the Portable Ladders

Note 15.2.3: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

Note 15.2.4: The Safe Method of Working will include safe limits of approach distances to overhead powerlines, and risk reduction measures (i.e., controls) to be implemented and maintained during work activities.

15.3 Risk Reduction Measures

Contractors (i.e., Job Supervisor) will identify the risk reduction measures (i.e., controls) necessary to allow the work beneath overhead powerlines to proceed safely, such measures may include but are not limited to:

- Communicating with the relevant Distribution Network Operator to confirm:
  - Operating voltage of the line; and confirm
  - Safe limits of approach distances
- Obtaining support and guidance from the Distribution Network Operator if work is to be performed at a distance that is less than those specified

  Note 15.3.1: If the work must be performed at a distance that is less than specified, the Distribution Network Operator should be contacted and requested to disconnect or relocate the line if possible.
- Instructing the Job Crew as applicable to:
  - Always monitor overhead clearances, taking time to examine the hazard
  - Prior to using equipment, develop a Safety Plan to prevent contact with lines
  - Take extra care and precautions
  - Continuously check the height of equipment or loads
  - Plan moves which avoid passing under powerlines wherever possible
  - Check for uneven ground that may cause a vehicle to contact an overhead powerline
  - Consider wind and temperature; they may affect the height of the overhead powerline
  - Never ride or climb on equipment or a load when near an overhead powerline
  - Only work near overhead powerlines during daylight hours
  - **Not**:
    - Ground equipment in close proximity to an overhead powerline
    - Allow equipment or objects to approach the overhead powerline closer than the specified safe limit of approach; or
    - Place materials under, or adjacent to, overhead powerline if it reduces the clearance above ground required to an unacceptable level (e.g., regulated distances)

      Note 15.3.2: Contact the Distribution Network Operator for assistance to determine the required clearance between overhead powerlines and the ground.
    - Do not lift an overhead powerline to allow a load to pass underneath

      Note 15.3.3: Contact the Distribution Network Operator and request assistance.
  - Use a trained **Spotter** (i.e., Bankman) as an observer to ensure that the required distance is maintained and communicated by radio or air horn if work is being conducted near the safe limit of approach
  - Keep all personnel away from mobile equipment (e.g., crane, excavator, mobile elevated work platform, etc.) whenever they are close to powerlines; and
  - Prohibit persons from touching mobile equipment (e.g., crane, excavator, mobile elevated work platform, etc.) or its load until the Spotter indicates that it is safe to do so
- If mobile equipment is to pass under an overhead powerline at a point where a roadway does not exist, flagging will be installed indicating:
  - Minimum distances; and

  - Suitable warning notices should be placed on both sides of the powerline's right-of-way
- Do not allow excavations that may impact the support required for power poles:
  - Contact the Distribution Network Operator to determine support requirements; and
  - Request line locates in case of grounding girds buried at the base of power poles

  Note 15.3.4: A grounding grid is a network of interconnected conductors buried in the earth to provide a low-resistance path for electrical currents to safely dissipate into the ground. These grids are designed to handle fault currents, lightning strikes, and other transient over voltages by directing them away from equipment and personnel.
- Maintaining a safe working distance between the equipment and overhead powerlines; and

Personnel are reminded that electricity is an invisible hazard with the potential to cause significant harm to people (including fatal injuries) and equipment. If in doubt **STOP WORK** and contact the Risk & Compliance Manager or HSE Manager for additional clarification or guidance.

15.4 Preventing Overhead Powerline Incidents

15.4.1 General

The guidance contained in this Section of the Procedure is based on Health and Safety Executive Guidance Note (GS6) Fourth Edition **Avoiding Danger from Overhead Powerlines.**

Contractors will ensure effective management, planning, and consultation with interested parties, prior to and during any work in close proximity to overhead powerlines to reduce the risk of incidents.

Note 15.4.1: Risks must be effectively eliminated or managed for all work activities within 10 metres, measured at ground level horizontally from below the nearest overhead powerline.

15.4.2 Removing the Risk

Where practical the most effective way to prevent contacting overhead powerlines is by not conducting work where there is a risk of contact with, or close approach to, the lines. However, if such work cannot be avoided the following should be considered:

- Contact the Distribution Network Operator to determine if the overhead powerline can be diverted away from the work area or replaced with underground cables

  Note 15.4.2.1: This is likely to be unacceptable for infrequent or short-duration work.
- If permanent diversion is not possible, determine if the overhead powerline can be temporarily isolated (i.e., switched off) while the work is being done

  Note 15.4.2: The Distribution Network Operator will need time to consider and act upon these types of requests and may charge for any work done.

15.4.3 Risk Control

If overhead powerlines cannot be diverted or isolated, and there is no alternative to conducting work in close proximity to the lines a site-specific risk assessment should be carried out to determine if risks can be sufficiently controlled to allow the work to proceed. If the risk assessment identifies that the risks cannot be sufficiently controlled the work will not be carried out.

The site-specific risk assessment should consider and address as applicable the following:

- The voltage and height above ground of the wires

  Note 15.4.3.1: The height should be measured by a suitably trained person, using non-contact measuring devices.
- Nature of the work and whether it will be conducted close to or underneath the overhead line, including whether access is needed underneath the wires
- Size and reach of any machinery or equipment to be used near the overhead line

- Safe clearance distance needed between the wires and the machinery or equipment, and any structures being erected

  Note 15.4.3.2: The Distribution Network Operator will provide advice on safe clearance distances on request.
- Site conditions (e.g., uneven ground or prevailing weather conditions may affect the stability of mobile equipment)
- Competence, supervision and training of the Job Crew and others present at the site
- Schedule work activities accordingly if overhead powerlines can only be isolated for a short time period; and
- Do not store or stack items so close to overhead powerlines that the safety clearances can be infringed by people standing on them

15.4.4 Working Near But Not Beneath Overhead Powerlines

When work is required near but not underneath overhead powerlines those performing the work will:

- Erect barriers at ground level to establish a safety zone and prevent unauthorised access, for example:
  - Heras's fencing
  - Danger tape
  - Warning tape; and
  - Suitable signage and flagging
- Ensure barriers can be seen at night, for example:
  - Lighting
  - Fluorescent paint; or
  - Reflective strips
- Not store materials or mobile equipment in the designated hazard zone
- Extend the safety zone 6 metres horizontally from the nearest line on either side of the overhead powerline

  Note 15.4.4.1: It may be necessary to extend the width of the safety zoner based on the advice of the Distribution Network Operator, and/or to allow for the possibility of a crane jib or other moving part encroaching into the zone.
- Erect additional high-level indication where mobile equipment (e.g., crane or excavator) is being used in the area, for example a line of coloured plastic flags or bunting mounted 3–6 metres above ground level over the barriers

  Note 15.4.4.2: Take care when erecting bunting and flags to avoid contact or approaching near the overhead powerlines.

15.4.5 Passing Underneath Overhead Powerlines

If mobile equipment (e.g., crane or excavator) capable of exceeding the safety clearance is required to pass under overhead powerlines those performing the work will:

- Create a safe passageway through the safety zone barriers to allow mobile equipment to move safely beneath the lines
- Keep the number of passageways to a minimum
- Define the route of the passageway, for example using:
  - Fencing
  - Warning Tape; and/or
  - Goalposts, these should function as gateways and be constructed or rigid, non-conducting materials

- Ensure the surface of the passageway is level and well maintained to prevent undue tilting or bouncing of the mobile equipment
- Erect warning notices at either side of the passageway, on or near the goalposts, and on the approaches to the crossing that provide instructions regarding:
  - The crossbar clearance height; and
  - Instruction to lower jibs, booms, and tipper bodies, and the need to keep below this height while passing beneath the lines
- Install illumination as necessary to ensure passages and goalposts remain visible; and
- Ensure that barriers and goalposts are properly maintained

15.4.6 Working Underneath Overhead Powerlines

If work must be conducted close to or underneath overhead powerlines, those performing the work will:

- Perform a risk assessment including consideration of any situations that could lead to danger from the overhead powerlines, for example consider:
  - If a worker needs to stand on top of mobile equipment or scaffold platform and lift a long item above their head; or
  - If the combined height of a load on a low lorry breaches the safe clearance distance

    Note 15.4.6.1: If this type of situation could exist, additional risk control measures should be identified and effectively implemented.
- Carefully evaluate the risks and associated risk reduction measures if transitory or short-duration, ground-level work cannot be avoided, and there is a risk of contact from, for example, the upward movement of cranes or tipper trailers or people carrying tools and equipment:
  - Determine if the overhead powerline can be isolated for the duration of the work
  - If this cannot be done:
    - See the Energy Networks Association (ENA) Publication Look Out Look Up! A Guide to the Safe Use of Mechanical Plant in the Vicinity of Electricity Overhead Lines
    - The guidance advises establishing exclusion zones around the overhead powerline and any other equipment that may be fitted to the pole or pylon

      Note 15.4.6.2: The minimum extent of these zones varies according to the voltage of the line, as follows:
      - Low-voltage line: **1 metre**
      - 11 kV and 33 kV lines: **3 metres**
      - 132 kV line: **6 metres**; and
      - 275 kV and 400 kV lines: **7 metres**
    - Under no circumstances should part of mobile equipment or equipment such as ladders, poles and hand tools be able to encroach within these zones
    - Carry long objects horizontally and close to the ground and position mobile equipment so that no part can reach into the exclusion zone, even when fully extended.
    - Ensure that workers and other affected personnel understand the risks and are provided with instructions about risk reduction measures (i.e., control); and
    - Work will be Supervised by an individual or team who are familiar with the risks and can make sure that the required safety precautions are observed

15.5 Emergency Response Procedures

To avoid contact with an overhead powerline (e.g., by an individual or item of equipment) those involved in the work should be aware of the actions to be taken to reduce the risk of sustaining an electric shock or burn injuries. The information they should be aware of includes:

- Never touch overhead powerlines
- Assume that the lives are live, even if they are not arcing or sparking, or if they appear otherwise dead
- Remember that, even if lines are dead, they may be switched back on either automatically after a few seconds or remotely after a few minutes or even hours if the Distribution Network Operator is not aware that their line has been damaged
- If a contact with an overhead powerline occurs, call the emergency services, and provide relevant information, for example:
    - The location
    - Details of what has happened; and
    - That overhead powerlines were involved

      Note 15.5.1: Ask the Emergency Services to contact the Distribution Network Operator.
- If in contact with, or close to, a damaged overhead powerline:
    - Move away as quickly as possible; and
    - Stay away until the Distribution Network Operator confirms that the situation has been made safe
- If a vehicle contacts overhead powerlines, the Operator should take the following actions:
    - Do not get out of the vehicle, unless personal safety will be compromised by remaining in the vehicle (e.g., fire)
    - If it is unsafe to stay in the vehicle (e.g., fire):
        - To jump out, as far away as possible from the vehicle, land with both feet together
        - Proceed away from the vehicle to a safe distance
    - Do not:
        - Touch the vehicle while standing on the ground; or
        - Return to the vehicle until it has been confirmed that it is safe to do so

Note 15.5.2: Remain aware that if a live wire is touching the ground the area around it may be live. Keep a safe distance away from the wire or anything it may be touching and keep others away.

15.6 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to working in close proximity to overhead power
- Confirm that:
    - Activities are carried out in accordance with the work control documentation:
        - Safe Method of Working or RAMS
        - Work Control Permit, when required; and
        - Clearance Certificate
    - Any required field checks are performed and recorded
- On completion of the work activities:
    - Confirm and verify:
        - All waste and/or excess materials are removed from the work site
        - All handheld tools are removed and stored securely
        - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
        - The work site is left in a safe condition
    - Sign-off the relevant work control documents, for example:
        - Clearance Certificate; and
        - Work Control Permit, when required

16. SITE SET-UP (MAJOR PROJECTS) (IMS-08.01.5-16)

16.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to set-up site for major project work, which has been identified as potentially involving significant risk (**Major Works**).This guidance document specifically details expectations regarding the **Site Set-Up (Major Projects)**.

16.2 HAZARD CONTROL

Contractors (i.e., Site Manager or Job Supervisor) will carry out a work site hazard inspection and determine the risk reduction measures (i.e., controls) required when work related to site set-up is identified. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Working at height
  - Access and egress
  - Equipment to be used
  - Mechanical lifting; and
  - Potential for dropped objects
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 16.3.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment and Method Statement (**RAMS**) that include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely, including safe use of the equipment and tools required for the work

Note 16.3.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

16.3 SITE SET-UP (MAJOR PROJECTS)

16.3.1 ARRIVAL AT SITE

Contractors (i.e., Site Manager or Job Supervisor) will:

- Ensure that the required:

  - Personal Protective Equipment (PPE) is available to, and worn correctly by the Job Crew
  - Equipment is available and assigned to trained and competent personnel; and
  - Equipment and training certificates are reviewed and validated
- Confirm the following work control documentation is available:
  - Safe Method of Working (supported by Clearance Certificate) or RAMS
  - Work Control Permit (WCP) when required; and
  - Clearance Certificate
- Review the content of the work control documentation, for example:
  - Safe Method of Working (supported by Clearance Certificate) or RAMS
  - Work Control Permit, when required; and
  - Clearance Certificate; with the Job Crew to ensure mutual understanding
- Assign duties to the Job Crew based on skills, training, and experience; and
- Coordinate activities related to deliveries, for example:
  - Traffic management
  - Site sign-in; and
  - Unloading expectations and requirements

16.3.2 Atmospheric Monitoring (Gas Testing)

Contractors (i.e., Job Supervisor) will assign an trained and competent person Authorised Person (Gas Tester) duties, when gas testing is identified as a risk reduction measure in the Safe Method of Working or RAMS following site inspection.

Note 16.3.2.1: Gas testing will be required if potential ignition sources (e.g., hot work or use of mobile motorised equipment) are likely to be present within a designated Hazardous Zone (i.e., DSEAR).

Thee Authorised Person will, using a calibrated gas detection instrument:

- Conducts tests for:
  - Oxygen
  - Flammable Vapour
  - Hydrogen Sulphide
  - Carbon Monoxide; and
  - Other Identified Vapours of Concern (Where Applicable)
- Confirm test reading are within the specified limits:
  - Oxygen: **19.5% to 23.0%**
  - Flammable Vapour: Less Than **5% LEL (<5% LEL)**
  - Hydrogen Sulphide: Less Than **10 ppm (<10 ppm H2S)**
  - Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO)**; and
  - Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)
- Accurately record gas testing readings (e.g., Clearance Certificate or Gas Testing Log Sheet)

16.4 Welfare Cabin & Storage Units

Contractor (i.e., Job Supervisor and Job Crew) will:

- Perform pre-task hazard assessment to:
  - Confirm risk reduction measures (i.e., controls) identified in Safe Method of Working or RAMS are implemented
  - Identify any new or additional site-specific hazards; and

- Determine and implement any additional risk reduction measures (i.e., controls) needed to allow the work to proceed safely

- Ensure that mechanical lifting activities are properly controlled and supervised, for example
  - Lift Plan to be agreed and documented with Competent Person (Crane or Hiab Operator)
  - Crane or Hiab Operator to be certified as Competent
  - Lifting equipment to be certified as within test
  - Outriggers to be used where required
  - Lift area to be clear of people, equipment, and materials; and
  - Banksman (e.g., Spotter) to communicate with Crane/Hiab Operator throughout lift
- Ensure that manual handling activities performed during this phase of the work are:
  - Assessed, including route of travel, and size and shape of the load
  - Performed using:
    - Lifting aids if identified as necessary; and
    - Proper kinetic handling techniques
- Secure the office, welfare cabin and storage unit(s) in the designated location(s)

  Note 16.4.1: Competent personnel to connect services to these facilities, as appropriate.
- Inspect the work site remove and stow items of equipment and/or debris

16.5 Site Security

16.5.1 Site Office, Welfare Cabin & Storage Units

Contractors (i.e., Job Supervisor and Job Crew) will:

- Install security fencing (i.e. Haras anti-climb fencing) around the:
  - Site office
  - Welfare cabin; and
  - Storage units

  Note 16.5.1.1: Refer to Health & Safety Executive Guidance Document; **HSG 151 The Site Perimeter and Other Boundaries**, for guidance and address within RAMS.
- Ensure that manual handling activities performed during this phase of the work task are:
  - Assessed, including route of travel, and size and shape of the load
  - Performed using:
    - Lifting aid if identified as necessary; and/or
    - Proper kinetic handling techniques, including two person lifting where necessary
- Take precautions against:
  - Vehicle and pedestrian access and egress
  - Sharp edges; and
  - Slip, trip, and fall hazards (e.g., uneven surfaces) in the work site(s)
- Ensure that the security fencing is:
  - Stabilised / supported
  - Secured using the correct types of securing devices
  - Provided with correctly installed and suitable access panels (i.e., gate); and
  - Installed correctly and secure
- Post warning notices on the fencing, including relevant Work Site Health and Safety Information

16.5.2 Designated Work Areas (Forecourt or Infrastructure)

Contractors (i.e., Job Supervisors and Job Crew) will:

- Prepare to install security fencing (i.e., Haras anti-climb fencing) to define and secure work areas
- Perform pre-task hazard assessment(s) to:
  - Confirm risk reduction measures (i.e., controls) identified in Safe Method of Working or RAMS are implemented
  - Identify any new or additional site-specific hazards; and
  - Determine and implement any additional risk reduction measures (i.e., controls) needed
- Install Haras Fencing to secure work areas:
  - Ensure any manual handling activities performed during this phase of the task, are:
  - Assessed, including route of travel and weight to be lifted
  - Performed using:
    - Lifting aid if identified as necessary; and
    - Proper kinetic handling techniques, including two persons lifting where necessary
- Take precautions against:
  - Site vehicle and pedestrian access and egress
  - Sharp edges; and
  - Slip, trip, and fall hazards (e.g., uneven surfaces) in the work site
- Ensure that the security fencing is:
  - Stabilised / supported
  - Secured using the correct types of securing devices
  - Provided with correctly installed and suitable access panels (i.e., gate); and
  - Installed correctly and secure
- Post warning notices on the fencing, including relevant Health and Safety Information

16.6 Housekeeping & Security Inspections

Contractors (i.e., Job Supervisor and Job Crew) will Inspect the work sites confirm removal of:

- All equipment and tools
- Spare fittings and fixtures
- Materials
- Waste; and
- Other potential housekeeping hazards

Contractor (i.e., Job Supervisor) will inspect the welfare facilities and work site to confirm:

- Proper installation and security of:
  - Office
  - Welfare Facilities; and
  - Storage Units
- Proper installation and security of:
  - Security fencing
  - Fencing access panels; and
  - Notices
- Removal and safe stowage of:
  - All equipment and tools
  - Spare fittings and fixtures

- Materials
- Waste; and
- Other potential housekeeping hazards

16.7 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to site set-up
- Confirm that:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks are performed and recorded
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit, when required

17. Locating Underground Services (IMS-08.01.5-17)

17.1 Intent

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to locate underground services before commencing breaking ground activities (e.g., excavations and trenches) that have been identified as potentially involving significant risk (**Major Works**).This guidance document specifically details expectations regarding the **Locating Underground Services**.

17.2 General Requirements

17.2.1 Locating Underground Services

Regardless of whether breaking ground activities are to take place on public or private land, applicable legal obligations require the location of all buried services and facilities to be identified and marked, prior to groundbreaking activities taking place. The designated MFG Representative will be assigned specific responsibilities relating to the planning of excavations and trenches, including the identification of buried facilities.

Note 17.2.1.1: For the purpose of this procedure the role of designated MFG Representative may be assigned to:

- An MFG Employee
- Principal Contractor
- Principal Contractor; and/or
- Subject Matter Expert (SME)

17.2.2 Obtaining Information on Services

Prior to work involving breaking ground taking place the designated MFG Representative will ensure that relevant information regarding underground services and installations is obtained and accurately recorded, specifically they will, as applicable:

- Obtain plans or other suitable information about underground services or installations in the area
- Consult owners of the underground services or installations to obtain relevant information, for example:
  - Use
  - Status
  - Capacity and
  - Location
- Ensure owners provide either up to date:
  - Readable plans, which show the recorded line and depth (where known) of all their known services buried in the proposed work area; or
  - Other suitable information which achieves the same aim
- Contract the relevant body or organisation to determine, or confirm, the presence of underground services or installations, for example:
  - Distribution Network Operator (DNO)
  - Public Gas Transporters (PGTs)
  - Telecommunication Companies; and
  - Local Authority or Government Agency

  Note 17.2.2.1: There are several **One-Call** services available that can simplify the process of identifying who may have underground services or installations in the work area and can arrange for copies of plans and service records to be provided.

- Review site drawing to identify underground services or installations, for example:
  - Electrical cables
  - Communication cables; and
  - Service pipelines
- Ensure underground services or installations are determined, documented, and clearly identified
- If it is not possible to obtain relevant information, for example when emergency work must be undertaken, any work must be carried out as though there are underground services in the area
- Overhead hazards should be removed or supported to eliminate hazards to personnel

  Note 17.2.2.2: Where it is not possible to remove or support overhead hazards, arrangements should be put into place to either barricade or install warning notices in the work area beneath.
- Information related to underground services or installation should be shared between affected parties, and applicable legal obligations or other requirements (e.g., stakeholder) complied with

17.2.3 Service Identification Survey

The level of survey required will depend on the nature of the work site, specifically congested locations will require a more detailed survey than some brown and green field sites. The decisions as to the type of survey required should be determined by an assessment of the likelihood of underground services or installations being present, based on the information obtained.

Requirements regarding the performance of site surveys will include but may not be limited to:

- Those doing the survey need to have sufficient knowledge and experience in the use of survey equipment and techniques, specifically they should understand and appreciate:
  - The limitations of the equipment
  - The effect of differing ground conditions on the survey results
  - How to survey a given area effectively; and
  - The limitations of plans and drawings provided by the service owners
- Those selecting detection tools and survey methods should understand the range of methods and tools and their limitations, specifically they need to be aware of the potential for false readings or signals in certain techniques as they may lead to inaccurate information being included in the plan of work
- The results of the survey should be:
  - Recorded in a usable format on working drawings issued to those working on the site; and
  - Where possible, marked out on site
- The position of any services or installations in or near the proposed work area, should be pinpointed as accurately as possible using a detecting device in conjunction with:
  - Up-to-date service plans; and
  - Information which provides a guide to the possible location of services or installations, and helps to interpret the signal
- Taking account of any indications that underground services exist, for example the presence of:
  - Lamp posts
  - Illuminated traffic signs
  - Gas service pipes entering buildings
  - Pipeline marker posts; and
  - Evidence of reinstated trenches

17.2.4 Detection Devices & Locators

The main types available can be classed as follows:

- **Hum Detectors:**

  Instruments that detect the magnetic field radiated by electricity cables which have a current flowing through them. They do not respond to:
  - Cables where there is little or no current flowing, for example, service connection cables to unoccupied premises or street lighting cables in the daytime
  - Direct current cables
  - some well-balanced high-voltage cables, where these generate relatively little field (which in turn may be further screened by the cable sheathing); and/or
  - Pot-ended cables
- **Radio Frequency Detectors:**

  Instruments that respond to low-frequency radio signals, which may be picked up and re-emitted by long metallic pipes and cables.
- **Transmitter / Receiver Instruments:**

  A small portable transmitter or signal generator can be connected to a cable or pipe or placed very close to it so that the signal is introduced into it. The receiver, typically the same radio frequency detectors identified above, can then detect this signal.
- **Metal Detectors:**

  Conventional detectors, which will usually locate flat metal covers, joint boxes etc., but may well miss round cables or pipes.
- **Ground Probing Radar:**

  A system capable of detecting anomalies in the ground. When these anomalies can be plotted into a continuous line it may indicate a cable, duct, or pipe. However, this technique alone would not determine the precise nature of the service, and it should be supported by information available about the services present and also, preferably, by the use of other more conventional forms of detecting device.
- **Radio Frequency Identification (RFID):**

  A system used to mark or **tag** new services. These markers can be Programmed with information about the particular service and its depth, and this information can be read by detecting devices.

17.2.5 Using Detecting Devices

The accuracy of the information obtained by detecting devices is dependent on a range of factors, for example:

- Training, skill, hearing, and experience of the Operator
- Characteristics of the device being used
- Calibration and reliability of the detecting device
- Type, length, and depth of the service
- For cables, the magnitude of the current being carried
- Effects of other nearby services
- Nature of the:
  - Surface conditions, (e.g., reinforced concrete); and
  - Ground conditions
- Whether or not a signal generator is being used

Those assigned responsibility to use a detection device should:

- Have received appropriate training in its use and limitations
- Use detection devices in accordance with the manufacturer's instructions
- Inspect and calibrate the device regularly; and

- Maintain the device in good working order

17.3 HAZARD CONTROL

Contractors (i.e., Site Manager or Job Supervisor) will carry out a work site hazard inspection and determine the risk reduction measures (i.e., controls) required when work related to locating underground services site is identified. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Breaking ground (i.e., excavation and trenching)
  - Identification of underground services, for example:
    - Electrical
    - Water
    - Gas; and
    - Communication
  - Access and egress
  - Mechanical plant to be used, for example:
    - 360 Excavator
    - Dumper truck; and
    - Roller / Compactor
  - Mechanical equipment to be used, for example:
    - Handheld mechanical breaker
    - Stihl saw
    - Cable Avoidance Tool (CAT); and
    - Genny (i.e., Signal Generator)
  - Hand tools, including access ladders
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 17.3.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working (supported by a Clearance Certificate) or Risk Assessment and Method Statement (**RAMS**) that include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely, including safe use of the equipment and tools required for the work

Note 17.3.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

17.4 Preparing to Locate Underground Services Prior to Breaking Ground

Contractors (i.e., Job Supervisor) will:

- Review current Site Survey Drawings and other site-specific drawings, to identify the potential location of any underground services, for example:
  - Electric cables
  - Fuel lines
  - Gas lines
  - Water lines; and
  - Communication lines
- Refer to the Construction Drawing (i.e., Site Layout) to identify the location of the breaking ground activities (i.e., excavations and trenches)
- Confirm that a **Line Search Before U Dig** has been completed (**https://lsbud.co.uk/**)

  Note 17.4.1: If unable to confirm information regarding underground services has been obtained, the Contractor will not proceed with the work. Contact will be made with the designated MFG Representative and/or Risk Compliance Manager to request guidance or further instructions.
- Review the Risk Assessment and Method Statement (**RAMS**) for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit, when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit (when required) and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method or Working or RAMS
  - Work Control Permit; and
  - Clearance Certificate
- Verify that the:
  - Risk reduction measures (i.e. controls) regarding underground services locating activities have been implemented; and
  - Inspection and test equipment (e.g., CAT, Signal Generator, etc.) is available for use, and suitably calibrated
- Supervise the Job Crew while they:
  - Identify the proposed location of breaking ground activities (i.e., the work site)
  - Clearly mark the location, for example:
    - Paint, flags, string; and/or
    - Other suitable means
  - Identify the location of potential underground services in the work site, specifically:
    - Carry out a visual inspection of the work site; and
    - Use drawings and information to identify locations and routes of any known underground services
  - Clearly mark the location and routes of underground services, for example:

        - Paint, flags, string; and/or
        - Other suitable means
- Confirm that all known underground services are clearly identified in the work site

17.5 Locating Underground Services

Contractors (i.e., Competent Person) will:

- Carry out a physical inspection of the work site using a suitably calibrated detection device for example:
    - Cable Avoidance Tool (CAT Scanner) or Signal Generator (Genny); and
    - Ground Penetrating Radar (GPR)
- Scan along the route of travel and within 500 mm either side of the centre line
- Perform sufficient inspections and tests (scans) to determine the actual location and route of known underground services
- Ensure that the actual location of all known underground services within the work site are:
    - Identified
    - Marked on the surface; and
    - Identified on the Site Survey Drawing if different to the marked location and route
- Where unknown underground services are identified:
    - Perform sufficient inspections and tests (scans) to determine the actual location and route of unknown underground services
    - Mark the location and route of the unknown underground service on the surface; and
    - Record the location and route of unknown underground service on the Site Survey Drawing

Contractors (i.e., Job Supervisor) will:

- Review the findings of the inspection and test (scans results) with the Competent Person
- Confirm mutual understanding of the scan results
- Notify the designated MFG Representative of the following:
    - Failure to locate known underground services as indicated on relevant drawings
    - Discrepancies regarding the location and route of known underground services; and
    - The location and route of unknown (not marked on site drawings) underground services
- Where unknown underground services have been identified confirm:
    - Sufficient inspections and tests (scans) have been performed to determine:
        - The actual location; and
        - Route of unknown underground services
    - The location and routes of the unknown underground service are:
        - Marked on the surface; and
        - Clearly identified the relevant site drawings (e.g., Site Survey Drawing)

Note 17.5.1: Contractors will notify the Principal Designer (i.e., CDM Projects) of the following findings:

- Failure to locate known underground services as indicated on relevant drawings
- Discrepancies regarding the location and route of known underground services; and
- The location and route of unknown (not marked on site drawings) underground services

The Principal Designer will ensure appropriate action is taken in response to these concerns.

17.6 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Monitor work activities related to locating underground services prior to performing braking ground activities
- Confirm that:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks (e.g., surveys and alignment, etc.) are performed and recorded
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit, when required

18. BREAKING GROUND: EXCAVATIONS & TRENCHING (IMS-08.01.5-18)

18.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to break ground (i.e., excavations and trenching) that has been identified as potentially involving significant risk (**Major Works**). This guidance document specifically details expectations regarding **Breaking Ground**.

18.2 HAZARD ASSESSMENT

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when breaking ground (i.e., excavation and trenching). Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Breaking ground (i.e., excavation and trenching)
  - Identification of underground services, for example:
    - Electrical
    - Water
    - Gas; and
    - Communication
  - Access and egress
  - Mechanical plant to be used, for example:
    - 360 Excavator
    - Dumper Truck; and
    - Roller / Compactor
  - Mechanical equipment to be used, for example:
    - Handheld mechanical breaker
    - Stihl saw
    - Cable Avoidance Tool (CAT); and
    - Genny (i.e., Signal Generator)
  - Hand tools, including access ladders
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 18.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cable**s the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Duration of the work
- Condition and stability of existing structures and surfaces, including ground conditions

  Note 18.2.2: Excavations adjacent to structures must be planned or reviewed by a qualified Professional Engineer (PE) before work begins.
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors will formally record the assessment findings as part of the task-specific Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls (e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely

Note 18.2.1: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

18.3 Preparing to Break Ground

The Contractor (i.e., Job Supervisor) will:

- Review current Site Survey Drawings and other site-specific drawings, to identify the potential location of any underground services, for example:
  - Electric cables
  - Fuel lines
  - Gas lines
  - Water lines; and
  - Communication lines
- Refer to the Construction Drawing (i.e., Site Layout) to identify the location of the breaking ground activities (i.e., excavations and trenches)
- Confirm that a **Line Search Before U Dig** has been completed (**https://lsbud.co.uk/**)

  Note 18.3.1: If unable to confirm information regarding underground services has been obtained, the Contractor will not proceed with the work. Contact will be made with the designated MFG Representative and/or HSE Manager to requires guidance or further instructions.
- Review the Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit (**WCP**) when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit (when required) and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working ore RAMS
  - Work Control Permit, when required; and
  - Clearance Certificate
- Verify that the:
  - Risk reduction measures (i.e. controls) regarding breaking ground, including locating underground services are implemented; and
  - Mobile plant and equipment being used is properly inspected, certified as fit for purpose, including testing equipment (e.g., CAT, Signal Generator, etc.) and is available for use

- Perform a risk assessment to determine if atmospheric monitoring (i.e., gas testing) required at the work site

  Note 18.3.2: Gas testing mandatory if mechanical plant or equipment capable of producing an ignition source is used in a Classified Hazardous Area (DSEAR).

  Note 18.3.3: Gas testing will be performed by an Authorised Person to confirm the work site is within acceptable tolerances for potentially hazardous atmospheres, see below:
  - Oxygen: **19.5% to 23.0%**
  - Flammable Vapour: Less Than 5% LEL **(<5% LEL**)
  - Hydrogen Sulphide: Less Than 10 ppm **(<10 ppm H^2S**)
  - Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO**); and
  - Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)
- Confirm that underground services have been located and clearly marked

18.4 Breaking Ground

18.4.1 Preparing to Break Ground

Contractors (i.e., Job Supervisor) will confirm the:

- Location of all:
  - Required excavations have been identified and clearly marked on the surface; and
  - Underground services have been identified and clearly marked on the surface

  Note 18.4.1.1: See Construction Drawings (e.g., Site Layout) and Survey Reports to identify the location, configuration, and size of the excavations required and routes of underground services.
- Equipment to be used for breaking ground activities is inspected and confirmed fit for purpose, for example:
  - Excavator
  - Mechanical Breaker (i.e., Excavator and Picker)
  - Handheld Mechanical Breaker
  - Stihl Saw; and
  - Insulated Spade
- Plant and equipment Operators are trained and competent to perform their assigned duties
- Risk control measures identified for the breaking ground activities have been implemented or will be implemented prior to breaking ground
- All pre-work activities have been completed; and
- Job Crew is ready in all aspects to proceed with the work

18.4.2 Excavations (Concrete & Tarmac Surfaces)

Contractors (i.e., Job Supervisor and Job Crew) will:

- Confirm that access into the work site is restricted and effectively controlled
- Use a mechanical breaker (i.e., picker) for the initial breaking ground activities, taking care to ensure that the breaker is:
  - Compatible with the excavator's (i.e., carrier's) hydraulic system
  - Correctly mounted to the excavator and secured; and
  - Used in accordance with manufacturer's instructions
- Where necessary:
  - Use a Banksman (i.e., Spotter) to assist the Excavator Operator

  - Spray the surface of the work site water to reduce the dust hazard, as necessary; and
  - Use a handheld mechanical breaker fitted with a sharp cutting tool, to score the edges of the area to be broken up by the boom mounted breaker
- Systematically break the surface covering, taking care to avoid damage to areas beyond the boundary of the required excavation
- **NOT** use a boom mounted breaker within **500mm** of identified and marked underground services

  Note: 18.4.2.1: Where known and identified underground services are present within the area in that breaking ground is taking place a handheld mechanical breaker must be used to break the surface:
  - Operator to wear suitable gloves, goggles, hearing protection and dusk mask
  - Water spray to be used to control dust hazard; and
  - Horizontal cutting technique using the handheld breaker must be adopted to avoid striking or severing underground services
- Carefully remove broken concrete or tarmac from the surface using an excavator or hand tools, avoid penetrating the compacted surface beneath the concrete
- Store broken concrete or tarmac in a pre-designated location within the work site; or waste skip for off-site disposal

18.4.3 Trenches (Concrete & Tarmac Surfaces)

Contractors (i.e., Job Supervisor and Job Crew) will:

- Confirm that access into the work site is restricted and effectively controlled
- Use a disk cutter (i.e., Stihl Saw) to cut the boundaries of the trench:
  - Tool Operator to wear suitable gloves, goggles, hearing protection, and dusk mask; and
  - Water spray to be used to control dust hazard
- Following marking the boundaries of the trench a held mechanical breaker can be used to break out the surface concrete or tarmac:
  - Tool Operator to wear suitable gloves, goggles, hearing protection, and dusk mask; and
  - Water spray to be used to control dust hazard
- Break up the surface concrete or tarmac within the boundaries of the trench, taking care to avoid damage to areas beyond the boundaries of the trench
- **NOT** cut vertically down with the breaker within **500mm** of known underground services:

  Note: 18.4.3.1: Where known and identified underground services are present within the area in that breaking ground is taking place a handheld mechanical breaker must be used to break the surface:
  - Operator to wear suitable gloves, goggles, hearing protection, and dusk mask
  - Water spray to be used to control dust hazard; and
  - Horizontal cutting technique using the handheld breaker must be adopted to avoid striking or severing underground services.
- Carefully remove broken concrete or tarmac from the surface using an excavator or hand tools, avoid penetrating the compacted surface beneath the concrete
- Store broken concrete or tarmac in:
  - Pre-designated location within the work site(s); or
  - Waste skip for off-site disposal

18.4.4 Removal of Compacted Material & Soil

Contractors (i.e., Job Supervisor and Job Crew) will:

- Confirm that access into the work site is restricted and effectively controlled
- Remove compacted material and soil after initial breaking ground activities:
    - In areas that are known not to contain underground services an excavator can be used for the removal of compacted material and soil; however, care should be taken to ensure excavators are:
        - Of a suitable size
        - Fit for purpose; and
        - Used in accordance with manufacturer's instructions
- Where necessary ensure a Banksman (i.e., Spotter) is used to assist the Excavator Operator

Contractors (i.e., Job Supervisor and Excavator Operator) will ensure:

- Excavators are **NOT USED** to remove compacted material or soil within **500mm** of known underground services:

  Note 18.4.4.1: The Job Crew will **Hand Dig** using insulated tools (e.g., spades) to:
    - Expose the underground service; or
    - Remove compacted material or soil from close proximity to the underground service.
- Excavators are not positioned within 0.91 metres of the edge of an excavation
- Material and soil removed from the excavation is not stored within 0.61 metres of the edge of the excavation
- A level below the foundation of an adjacent building must not be excavated unless adequate precautions have been taken to ensure the:
    - Stability of the excavation face; and
    - Structure above is not at risk during or after the excavation
- An appropriate protection system (where required) will be constructed or installed to prevent the collapse of an excavation. Such systems include but not limited to:
    - Shoring
    - Sloping
    - Benching; and
    - Trench Box

  Note 18.4.4.2: Specific requirements regarding the use of protective systems when required will be determined by the type and complexity of the excavation. Contractors in consultation with the Principal Designer (i.e., if appointed) and MFG Representative who will advise an appropriate protection system to the Job Crew, which must be safely installed, and used correctly.
- Carefully remove compacted material and soil from the excavation and either:
    - Store in a pre-designated location within the work area; or
    - Place in waste skip/truck for off-site disposal
- Continue to safely remove compacted material or soil until the required shape and depth of excavation or trench is achieved, ensuring the identified protection system are used correctly, when required
- If an excavation is left open and unattended for any period of time, it must:
    - Be fenced or barricaded to prevent:
        - Unauthorised access; and
        - Vehicles or personnel from falling into the excavation
    - Be illuminated; and
    - Have suitable warning notices posted

Note 18.4.4.3: Excavations **greater than 1.52 metres** deep that have a potential for a hazardous atmosphere (e.g., oxygen deficient, flammable, or toxic) to exist within the excavation or trench, and/or

present a potential for entrapment through wall collapse will be designated confined spaces and entry properly controlled using a Work Control Permit. If workers are required to kneel within an excavation or trench of **less than 1.52 metres** to perform work tasks, the excavation or trench will be designated a confined space.

18.4.5 Soil Contamination & Water Accumulation

Contractors (i.e., Job Supervisor and Job Crew) will implement the following actions as necessary:

- **Soil Contamination:**
  - Immediately stop excavating
  - Leave the excavation open
  - Advise the:
    - Principal Designer (i.e., where appointed)
    - Designated MFG Representative; and
    - HSE Manager (MFG)

    Note 18.4.5.1: The HSE Manager (MFG) will ensure that appropriate inspection and testing is carried out to determine the action required to safely remove and dispose of the contaminated soil and provide guidance regarding any additional action required.
  - Do not continue with the excavation or trench until instructed to do so by the Principal Designer or MFG Representative, following removal and disposal of the contaminated soil
- **To Avoid Water Accumulation in Excavations or Trenches:**
  - Adjust the slope of the excavation
  - Use support or shield system as a protection against cave-ins
  - Remove of water to prevent accumulation
  - Wait for the excavation to dry out; and
  - Use safety harness and lifeline if entry into the excavation is required

18.5 Monitoring Work Performance & Work Completion

Contractors (i.e., Job Supervisor) will:

- Carry out daily safety inspections prior to the start of work and periodically throughout the day
- Ensure the inspections include visual check and physical testing as necessary, regarding the:
  - Excavation, specifically looking to identify potential indications of:
    - Failures of protective systems; and
    - Unsafe behaviour or unsafe conditions (e.g., hazardous vapours, trip and fall hazards)
  - The of use of suitable protective systems to verify correct installation for conditions that could result in a cave-in; and
  - Adjacent areas, including:
    - Access and egress (e.g., excavation and the area around the excavation)
    - Barriers and signage
    - Material storage
    - Equipment placement; and
    - Waste and spoil management
- Make further inspections following:
  - Adverse weather (e.g., rainstorm, snow, and ice); and/or
  - Other occurrences that may increase the potential for hazardous conditions to exist

- Evacuate exposed works and others from the work site if potentially hazardous conditions are identified, personnel and not allow workers and other to return until necessary remedial actions have been taken

  Note 18.5.1: Barriers or other types of physical protection and adequate lighting will be installed round excavations and trenches if they are left unattended.

- Confirm that:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks (e.g., surveys and alignment, etc.) are performed and recorded
- On completion of the work activities:
  - Confirm and verify:
    - All waste and/or excess materials are removed from the work site
    - All handheld tools are removed and stored securely
    - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
    - The work site is left in a safe condition
  - Sign-off the relevant work control documents, for example:
    - Clearance Certificate; and
    - Work Control Permit, when required

19. BREAKING GROUND: BACKFILLING EXCAVATIONS (IMS-08.01.5-19)

19.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to backfill excavations (including trenches) that has been identified as potentially involving significant risk (**Major Works**). This guidance document specifically details expectations regarding **Backfilling Excavations**.

19.2 HAZARD ASSESSMENT

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when backfilling excavation (including trenches). Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Breaking ground (i.e., backfilling excavations)
  - Access and egress
  - Mechanical plant to be used, for example:
    - 360 Excavator
    - Dumper truck; and
    - Roller / Compactor
  - Mechanical equipment to be used, for example:
    - Compactor (i.e., Whacker Plate); and
    - Stihl saw
  - Hand tools, including insulated spade and access ladders
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 19.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is four **(4) metres (13.1 feet)** and for **50kV cable**s the minimum safe working distance is three **(3) metres (9.8 feet)**.
- Duration of the work
- Does an excavation meet the Confined Space classification
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors (i.e., Site Manager or Job Supervisor) will formally record the assessment findings as part of the task-specific Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls (e.g., High, Medium or Low); and

- Step by step description of how work tasks will be performed safely

Note 19.2.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

19.3 Preparing to Backfill Excavations

Contractors (i.e., Job Supervisor) will:

- Confirm the:
  - Excavations are ready for backfilling
  - Construction works completed; and
  - All installation activities completed, for example:
    - Construction works
    - Removal of forming frames
    - Cable pulling; and
    - Installation of protective cable covers or drainage
- Manage and coordinate the backfilling activities
- Review the Safe Method of Working or RAMS for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit, when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit, when required) and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit, when required; and
  - Clearance Certificate
- Assign duties to each member of the Job Crew and confirm their responsibilities
- Verify that the:
  - Risk reduction measures (i.e. controls) regarding backfilling excavations, including confined entry where necessary, are implemented; and
  - Mobile plant and equipment being used is properly inspected, certified as fit for purpose, and is available for use
- Perform a risk assessment to determine if atmospheric monitoring (i.e., gas testing) required at the work site

  Note 19.3.1: Gas testing mandatory if mechanical plant or equipment capable of producing an ignition source is used in a Classified Hazardous Area (DSEAR).

  Note 19.3.2: Gas testing will be performed by an Authorised Person who will confirm the work site is within acceptable tolerances for potentially hazardous atmospheres, see below:
  - Oxygen: **19.5% to 23.0%**
  - Flammable Vapour: Less Than 5% LEL **(<5% LEL)**
  - Hydrogen Sulphide: Less Than 10 ppm **(<10 ppm H2S)**
  - Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO)**; and
  - Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)

- Ensure that:
  - All underground services have been clearly marked on relevant drawings
  - All pre-work activities have been completed
  - Backfill material is:
    - Of an acceptable quality
    - Free from:
      - Large or frozen lumps
      - Wood; or
      - Other foreign material(s)
  - Sufficient time has elapsed following any concrete pouring/forming activities, for example:
    - Concrete abutment
    - Wing wall; or
    - Concrete box culvert; to allow the concrete to fully cure
  - The Job Crew are ready in all aspects to proceed with the work
  - Mobile plant, equipment and hand tools are available and ready for use

19.4 Backfilling Excavations

The Contractor (i.e., Job Supervisor and Job Crew) will confirm the:

- Ensure that the work site to be backfilled is clear of:
  - Construction debris, for example:
    - Surplus concrete
    - Reinforcing wire; and
    - Concrete pouring frames
  - Waste material; for example:
    - Windblown rubbish
    - Waste items thrown into the excavation; and
    - Excessive levels of standing water
- Confirm initial backfilling material is available (e.g., sub-grade material, soil, etc.) and is free of:
  - Large rocks
  - Vegetation; and
  - Other deleterious materials, for example:
    - Wood
    - Organic waste
    - Polyurethane foam; and
    - Plaster board
- Compact the work site to be backfilled using mechanical tools (e.g., wacker plate) prior to backfilling

  Note 19.4.1: Job Supervisor to ensure that the area has been compacted correctly prior to authorising further backfilling activities.
- Initiate the backfilling process using approved material (i.e., crushed stone)
- Compact the sub-grade using mechanical tools (e.g., wacker plate) until the depth stated on relevant drawings is achieved (i.e., typically not great than 300mm)

  Note 19.4.2: Job Supervisor to ensure that the sub-grade has been backfilled correctly and compacted prior to authorising further backfilling activities.

- Continue the backfilling process using the identified backfilling material (e.g., soil). Backfilling material to be:
  - Placed in layers not more than 300mm thick on the sub-grade; and
  - Compacted
- Continue to add backfilling materials until the surface (final) level is achieved
- Compact the surface (final) level using mechanical means, for example:
  - Wacker Plate; or
  - Mechanical Roller
- Ensure backfilled work site are left:
  - Neat
  - Smooth
  - Well compacted; and
  - With the top surface suitable for intended final appearance or application

19.5 Monitoring Work Performance & Work Completion

The Contractor (i.e., Job Supervisor) will:

- Monitor work activities related to backfilling activities to ensure:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks (e.g., measurements, surveys, etc.) are performed and recorded
  - Backfilling is performed in accordance with design specifications (i.e., drawings or plans)
    - Depths
    - Contour; and
    - Correct backfill materials
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed and stored securely
  - Excavations where backfilling is not finished are:
    - Properly protected (e.g., fencing, warning tape and lighting); and
    - Safe in all aspects for further work activities

  Note 19.5.1: Until excavated areas have been fully restored to **ground level** the work site must remain secured against unauthorised access (e.g., fencing, warning tape and lighting).
- On completion of the backfilling activities confirm:
  - All waste and/or excess backfill materials are removed from the work site
  - All mobile equipment is parked safely and secured
  - All handheld tools are removed and stored securely
  - Barriers, warning tape, flagging, signage, and floodlighting are removed; and
  - The work site is safe and ready in all aspects, for any required further work
- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit, when required

20. Constructing Concrete Forming Frames (IMS-08.01.5-20)

20.1 Intent

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to construct concrete forming frames, that has been identified as potentially involving significant risk (**Major Works**). This guidance document specifically details expectations regarding **Forming Concrete Forming Frames**.

20.2 Hazard Assessment

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when constructing concrete forming frames following breaking ground activities. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Constructing concrete forming frames
  - Access and egress
  - Mechanical plant to be used, for example:
    - 360 Excavator (including lifting equipment)
    - Dumper truck; and
  - Mechanical equipment to be used, for example:
    - Saws (including Stihl Saw)
    - Drills; and
    - Compactor (e.g., Whacker Plate)
  - Non mechanical hand tools, including access ladders
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 20.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Duration of the work
- Does an excavation meet the Confined Space classification
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors (i.e., Site Manager or Job Supervisor) will formally record the assessment findings as part of the task-specific Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and

- Step by step description of how work tasks will be performed safely

Note 20.2.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

20.3 Preparing to Constructing Concrete Forming Frame

Contractors (i.e., Job Supervisor) will confirm:

- Excavations are safe in all aspect for entry, for example:
  - The removal of:
    - Slip, trip, and fall hazards
    - Waste materials; and
    - Excessive levels of water
  - The provision of suitable and safe means of access and egress; and
  - Availability of suitable risk reduction measure designed to prevent wall collapse

  Note 20.3.1: Excavations deeper than **1.52 metres (5 feet)** are considered a Confined Space and will require the issue of a Work Control Permit (i.e., Confined Space Entry) to allow entry into the excavation. If workers are required to be in a crouched or kneeling position to perform work in an excavation, a Work Control Permit will be required at a reduced depth.
- Availability of sufficient materials for the:
  - Sub-grade (e.g., crushed stone)
  - Building of forming frames, for example:
    - Plywood
    - Framing timber; and
    - Reinforcing wire (i.e., Re-Bar)
- Manage and coordinate the construction of concrete forming frames
- Review the Safe Method of Working or RAMS for the work to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit when required with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit, when required, and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit, when required; and
  - Clearance Certificate
- Assign duties to each member of the Job Crew and confirm their responsibilities
- Verify that the:
  - Risk reduction measures (i.e. controls) regarding constructing concrete forming frames, including confined entry where necessary, are implemented; and
  - Mobile plant and equipment being used is properly inspected, certified as fit for purpose, and is available for use
- Perform a risk assessment to determine if atmospheric monitoring (i.e., gas testing) required at the work site

Note 20.3.2: Gas testing mandatory if mechanical plant or equipment capable of producing an ignition source is used in a Classified Hazardous Area (DSEAR).

Note 20.3.3: Gas testing will be performed by an Authorised Person who will confirm the work site is within acceptable tolerances for potentially hazardous atmospheres, see below:

- Oxygen: **19.5% to 23.0%**
- Flammable Vapour: Less Than 5% LEL **(<5% LEL)**
- Hydrogen Sulphide: Less Than 10 ppm **(<10 ppm H2S)**
- Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO)**; and
- Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)

- Ensure that:
  - Equipment to be used for frame forming activities is inspected and confirmed fit for purpose, for example:
  - Plant and equipment Operators are trained and competent to perform their assigned duties
  - All pre-work activities have been completed
    - Sub-grade materials are available (when required)
    - Frame forming materials are available, for example:
      - Timber framing wood
      - Securing connectors and fixtures (e.g., bolt and fasteners); and
      - Reinforcing wire (i.e., Re-Bar)
  - The work site is safe in all aspect to allow the frame forming work to proceed; and
  - The Job Crew are ready in all aspects to proceed with the work

20.4 Constructing Concrete Forming Frames

The Contractor (i.e., Job Supervisor and Job Crew) will:

- Review the drawing / plans to confirm arrangement for frame forming
- Confirm the:
  - Excavation is safe to enter, for example:
    - Safe means of access and egress
    - Slip, trip, or fall hazards removed or highlighted
    - Windblown rubbish removed
    - Waste items removed; and
    - Excessive levels of standing water corrected
  - Sub-grade materials are available and free of:
    - Large rocks
    - Vegetation; and
    - Other deleterious materials, for example:
      - Wood
      - Organic waste
      - Polyurethane foam; and
      - Plaster board
- Compact the area within the excavation in which concrete structures are required
- Safely transfer sub-grade material into compacted area using the excavator and/or hand tools
- Compact the sub-grade using mechanical tools until the required depth is achieved

  Note 20.4.1: Job Supervisor to ensure that the sub-grade has been backfilled correctly and compacted prior to authorising framing work to proceed.

- Construct the forming frames in accordance with design specifications, ensuring:
  - The frame is strong enough to withstand all types of dead and live loads:
    - Rigidly constructed; and
    - Effectively propped and braced to retain its shape, both:
      - Horizontally, and
      - Vertically
  - The joints of the frame are sufficiently tight to prevent leakage
  - The frame is set accurately to the desired line and levels should have a plane surface
- Reinforcing wire (i.e., re-bar) when required, is:
  - Accurately positioned
  - Cut and formed safely

    Note 20.4.2: Reinforcing wire (re-bar) may require cutting into the required lengths and then bent (formed) into the appropriate shape (as per design specification)
  - Adequately supported; and
  - Effectively secured against displacement

    Note 20.4.3: Reinforcing wire when formed will be carefully positioned within the forming frame and secured in place using wire ties or other fastenings. Correct spacing and alignment is crucial for uniform distribution of strength throughout the concrete**.**
- The following safe handling requirements apply to installing reinforcing wire (i.e., re-bar):
  - Use mechanical lifting when positioning reinforcing wire at the work sites
    - Mechanical lifting equipment to be suitable, and certified, for lifting operations; and
    - Lifting accessories to be certified and confirmed as fit for purpose

    Note 20.4.4: Work Control Permit to be prepared, reviewed, approved, and issued for mechanical lifting activities, when deemed necessary the designated MFG Representative.
  - Manual handling requirements must be assessed immediately prior to performing a lift to ensure that the manual handling activity is safe to perform manual

    Note 20.4.4: Where considered safe to proceed the manual handling activities will require the use of safe and efficient kinetic handling techniques, including as necessary:
    - Lift aids; and/or
    - Second person to assist with the lift.
  - Cutting and forming reinforcing wire will require:
    - The use of mechanical cutting and forming equipment (e.g., Stihl Saw or grinder)

      Note 20.4.6: Reinforcing wire (re-bar) may require cutting into the required lengths and then bent (formed) into the appropriate shape (as per design specification).
    - Consideration given to the need to issue a Work Control Permit (i.e., Hot Work) as determined by the location of the work, and Contractors' Safe Method of Working or RAMS

      Note 20.4.7: If hot work is likely to create an ignition source (e.g., grinding or use of Stihl saw) within a classified Hazardous Area (DSEAR) a Work Control Permit is a mandatory requirement, including a requirement to conduct atmospheric monitoring (i.e., gas testing) of the work site.
    - Additional PPE to be worn includes, but may not be limited to:
      - Hearing protection
      - Safety goggles or face visor; and
      - Leather or impact resistant gloves

- Use mechanical lifting when positioning pre-formed reinforcing wire (re-bar) within the forming frame:
  - Mechanical lifting equipment to be suitable, and certified, for lifting operations
  - Lifting accessories to be certified and confirmed as fit for purpose

  Note 20.4.8: Work Control Permit to be prepared, reviewed, approved, and issued for mechanical lifting activities, if deemed necessary by the designated MFG Representative.

  Note 20.4.9: If mechanical lifting activities are required within a classified Hazard Area (DSEAR) a Work Control Permit will be required that includes a requirement for relevant controls, including atmospheric monitoring (i.e., gas testing).

  Note 20.4.10: If manual handling is required to correctly position reinforcing wire (i.e., re-bar) within the forming frame they will be performed using safe and efficient kinetic handling techniques, including as necessary lift aids and/or second person to assist with the lift.

20.5 Monitoring Work Performance & Work Completion

The Contractor (i.e., Job Supervisor) will:

- Monitor work activities related to forming frame activities to ensure:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks (e.g., alignment, etc.) are performed and recorded
  - Frames are constructed accordance with design specifications (i.e., drawings or plans)
    - Shape, depth and contour: including
    - Reinforcing wire (i.e., re-bar) requirements
  - Waste is correctly stored or disposed of off-site
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed and stored securely
  - Forming frames are correctly secured within excavations that are:
    - Protected against collapse
    - Properly protected (e.g., fencing, warning tape and lighting); and
    - Safe in all aspects to allow local compacting of the sub-soil and safe construction of forming frames within the excavation

  Note 20.5.1: Until excavated areas have been fully restored to **ground level** the work site must remain secured against unauthorised access (e.g., fencing, warning tape and lighting).

- On completion of the frame forming activities confirm:
  - All waste and/or excess materials are removed from the work site
  - Mobile equipment is parked safely and secured
  - Handheld tools are removed and stored securely
  - Barriers, warning tape, flagging, signage, and floodlighting remain in place; and
  - The work site is safe and ready in all aspects, for any required further work
- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit (WCP) when required

21. POURING CONCRETE (IMS-08.01.5-21)

21.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to pour concrete for structural support, structurer foundations and forecourt surfacing, which has been identified as potentially involving significant risk (**Major Works**).This guidance document specifically details expectations regarding **Pouring Concrete**.

21.2 HAZARD ASSESSMENT

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when pouring concrete following breaking ground activities (i.e., excavation and trenching). Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Access and egress, including work site security
  - Mechanical plant to be used, for example:
    - Concrete delivery vehicle
    - Dumper truck; and
  - Mechanical equipment to be used, for example
    - Concrete Mixer
    - Pump
  - Non mechanical hand tools, including access ladders
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 21.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Duration of the work
- Confined space entry consideration (i.e., deep excavations)
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors (i.e., Site Manager or Job Supervisor) will formally record the assessment findings as part of the task-specific Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls (e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely

Note 21.2.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

21.3 Preparing to Pour Concrete

Contractors (i.e., Job Supervisor) will confirm:

- Excavation or work area is safe in all aspect for entry, for example:
  - The removal of:
    - Slip, trip, and fall hazards
    - Waste materials; and
    - Excessive levels of water
  - The provision of suitable and safe means of access and egress; and
  - Availability of suitable risk reduction measure designed to prevent wall collapse

  Note 21.3.1: Excavations deeper than **1.52 metres (5 feet)** are considered a Confined Space and require the issue of a Work Control Permit (i.e., Confined Space Entry) allow entry into the excavation. If workers are required to in a crouched or kneeling position to perform work within an excavation, a Work Control Permit will be required at a reduced depth.
- Availability of:
  - Sufficient:
    - Concrete, of the correct specification; and
    - Worker resource, to safely complete the assigned work
  - The tools and equipment necessary to safely and efficient pour concrete
- Manage and coordinate the pouring of concrete
- Review the Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the Safe Method of Working or RAMS
- Review the Work Control Permit, when required, with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit, when required; and
  - Clearance Certificate
- Assign duties to each member of the Job Crew and confirm their responsibilities
- Verify that the:
  - Risk reduction measures (i.e. controls) regarding pouring concrete, including confined entry where necessary, are implemented; and
  - Mobile plant and equipment being used is properly inspected, certified as fit for purpose, and is available for use
- Perform a risk assessment to determine if atmospheric monitoring (i.e., gas testing) required at the work site

  Note 20.3.2: Gas testing mandatory if mechanical plant or equipment capable of producing an ignition source is used in a Classified Hazardous Area (DSEAR).

Note 20.3.3: Gas testing will be performed by an Authorised Person who will confirm the work site is within acceptable tolerances for potentially hazardous atmospheres, see below:

- Oxygen: **19.5% to 23.0%**
- Flammable Vapour: Less Than 5% LEL **(<5% LEL)**
- Hydrogen Sulphide: Less Than 10 ppm **(<10 ppm H2S)**
- Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO)**; and
- Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)

- Ensure that:
  - Equipment to be used for concrete pouring activities is inspected and confirmed fit for purpose, for example:
    - Motorised plant (e.g., concrete delivery vehicle, dumper truck, etc.)
    - Concrete forming frames
    - Mechanical hand tools; and
    - Non-mechanical hand tools
  - Plant and equipment Operators are trained and competent to perform their assigned duties
  - The work site is safe in all aspect to allow the pouring of concrete to proceed; and
  - The Job Crew are ready in all aspects to proceed with the work

21.4 Pouring Concrete

The Contractor (i.e., Job Supervisor) will:

- Confirm that:
  - The work site is effectively secured against unauthorised access
  - There is good access (into) and egress (form) the work site for the concrete delivery vehicle
- Meet the Concrete Delivery Driver on arrival at site and provide relevant instructions regarding:
  - Vehicle parking location
  - Vehicle safety and security while on site
  - Site safety rules and regulations; and
  - Concrete pouring and safe handling expectations
- Review the driver's delivery documentation and confirm the:
  - Quantity / volume of concrete delivered; and
  - Concrete specification
- Confirm that the concrete delivery vehicle is equipped with suitable concrete discharge facilities
- Clearly identify the:
  - Specific site for each of the required pouring operations; and
  - Proposed sequence of pouring operations

The Contractor (i.e., Job Supervisor and Job Crew) will confirm:

- Concrete delivery vehicle is safely positioned at the correct work site
- Concrete type and quantity meet advised specifications
- Concrete pouring equipment and assigned workers are available to perform the work
- Work site is safe in all aspect to allow the concrete pouring activities to proceed; and
- Delivery Driver and Job Crew:
  - Have been advises of their duties; and
  - Are ready in all aspects to proceed with the work

The Delivery Driver will:

- Control all aspect of the vehicle delivery process during the pouring activities; and
- Ensure:
    - Effective communication with the Job Crew
    - Provide instruction and guidance to the Job Crew regarding concrete delivery
    - Proper alignment of the concrete delivery system to the nominated work site
    - Concrete is safely delivered to the specified work site
    - Continually monitor the transfer of concrete
    - Respond to instructions from the Situ Job Crew during the pouring activities; and
    - Take immediate action if an unplanned event occurs during the pouring activities

The Contractor (i.e., Job Crew) will:

- Confirm the:
    - Excavation or work area is safe to enter, for example:
        - Safe means of access and egress
        - Slip, trip, or fall hazards removed or highlighted
        - Windblown rubbish removed
        - Waste items removed; and
        - Excessive levels of standing water corrected
    - Concrete delivery system is:
        - Correctly aligned to the nominated forming frame; and
        - Secured against:
            - Potential spillage/leakage of concrete; and
            - Unauthorised access
    - The equipment and work site are ready in all aspect for the pouring activities to proceed
- Instruct the Delivery Driver:
    - To initiate the transfer of concrete at a reduced rate, while the system integrity is confirmed
    - Increase the rate of concrete delivery to the work site when integrity is confirmed; and
    - To continuously monitor the transfer of concrete to the work site
- Ensure:
    - Proper manual handling techniques (including lift assessment) are used throughout the concrete pouring activities; and
    - Concrete is safely and effectively transferred to the forming frame, for example:
        - Sequence of pouring
        - Continuous flow to avoid cold joints
        - Maintaining the required slump throughout the process
        - Techniques for proper concrete placement, such as:
            - Using vibrators to consolidate the concrete
            - Avoiding segregation; and
            - Ensuring adequate compaction
- Continue to pour concrete until the required quantity has been transferred to the forming frame
- Instruct the Delivery Driver to:
    - Stop the transfer of concrete to the forming frame; and
    - Secure the concrete delivery system
- Ensure the concrete:
    - Is properly compacted in the forming frame; and

- Surface is finished in accordance with design specification, for example:
  - **Trowel Finnish**

    After the concrete is poured in the formwork and levelled, a trowel is used to smooth and fine-level the surface of concrete. Trowelling is performed either manually (i.e., handheld trowel) or mechanically (i.e., mechanised trowel with blades sitting directly against the concrete).
  - **Brush Finnish**

    Broom finish is rough textured finished obtained by dragging a broom on the trowelled surface of the concrete while the concrete is still fresh to create small ridges that provide for traction control and slip resistant.

    Note 21.4.1: Safe manual handling techniques (including lift assessment) to be used when surface finishing concrete.

- Advised the Job Supervisor that the concrete has been poured, finished and ready for inspection

  Note 21.4.2: If further concrete pouring activities are required at other work sites (i.e., other forming frames) the driver will be requested to relocate the concrete delivery vehicle, prior to repeating **Steps 21.4** above.

21.5 Monitoring Work Performance & Work Completion

The Contractor (i.e., Job Supervisor) will:

- Monitor work activities related to concrete pouring activities to ensure:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks (e.g., alignment, etc.) are performed and recorded
  - Concrete is poured in accordance with design specifications (i.e., drawings or plans)
    - Shape
    - Depth; and
    - Contour
  - Waste is correctly stored or disposed of off-site
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed and stored securely
  - Forming frames are correctly secured within excavations that are:
    - Protected against collapse
    - Properly protected (e.g., fencing, warning tape and lighting); and
    - Safe in all aspects to allow:
      - Concrete pouring
      - Local compacting of the sub-soil; and
      - Safe removal of the forming frames

  Note 21.5.1: Until excavated areas have been fully restored to ground level the work site must remain secured against unauthorised access (e.g., fencing, warning tape and lighting).

- On completion of the concrete pouring activities confirm:
  - All waste and/or excess materials are removed from the work site
  - Mobile equipment is parked safely or removed from site
  - Handheld tools are removed and stored securely

  - Barriers, warning tape, flagging, signage, and floodlighting remain in place; and
  - The work site is safe and ready in all aspects, for any required further work
  - Arrangements for the following at in place:
    - Safe removal of the concrete forming frames
    - Compaction of the area around the poured concrete
    - Final surface finish of the work site

    Note 21.5.2: Work requirements post concrete pouring will be defined in a Safe Method of Working Statement (supported by a Clearance Certificate) or RAMS, and as detailed the construction phase information pack.

- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit, when required

22. Confined Space Entry: Excavations (IMS-08.01.5-22)

22.1 Intent

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to enter an excavation, including trench, that meets the definition of a Confined Space, and has been identified as involving significant risk (**Major Works**).This guidance document specifically details expectations regarding **Excavation (i.e., Classified Confined Space)**.

22.2 Confined Space Definition

“An enclosed or partially enclosed space, not designed or intended for continuous human occupancy that has a restricted, limited or impeded means of entry or exit and may become hazardous to personnel entering it because of its design, construction, location or materials or substances in it, or a condition or changing set of circumstances within the space that presents a potential for harm and/or an atmosphere that is or may be injurious by reasons of oxygen deficiency or enrichment, flammability, explosiveness, or toxicity”.

Excavations of a depth of **five (5) feet (1.5m) or greater** are considered to be a confined space if there is a requirement for workers to enter the excavation, regardless of the reason for entry.

Note: 22.2.1: If workers are required to crouch or knee within an excavation or trench to perform their assigned tasks the height at which the excavation is considered a confined space will be reduced to **three (3) feet (0.91m)**.

22.3 Confined Space Entry Qualifications & Responsibilities

22.3.1 Entry Qualifications

Personnel required to enter a **Permit Required Confined Space** (Excavation) will be:

- Trained and experienced in work involving entry into an excavation (confined space)
- Aware of the required risk reduction measures (i.e., shoring / trench box, etc.)
- Properly equipped, (e.g., PPE and Respiratory Protection (when required)
- Capable of performing assigned duties safely, including medical suitability where applicable; and
- Able to use the required safety equipment in a safe and proper manner

  Note 22.3.1.1: Where an individual is trained but may not have the required experience to work in confined spaces, the individual must be teamed up with, and work under the direct supervision of, a Competent Person.

22.3.2 Responsibilities: Entry Supervisor (Permit Holder)

Contractors (i.e., Entry Supervisor) will:

- Understand their responsibilities for work involving entry into an excavation (i.e., classified confined space) space), as detailed in the:
  - Safe Method of Working or Risk Assessment and Method Statement (**RAMS**)
  - Work Control Permit (**WCP**)
  - Clearance Certificate; and
  - Any other entry specific information, including Rescue Plan
- Confirm:
  - Work scope
  - Equipment to be used
  - Potential hazards (e.g., job specific and work site specific)
  - Proposed risk reduction measures

  - Safe Method of Working or RAMS
  - Authorised Entrants and Entry Attendants are:
    - Trained and competent to perform their assigned tasks; and
    - Aware of their roles and responsibilities when entry into an excavation (i.e., classified confined space) space) takes place
  - Equipment (including PPE) provided for the work:
    - Is certified, as required by applicable legislation
    - Visually inspected prior to starting work
    - Properly maintained; and
    - Remains fit for purpose throughout the entry work
  - The work site is adequately prepared for the work, for example:
    - Any required energy isolations installed and verified as effective
    - Protection methods used, or devices installed, to prevent cave-in
    - Slip, trip, and fall hazards eliminated from the work area
    - Safe means of access and egress provided
    - Excess water pumped from the excavation; and
    - Gas testing of the work site and excavation performed to confirm safe to enter; and
  - A Rescue Plan has been developed and communicated to affected personnel, if applicable
- Hold a pre-job safety meeting with Job Crew and other affected personnel at which the content of various work control documents is explained to ensure mutual understanding:
  - Safe Method of Working and RAMS
  - Work Control Permit (WCP); and
  - Clearance Certificate
- Entry work is coordinated with other activities
- Periodically monitor the status of the work being performed; and
- Maintain:
  - A list of persons entering and exiting the excavation (confined space); and
  - Maintain the identified control measures

22.3.3 Responsibilities: Authorised Entrants

Contractors (Authorised Entrants) will:

- Understand their responsibilities and duties during entry into an excavation (confined space)
- Be aware of the:
  - Hazards and associated risks of the entry work; and
  - Risk reduction measures required to reduce risk to an acceptable level
- Verify that any required energy isolations (LOTO), are in place
- Comply with the conditions detailed in the:
  - Safe Method of Working or RAMS
  - Work Control Permit (WCP); and
  - Clearance Certificate
- Confirm:
  - PPE and respiratory protection (e.g., dust masks or suitable respirators) is used correctly
  - Tools and equipment are visually inspected prior to use and maintained fit for purpose; and
  - Communication requirements with the Entry Attendant

- Report unsafe acts or unsafe conditions to the Entry Supervisor
- Exit the excavation (i.e., classified confined space) space)if:
  - Instructed to do so
  - Conditions that may impact personal safety, change within the excavation (confined space)
  - Symptoms of exposure to hazardous materials are recognised; and
  - Severe discomfort, including ill health, is detected

22.3.4 Responsibilities: Entry Attendant (Safety Watch)

The Contractor (i.e., Entry Attendant) will:

- Be positioned outside the excavation (confined space)
- Continuously monitor those working within the excavation
- Understand their responsibilities and duties
- Be aware of the:
  - Hazards and associated risks of the entry work; and
  - Risk reduction measures required to reduce risk to an acceptable level
- Verify:
  - Required energy isolations (LOTO), are in place; and
  - Identified control measures implemented prior to entry and maintained throughout the work
- Comply with the conditions detailed in the RAMS, Work Control Permit, and Clearance Certificate for entry and the work within the excavation (confined space)
- Be aware of equipment shutdown requirements in the event of an emergency
- Verify that gas testing results are, and remain, within tolerance for entry

  Note 22.3.4.1: Where required, the Entry Attendant will record gas test readings in accordance with instructions issued by the Authorised Person.

- Only allow authorised personnel to enter the excavation (confined space)
- Maintain regular communications with the entrants
- Use the identified safety equipment correctly
- Alert entrants to unsafe situations and instruct them to exit the space when required
- Raise the alarm if an emergency occurs within the excavation (i.e., classified confined space) space)and request support; and
- Be familiar with the Rescue Plan:
  - Know who is providing rescue services; and
  - Ensure rescue equipment is ready for use, close to the excavation (confined space)

  Note 22.3.4.2: Entry Attendant is not permitted to enter an excavation (i.e., classified confined space) space)to attempt a rescue on their own, they must wait for support to arrive and/then only attempt the rescue if trained to do so.

22.3.5 Responsibilities: Authorised Person (Gas Tester)

Contractors will assign a trained and competent person **Authorised Person** responsibilities for atmospheric monitoring (i.e., gas testing) and period gas monitoring activities. Atmospheric monitoring is required prior to any entry into an excavation (i.e., classified confined space) space)as part of the risk reductions measures detailed in the Safe Method of Working or RAMS, and Work Control Permit.

Authorised Person Responsibilities Are Defined In Section 7 (IMS-08.05-7)

22.4 HAZARD ASSESSMENT

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when entry into an excavation (i.e., classified confined space) space) is required following breaking ground activities. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Protection methods and/or devices (e.g. shoring, benching, trench box, etc.)
  - Safe means of access and egress
  - Removal of excess water from the excavation (i.e., pumped to drainage system)
  - Prevention of dropped objects; and
  - Access and operational restrictions on excavator use
- Identification of any required hazardous energy isolations
- Containment, dissipation and removal of explosive, flammable, combustible materials and/or toxic liquids or vapours from the excavation (confined space)
- Identification of action necessary to address risks associated to the following hazards:
  - Accumulation of chemicals or fumes
  - High levels of noise
  - Improper isolation of sources of hazardous energy
  - Moving parts, obstructions, or voids within the excavation or trench
  - Oxygen depletion or enrichment
  - Presence of:
    - Explosive, flammable, or toxic gases
    - Flammable or toxic liquids (e.g., **H_2S**); and
    - Asbestos waste
  - Poor lighting or access and egress
  - Unstable physical containment or surroundings
- Mechanical plant to be used, for example:
  - 360 Excavator
  - Concrete delivery vehicle; and
  - Dumper truck
- Mechanical equipment to be used, for example
  - Compactor (e.g., Whacker Plate)
  - Handheld Breaker; and
  - Stihl Saw
- Non mechanical hand tools, including access ladders
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

Note 22.4.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.

- Duration of the work
- Confined space entry considerations (e.g., access, egress, fall from height protection, etc.)
- Condition and stability of existing structures and surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors (i.e., Site Manager or Job Supervisor) will formally record the assessment findings as part of the task-specific Safe Method of Working or RAMS that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely

Note 22.4.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

22.5 Preparing for Entry into an Excavation (Confined Space)

Contractors (i.e., Entry Supervisor) will:

- Confirm:
  - Excavation is safe in all aspect for entry, for example:
    - The removal of:
      - Slip, trip, and fall hazards
      - Waste materials; and
      - Excessive levels of water
  - The provision of suitable and safe means of access and egress; and
  - Availability of suitable risk reduction measure designed to prevent wall collapse
- Availability of:
  - Sufficient:
    - Materials for work within the excavation or trench; and
    - Worker resource, to safely complete the assigned work
  - The tools and equipment necessary to safely and efficient perform the assigned work
- Review Safe Method of Working or RAMS for entry into an excavation (i.e., classified confined space) space) to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit (WCP) with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the content of the Work Control Permit and Clearance Certificate to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit; and
  - Clearance Certificate

- Assign duties to each member of the Job Crew and confirm their responsibilities
- Verify that the:
  - Risk reduction measures (i.e. controls) for entry into an excavation (i.e., classified confined space) space) are implemented; and
  - Mobile plant and equipment being used is properly inspected, certified as fit for purpose, and is available for use
  - Atmospheric monitoring (i.e., gas testing) of the excavation (i.e., classified confined space) and general work area has been performed by an Authorised Person and the reading confirmed as within acceptable tolerances:
    - Oxygen: **19.5% to 23.0%**
    - Flammable Vapour: Less Than 5% LEL **(<5% LEL)**
    - Hydrogen Sulphide: Less Than 10 ppm **(<10 ppm H2S)**
    - Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO)**; and
    - Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)
- Ensure that:
  - Equipment to be used during entry into an excavation (i.e., classified confined space) space) is inspected and confirmed fit for purpose, for example:
    - Motorised Plant (e.g., 360 excavator, concrete delivery vehicle, dumper truck, etc.)
    - Concrete forming frames
    - Mechanical hand tools; and
    - Non-mechanical hand tools
  - Plant and equipment Operators are trained and competent to perform their assigned duties
  - The work site is safe in all aspect to allow confined entry to proceed
  - Rescue equipment, as specified in the Rescue Plan, is available at the work site; and
  - The Job Crew are ready in all aspects to proceed with the work

22.6 Confined Space Entry (Excavation)

Contractors (i.e., Authorised Entrants and Entry Attendant) will:

- Confirm the excavation is ready in all aspect for entry, for example:
  - Excavations has been completed
  - Suitable risk reduction measures (i.e., controls) are established to prevent wall collapse:
    - Shoring
    - Benching; and
    - Trench Box
  - Breaking ground activities have been suspended or completed
  - Any pre-entry construction work has been completed
  - Safe means of access and egress provided
  - Gas testing of the work site and excavation (i.e., classified confined space) space) has been performed, with tests for:
    - Oxygen
    - Flammable Vapour
    - Hydrogen Sulphide
    - Carbon Monoxide; and
    - Other Identified Vapours of Concern

- Gas test readings are within acceptable limits for entry

- Ensure:
  - Equipment to be used for work within the excavation (i.e., classified confined space) space) is inspected and confirmed fit for purpose, for example:
    - 360 Excavator
    - Power hand tools (e.g., Stihl Saw)
    - Mechanical Compactor (i.e., Wacker Plater); and
    - Non-Mechanical Hand Tools
  - The work required within the excavation (i.e., classified confined space) space) is performed safely, and in accordance with planned arrangements as defined in:
    - Safe Method of Working or RAMS
    - Work Control Permit (WCP); and
    - Clearance Certificate
  - The Entry Attendant:
    - Remain in attendance at the excavation throughout entry
    - Monitors activities within the excavation
    - Report unsafe acts of unsafe conditions to the Entry Supervisor; and
    - Take action to evacuate the excavation if conditions change or an incident occurs
  - The Authorised Entrants:
    - Perform assigned work tasks safely
    - Use equipment and tools correctly
    - Evacuate the excavation when instructed to do so by the Entry Attendant
    - Report unsafe acts of unsafe conditions to the Entry Supervisor
- Take action to address unsafe acts or unsafe conditions immediately

22.7 Monitoring Work Performance & Work Completion

Contractors (i.e., Entry Supervisor) will:

- Monitor work activities related to entry into an excavation (i.e., classified confined space) space) to ensure:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Any required field checks (e.g., alignment, etc.) are performed and recorded
  - Work activities within the excavation (i.e., classified confined space) space) are performed in accordance with the work control documents, for example:
    - Safe Method of Working or RAMS
    - Work Control Permit (WCP)
    - Clearance Certificate; and
    - Rescue Plan, when necessary
  - Waste is correctly stored or disposed of off-site
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed from the excavation and stored securely

Note 22.7.1: Until excavated areas have been fully restored to ground level the work site must remain secured against unauthorised access (e.g., fencing, warning tape and lighting).

- On completion of the work activities within the excavation (i.e., classified confined space) space) confirm:
  - All waste and/or excess materials are removed from the work site
  - Mobile equipment is parked safely and secured
  - Handheld tools are removed and stored securely
  - Barriers, warning tape, signage, and floodlighting remain in place, if necessary and
  - The work site is safe and ready in all aspects, for any required further work
- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit, when required

23. Installing Block Paving (IMS-08.01.5-23)

23.1 Intent

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to install block paving, that has been identified as potentially involving significant risk (**Major Works**).This guidance document specifically details expectations regarding the **Installation of Block Paving**.

23.2 Hazard Assessment

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when installing block paving following breaking ground activities (i.e., excavation and trenching). Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Access and egress, including work site security
  - Mechanical equipment to be used; and
  - Non mechanical hand tools
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 23.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Duration of the work
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors (i.e., Site Manager or Job Supervisor) will formally record the assessment findings as part of the task-specific Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely

Note 23.2.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

23.3 Preparing to Install Block Paving

Contractors (i.e., Job Supervisor) will:

- Confirm the work site is ready in all aspects for work to proceed, for example:

    - The removal of:
        - Slip, trip, and fall hazards
        - Debris and waste materials; and
        - Excessive levels of water within trenches
    - The provision of a safe work site
    - Availability of:
        - Protection barriers and/or warning tape
        - Sufficient:
            - Block paving of the correct specification; and
            - Worker resource, to safely complete the assigned work(s)
        - The tools and equipment necessary to safely install block paving
- Manage and coordinate the installation of block paving
- Review the Safe Method of Working or RAMS for the work, to:
    - Ensure full understanding
    - Confirm suitable for the proposed work; and/or
    - Identify and record any required amendments to the RAMS
- Review the Work Control Permit, when required, with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the work control documentation to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
- Assign duties to each member of the Job Crew and confirm their responsibilities
- Verify that the:
    - Risk reduction measures (i.e. controls) for block paving installation are implemented; and
    - Any mobile plant and equipment being used is properly inspected, certified as fit for purpose, and is available for use
- Perform a risk assessment to determine if atmospheric monitoring (i.e., gas testing) required at the work site

  Note 23.3.1: Gas testing mandatory if mechanical plant or equipment capable of producing an ignition source is used in a Classified Hazardous Area (DSEAR).

  Note 23.3.2: Gas testing will be performed by an Authorised Person who will confirm the work site is within acceptable tolerances for potentially hazardous atmospheres, see below:
    - Oxygen: **19.5% to 23.0%**
    - Flammable Vapour: Less Than 5% LEL **(<5% LEL)**
    - Hydrogen Sulphide: Less Than 10 ppm **(<10 ppm H2S)**
    - Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO)**; and
    - Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)
- Ensure that:
    - Equipment to be used during the installation of block paving is inspected and confirmed fit for purpose, for example:
        - Motorised plant
        - Mechanical hand tools; and

        - Non-mechanical hand tools
    - Plant and equipment Operators are trained and competent to perform their assigned duties
    - The work site is safe in all aspect to allow block paving activities to proceed; and
    - The Job Crew are ready in all aspects to proceed with the work

23.4 Installing Block Paving

23.4.1 Immediately Prior to Starting Work: Atmospheric Monitoring

Where specific as a risk reduction measure (i.e., control) Contractors (i.e., Job Supervisor) will ensure that atmospheric monitoring (gas testing) of the work site is performed by an Authorised Person to confirm the work site is within acceptable tolerances for potentially hazardous atmospheres:

- Conduct tests for:
    - Oxygen
    - Flammable Vapour
    - Hydrogen Sulphide
    - Carbon Monoxide; and
    - Other Identified Vapours of Concern (Where Applicable)
- Confirm test reading are within the specified limits; and:
- Accurately record gas testing readings (e.g., Clearance Certificate or Gas Testing Log Sheet)

23.4.2 Equipment & Materials

Contractors (i.e., Job Supervisor) will confirm:

- Block paving:
    - Delivery vehicle is safely positioned at the work site
    - Type and quantity meet advised specifications
    - Equipment and assigned workers are available to perform the work
- Work site is safe in all aspect to allow the installation of block paving
- Delivery Driver and Job Crew:
    - Have been advises of their duties; and
    - Are ready in all aspects to proceed with the work

The Delivery Driver will:

- Control the block paving offloading if it is being carried out by vehicle mounted lifting equipment

  Note 23.4.2.1: Offloading may be carried out by vehicle mounted crane or lift aid, Hiab, excavator and/or forklift truck. Any mechanical lifting equipment must be certified as fit for purpose and properly maintained.
- Ensure:
    - Effective communication with the Job Crew
    - Provide instruction and guidance to the Job Crew regarding block paving delivery
    - Proper alignment of the delivery vehicle at the work site
    - Block paving is safely offloaded
    - Respond to instructions from the Job Crew during the offloading operation; and
    - Take immediate action if an unplanned event occurs during the offloading operation

23.4.3 Installing Block Paving

Contractors (i.e., Job Crew) will confirm:

- Equipment and work site are adequately prepared and safe to enter, for example:

  - Ground surface covering is correctly compacted to the specified level:
    - Sub-base is correctly profiled and graded
    - There are no voids within the sub-base

    Note 23.4.3.1: Voids in the sub-base must be filled with stone dust or grit sand and compacted before laying the block paving.
  - Safe means of access and egress
  - Slip, trip, or fall hazards removed or highlighted
  - Windblown rubbish removed
  - Waste items removed; and
  - Excessive levels of standing water removed
- Block paving is:
  - Safely offloaded; and
  - Secured within the work site
- Install string guideline correctly
- Lay edge course bricks and kerb stone on to a concrete bed, in accordance with specifications
- Lay full paving blocks, as detailed in the specification, ensuring that they are correctly aligned at the desired level and any required incline
- After laying all full paving blocks:
  - Check for alignment using a string line stretch across the surface; and
  - Adjust as necessary, to ensure correct alignment
- After confirming alignment cut in the edges

  Note 23.4.3.2: Block paving can be cut using a mechanical saw (i.e., Stihl Saw) or block splitter. When using a mechanical saw for cutting ensure water spray is used to reduce exposure to harmful dust.

  Note 23.4.3.3: Use of a mechanical saw that is capable of producing an ignition source in a potentially hazardous area (DSEAR) will be risk assessed to determine whether there is a requirement to prepare, authorise and issue a Work Control Permit (Hot Work).
- When the block paving has been correctly laid and verified as compliant with design specifications, perform jointing and compaction activities: specifically:
  - Spread kiln-dried jointing sand over the block surface
  - Sweep the sand into the joints using a soft brush
  - Compacted the surface using a vibrating plate compactor (i.e., Wacker Plate):
    - 4 to 6 passes should be made over each paved section
    - Alternate passes at 90° to the previous pass

    Note 23.4.3.4: Where required due to the composition of the block paving a neoprene cushioning mat can be attached to the base of the vibrating plate compactor to prevent damage to the edges of the blocks.

    Note 23.4.3.5: Use of a motorised vibrating compactor that is capable of producing an ignition source in a potentially hazardous area (DSEAR) will be risk assessed to determine whether there is a requirement to prepare, authorise and issue a Work Control Permit (Hot Work).
  - Sweep excess jointing sand off the surface
- Confirm that straight lines are straight, and that the curves are correctly aligned
- Edge courses and kerb stones should be secured in position with at least 75mm of cement (concrete)

23.4.4 CEMENT / CONCRETE

Contractors (i.e., Job Supervisor and Job Crew) when required will mix cement / concrete on site using a portable cement mixer. When required, the Job Crew will:

- Position the cement mixer on a firm and level surface, allowing sufficient room to:
  - Work around the mixer; and
  - Get a wheelbarrow in and out to collect the mixed cement
- Position sharp sand, aggregate (if specified) and cement lose to the mixer
- Place some ground covering material underneath the mixer and cement pouring area to catch any spillage
- Set the mixer drum to face upwards at an angle of about 45 degrees
- Confirm mix composition (e.g., sand, aggregate and cement) with the Job Supervisor
- Ensure proper:
  - Additional PPE is worn including dust mask when handling components; and
  - Manual handling techniques, (including lift assessment) are used when:
    - Mixing
    - Transferring; and
    - Handling; cement
- Turn on the cement mixer on
- Pour sufficient water into the mixer to wet the inside of the drum

  Note 23.4.4.1: This will help prevent the cement from sticking to the inside too much and make cleaning afterwards much easier.
- Add half of the required quantity of cement, sand, and aggregate (if specified) to the mixer and let them run as a dry mix for a few minutes
- Start to add water and monitor the consistency (i.e., thickness) of the cement mix
- Continue to add water until the cement mix is of the required consistency (i.e., thickness)
- Add the rest of the cement, sane and aggregate (if specified)
- Start to add additional water and monitor the consistency (i.e., thickness) of the cement mix
- Continue to add water until the cement mix is of the required consistency (i.e., thickness)
- Continue to run the mixer until the components are properly mixed
- Pour the cement mix into a wheelbarrow for transporting to the block paving site
- Keep the mixer running while pouring the cement into the wheelbarrow, this will help make sure you get all of the mix is removed from the mixer
- Clean the inside and rim of the mixer after each mix:
  - Leave the mixer running and add a small amount of:
    - Water; and
    - Sand or aggregates
  - Stop the mixer and use brush to loosen any components remaining in the drum, then restart the mixer to remove them
- Remove cement mixer to safe location, collect waste and dispose of in suitable container, tidy work area to ensure housekeeping standards are achieved

23.5 MONITORING WORK PERFORMANCE & WORK COMPLETION

The Contractor (i.e., Job Supervisor) will:

- Monitor work activities related to installing block paving to ensure:

  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Block paving is installed in accordance with design specifications (i.e., drawings or plans)
    - Shape
    - Configuration; and
    - Gradient
  - Any required field checks are performed and recorded
  - Waste is correctly stored or disposed of off-site
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed and stored securely
  - The work site remain safe for work activities to protect the Job Crew, for example:
    - Adjacent excavations have barriers to prevent unauthorised access
    - Work site is protected (e.g., fencing, warning tape and lighting); and
    - Safe in all aspects to allow work to continue

  Note 23.5.1: Until excavated areas have been fully restored to **ground level** the work site must remain secured against unauthorised access (e.g., fencing, warning tape and lighting).

- On completion of the installation of block paving confirm:
  - All waste and/or excess materials are removed from the work site
  - Mobile equipment is parked safely and secured
  - Handheld tools are removed and stored securely
  - Barriers, warning tape, flagging, signage, and floodlighting remain in place; and
  - The work site is safe and ready in all aspects, for any required further work
- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit, when required

24. INSTALLING ACO CHANNELING (IMS-08.01.5-24)

24.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to install ACO channelling, that has been identified as potentially involving significant risk (**Major Works**).This guidance document specifically details expectations regarding the **Installation of ACO Drainage Channels**.

24.2 RISK ASSESSMENT & METHOD STATEMENT

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when installing ACO channeling following breaking ground activities (i.e., excavation and trenching). Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Access and egress, including work site security
  - Mechanical equipment to be used; and
  - Non mechanical hand tools
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, LPG, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 24.2.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Duration of the work
- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors (i.e., Site Manager or Job Supervisor) will formally record the assessment findings as part of the task-specific Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls(e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely

Note 24.2.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

24.3 PREPARING TO INSTALL ACO CHANNELLING

Contractors (i.e., Job Supervisor) will:

- Confirm the work site is ready in all aspects for work to proceed, for example:

  - The removal of:
    - Slip, trip, and fall hazards
    - Debris and waste materials; and
    - Excessive levels of water within trenches
  - The provision of a safe work site
  - Availability of:
    - Protection barriers and/or warning tape
    - Sufficient:
      - ACO channelling (including grating) of the correct specification; and
      - Worker resource, to safely complete the assigned works
    - The tools and equipment necessary to safely install block paving
- Manage and coordinate the safe installation of the ACO channelling
- Review the Safe Method of Working or RAMS for the work, to:
  - Ensure full understanding
  - Confirm suitable for the proposed work; and/or
  - Identify and record any required amendments to the RAMS
- Review the Work Control Permit, when required, with the designated MFG Representative
- Prepare a Clearance Certificate
- Communicate the work control documentation to the Job Crew and other affected personnel (i.e., Pre-Job Safety Brief) and confirm mutual understanding of:
  - Safe Method of Working or RAMS
  - Work Control Permit, when required; and
  - Clearance Certificate
- Assign duties to each member of the Job Crew and confirm their responsibilities
- Verify that the:
  - Risk reduction measures (i.e. controls) for the installation of ACO channelling have been implemented; and
  - Any mobile plant and equipment being used is properly inspected, certified as fit for purpose, and is available for use
- Perform a risk assessment to determine if atmospheric monitoring (i.e., gas testing) required at the work site

  Note 24.3.1: Gas testing mandatory if mechanical plant or equipment capable of producing an ignition source is used in a Classified Hazardous Area (DSEAR).

  Note 24.3.2: Gas testing will be performed by an Authorised Person who will confirm the work site is within acceptable tolerances for potentially hazardous atmospheres, see below:
  - Oxygen: **19.5% to 23.0%**
  - Flammable Vapour: Less Than 5% LEL **(<5% LEL)**
  - Hydrogen Sulphide: Less Than 10 ppm **(<10 ppm H2S)**
  - Carbon Monoxide: Less Than 30 ppm **(<30 ppm CO)**; and
  - Other identified vapours of concern: Within Published Worker Exposure Limits (WEL's)
- Ensure the:
  - Equipment to be used during installation of ACO channelling is inspected and confirmed fit for purpose, for example:
    - Motorised plant
    - Mechanical hand tools; and

        - Non-mechanical hand tools
    - Plant and equipment Operators are trained and competent to perform their assigned duties
    - Work site is safe in all aspect to allow the safe installation of to proceed; and
    - Job Crew are ready in all aspects to proceed with the work

24.4 Immediately Prior to Starting Work

24.4.1 Atmospheric Monitoring

Where specific as a risk reduction measure (i.e., control) Contractors (i.e., Job Supervisor) will ensure that atmospheric monitoring (gas testing) of the work site is performed by an Authorised Person to confirm the work site is within acceptable tolerances for potentially hazardous atmospheres:

- Conduct tests for:
    - Oxygen
    - Flammable Vapour
    - Hydrogen Sulphide
    - Carbon Monoxide; and
    - Other Identified Vapours of Concern (Where Applicable)
- Confirm test reading are within the specified limits; and:
- Accurately record gas testing readings (e.g., Clearance Certificate or Gas Testing Log Sheet)

24.4.2 Equipment & Materials

Contractors (i.e., Job Supervisor) will confirm:

- ACO channelling:
    - Delivery vehicle is safely positioned at the work site
    - Type and quantity meet advised specifications
    - Equipment and assigned workers are available to perform the work
- Work site is safe in all aspect to allow the safe installation of ACO channelling and gratings
- Delivery Driver and Job Crew:
    - Have been advises of their duties; and
    - Are ready in all aspects to proceed with the work

The Delivery Driver will:

- Control the offloading of the ACO channelling, if it is being carried out by vehicle mounted lifting equipment

  Note 24.4.2.1: Offloading may be carried out by vehicle mounted crane or lift aid, Hiab, excavator and/or forklift truck. Any mechanical lifting equipment must be certified as fit for purpose and properly maintained.

- Ensure:
    - Effective communication with the Job Crew
    - Instruction and guidance is provided to the Job Crew regarding the unloading of the ACO channelling
    - Proper alignment of the delivery vehicle at the work site
    - AOC drainage channelling is safely offloaded
    - Respond to instructions from the Job Crew during the offloading operation; and
    - Take immediate action if an unplanned event occurs during the offloading operation

24.5 Installing, Encasing & Finishing ACO Channelling

Note 24.5.1: This guidance is based on the information provided by suppliers and installers of ACO channelling available via the Worldwide Web.

24.5.1 Work Site Inspection

Contractors (i.e., Job Supervisor and Job Crew) will:

- Confirm:
  - Work site is adequately prepared and safe to enter
    - Safe means of access and egress
    - Slip, trip, or fall hazards removed or highlighted
    - Windblown rubbish removed
    - Waste items removed; and
    - Excessive levels of standing water removed
  - Trench is correctly formed (refer to specification drawings)
  - Sub-base is correctly profiled and graded
  - There are no voids within the sub-base

    Note 24.5.1.1: Voids in the sub-base will be filled with stone dust or grit sand and compacted prior to installing ACO channelling.
  - Surface level (covering) is correctly compacted to the specified level

    Note 24.5.1.2: The type of material needed for the sub-base depends on the loading class of the ACO channelling. If the ACO is for pedestrian traffic only, then a compacted fill can be used along the base of the trench. If the ACO is located in an area in which there will be vehicle traffic a bed of concrete is required.
  - ACO channelling is:
    - Safely offloaded; and
    - Secured within the work site(s)
  - Equipment and work site is ready in all aspects for the installation of ACO channelling
  - ACO drainage outlet to the site drainage system is cut and prepared for connection
- Set up a stringline at the finished surface level along the full length of the trench to align with either the left or the right channel edge rail

  Note 24.5.1.3: This will ensure the drain is installed to the correct grade and longitudinal alignment. A laser level can be used to check the set height of each channel as they are laid to the stringline.
- Use a spirit level to check across both edge rails as each channel is laid
- Ensure an allowance is made for expansion joints in concrete pavement to allow for thermal expansion and contraction

24.5.2 Preparing ACO Channelling

24.5.2.1 General

Contractors (i.e., Job Supervisor and Job Crew) will:

- Use wet cutting, wet drilling and/or wet grinding techniques to cut polymer concrete ACO channelling

  Note 24.5.2.1.1: Hot Work Permit to be issued if mechanical cutting equipment (e.g., grinder) is used in a potentially Hazardous Area (i.e., DSEAR), and appropriate PPE worn (e.g., dust mask, leather gloves and eye protection).
- Use specified adhesive(s) (e.g., two (2) part rigid resin glue) to bond cut surfaces together

Note 24.5.2.1.2: In applications where corrosive liquids or petroleum fuel releases are likely to be collected in ACO channelling, joints should be sealed with a suitable chemically resistant sealant.

24.5.2.2 PREPARATION

If ACO channelling requires preparation prior to being installed, Contractors (i.e., Job Supervisor and Job Crew) will:

Non-Standard Lengths of ACO

- Cut channel with a masonry saw with a diamond or masonry blade
- Grates should be cut with a suitable abrasive wheel; and
- Ensure channel and grating are properly secured prior to cutting and that the work site is secured against unauthorised entry

ACO Curves

- ACO channel can be installed to a slight curve (when required), leave an acceptable gap (as detailed in the design specification) between one edge of the ACO channel; and
- The outer edge of the curve will conform to design specifications

ACO Bends

- For tight curves or bends mitre cut the end of the:
  - ACO channels; and
  - Grating; to provide a neat finish at the joint

ACO Corners (90-Degree Bends)

- Corners are formed using a mitred joint by cutting:
  - ACO channels; and
  - Grates; to the required angle and joining together

Note 24.5.2.2.1: For load class D to F applications, mitred grates are not recommended. A butt joint is recommended as used in T-junctions.

ACO T-Junctions

- T-junctions (right angle joints) require:
  - An opening to be cut into the side of one ACO channel; and
  - Another ACO channel is butted up square to this opening

Note 24.5.2.2.2: To form a T-junction at a location along a channel that does not have a moulded guide:

- Place another channel perpendicular to the joint location
- Mark on the channel wall the area to be cut by using the internal profile of the channel as a guide; and
- Do not cut the edge rail, as it should be left intact to provide additional strength and seating for the grate.

24.5.2.3 PREPARE PIPE CONNECTION (AS REQUIRED):

If pipe connections require preparation prior to ACO channelling being installed, Contractors (i.e., Job Supervisor and Job Crew) will:

In-Line Pit, Cut Out

- Depending on composition of the pit base, cut opening for required pipe size and location: using:
  - Handsaw
  - Reciprocating saw; or
  - Circular saw

- Insert pipe into hole; and
- Seal using appropriate sealant or adhesive

  Note 24.5.2.3.1: For in-line pit bases, a flexible coupling may be required to provide a watertight connection.

ACO Channel Knock-Out

- Place ACO channel on soft surface to absorb impact and prevent cracking, use:
  - Hammer on the inside of the channel to gently tap in a circular motion around the knock-out symbol; and
  - Grinder to dress or enlarge the hole for the pipe insertion
- A pipe may be secured into the hole using an appropriate sealant or adhesive

ACO Channel Core Drill or Hole Saw

- Use a core drill or hole saw with appropriate cutting edge to cut pipe connection points:
  - Grinder may be used to:
    - Dress; or
    - Enlarge the hole for pipe insertion
  - A pipe may be secured into the hole using an appropriate sealant or adhesive

Stitch Drilling

- Use a 6mm masonry drill bit to:
  - Drill holes around the pipe location; with
  - A maximum 6mm spacing between holes
- Mark at least three crosscuts with a masonry disc saw or drill additional holes across the area to be removed
- Carefully tap out inside of perforated area on the inside of the channel
  - Grinder may be used to:
    - Dress; or
    - Enlarge the hole for pipe insertion
- A pipe may be secured into the hole using an appropriate sealant or adhesive

24.5.3 Prepare Connections to Drainage System

Note 24.5.3.1: Channels may be connected to a drainage system using an in-line pit, or directly through a vertical outlet or horizontal outlet.

If connections to drainage systems are required prior to ACO channelling being installed, Contractors (i.e., Job Supervisor and Job Crew) will:

In-Line Pit

- In-line pits have the same width as the channel but deeper to allow the use of rubbish baskets to collect debris and have multiple outlet options for connection to piping. To connect to ACO channelling:
  - Cut plastic ends off the in-line pit top to the required depth
  - Remove polymer concrete bracing bridge from the in-line pit top; and
  - Connect the Aco channel to the in-line pit

Vertical Outlet

- Pipe connected vertically to the bottom of the ACO channel.
  - Penetrations can be made with a hammer for ACO channels with the knock-out symbol located on the invert; or

- ACO channels can be core drilled or stitch drilled anywhere along the channel through the base

End Cap & Horizontal Pipe Connection

- Inlet and outlet pipes can be connected horizontally at the end of the channel through the end cap or the side wall of the channel. A spigot on end cap aids fitment to pipe:
  - Cut end cap to required size to fit ACO channel depth, but
  - Do not cut the edge rail as this may damage and weaken the ACO channel

  Note 24.5.2.4.2: Pipe connections in the ACO channel wall must be made under the channel edge rail.

24.5.4 Concrete Preparation

If on-site preparation of concrete is required during the installation of ACO channelling, Contractors (i.e., Job Supervisor and Job Crew) will:

- Position the cement mixer on a firm and level surface, allowing sufficient room to:
  - Work around the mixer; and
  - Get a wheelbarrow in and out to collect the mixed cement
- Position sharp sand, aggregate (if specified) and cement lose to the mixer
- Place some ground covering material underneath the mixer and cement pouring area to catch any spillage
- Set the mixer drum to face upwards at an angle of about 45 degrees
- Confirm mix composition (e.g., sand, aggregate and cement) with the Job Supervisor
- Ensure proper:
  - PPE is worn including dust mask when handling components; and
  - Manual handling techniques, (including lift assessment) are used when:
    - Mixing
    - Transferring; and
    - Handling; cement
- Turn on the cement mixer
- Pour sufficient water into the mixer to wet the inside of the drum

  Note 24.5.4.1: This will help prevent the cement from sticking to the inside too much and make cleaning afterwards much easier.
- Add half of the required quantity of cement, sand, and aggregate (if specified) to the mixer and let them run as a dry mix for a few minutes
- Start to add water and monitor the consistency (i.e., thickness) of the cement mix
- Continue to add water until the cement mix is of the required consistency (i.e., thickness)
- Add the rest of the cement, sand and aggregate (if specified)
- Start to add additional water and monitor the consistency (i.e., thickness) of the cement mix
- Continue to add water until the cement mix is of the required consistency (i.e., thickness)
- Continue to run the mixer until the components are properly mixed
- Pour the cement mix into a wheelbarrow for transporting to the block paving site
- Keep the mixer running while pouring the cement into the wheelbarrow, this will help ensure all of the cement is removed from the mixer
- Clean the inside and rim of the mixer after each mix:
- Leave the mixer running and add a small amount of:
  - Water; and

- Sand or aggregates
- Stop the mixer and use brush to loosen any components remaining in the drum, then restart the mixer to remove them

24.5.5 INSTALLING ACO CHANNELLING

Contractors (i.e., Job Supervisor and Job Crew) will:

- Set up a stringline to represent the top edge of either the left or right channel edge rail at the proposed finished height
- Lay a bed of low to medium slump concrete

  Note 24.5.5.1: Only mix or pour enough concrete to a length that channels can be confidently laid before the concrete hardens and becomes unworkable.
- Lower ACO channels vertically into wet concrete base
- Positioning to correct height and alignment and ensure tight connection to previous channel
- **NOT** trap concrete material in the ACO joint
- Check level across both edge rails of each channel with a spirit level before the next channel is set in place
- Add concrete at the ACO joints, partially cover and fill pockets on side of the channelling

  Note: 24.5.5.2: This is required to minimise the risk of movement during the concrete pour.
- Continue the process detailed above until the full length of channelling has been laid

24.5.6 CONCRETE ENCASEMENT:

Contractors (i.e., Job Supervisor and Job Crew) will:

- Ensure the concrete used to initially lay the ACO channels has hardened sufficiently to allow the concrete pouring to proceed, this is required to prevent movement of the channelling
- Correctly position and secure the ACO grating in the channelling

  Note 24.5.6.1: The positioning of ACO grating prior to concrete encasement is required to prevent the ACO wall moving inwards during concrete pouring.

  Note 24.5.6.2: Alternative plywood sections cut to a snug fit can be used rather than the ACO grating to brace the channelling during pouring.
- Protect the ACO grating from concrete contamination by wrapping in plastic or masking with adhesive tape
- Position shims (e.g., washers) along one side of the ACO grating to maintain the clearance gap that exists before the pour
- Confirm ACO channelling (including grating) and the trench is ready in all aspect for concrete pour
- Where required, cover the top of the ACO grating with timber boarding to prevent concrete from entering ACO channels
- Pour concrete evenly on both sides of the ACO channels taking care not to dislodge the ACO

  Note: 24.5.6.3: Ensure that the concrete is distributed evenly underneath and around ACO channels to fill all voids/pockets.
- Initially pour concrete to a level 50mm up the sides of the ACO channels, then compact (i.e., vibration tool) evenly on both sides of the channelling
- Complete the concrete pour to the required height, then compact evenly on both sides of the ACO channels; and
- Ensure the ACO channels and newly poured concrete are protected against traffic and pedestrian flow (e.g., Chapter 8 fencing, or suitable alternative)

24.5.7 PAVEMENT FINISHING:

Contractors (i.e., Job Supervisor and Job Crew) will:

Concrete Finish

- Confirm whether transverse expansion joints (perpendicular to the channel) are required

  Note 24.5.7.1: These expansion joints run perpendicular to the ACO channelling and may be required to allow movement and prevent surface cracking in the slab.

- When required, the expansion joints will be positioned at channel joints to prevent the channels from cracking

  Note 24.5.7.2: If this is not possible, a cut will be made at the appropriate location through the ACO channels to accommodate the transverse expansion joint.

- Position any required longitudinal expansion joints (parallel to the channel) between the concrete encasement and the adjacent slab, up to 1 metre from the ACV channel

  Note 24.5.7.3: The joint must be continuous and flexible. If the joint is dowelled, de-bonding should be provided.

- Finish the installation by trowelling concrete flat and taper down to the ACO channel edge

  Note 24.5.7.4: The top of adjacent pavement must be above the grate level (i.e., approximately 3mm) to ensure liquids drain into the channel and protects the edge rail from damage by direct vehicular traffic.

- Once concrete has hardened for 24 hours, remove bracing and/or grate protection.

Asphalt Finish

- If specified in the design, ensure that full concrete encasement to the top of the ACO edge (i.e., 1 to 4 incline in the concrete to the top of the channel edge); and
- Ensure the asphalt is finished directly up to the ACO channelling, taking care to avoid damage to the channels and grating

  Note: 24.5.7.5: Small asphalt laying machinery is recommended for this finishing.

Block (i.e., Brick) Paving

- Install block paving up to the channel edge; and
- Ensure that paving adjacent to the ACO channelling is fully bonded to the concrete encasement, to prevent movement of the paving and/or damage to the ACOI channelling

24.5.8 ACO ADJACENT TO WALL OR KERB:

Contractors (i.e., Job Supervisor and Job Crew) will:

ACO Adjacent to Wall

- Install a 20 to 50 mm high strength non-shrink grout between the wall and the side of the ACO channels adjacent to a wall
- Carefully finish the grout seal to ensure it is:
  - Well compacted; and
  - Fully sealed against the wall and ACO channels

ACO Adjacent to Kerb

- Position kerb to ensure correct alignment with the ACO channelling
- Determine frequency of reinforcing pins along the length of the ACO channelling
- Position reinforcement pins in the encasement concrete prior to it fully hardening
- Drill reinforcing pin locating holes in the kerbing, ensuring alignment with the reinforcing locating pin positioned in the encasement concrete; and
- Secure the kerbing into position, ensuring:

- Reinforcing pins are sealed within the kerbing using suitable adhesive (e.g., cement); and
- The kerbing is secured in position in accordance with design specification

24.6 Monitoring Work Performance & Work Completion

The Contractor (i.e., Job Supervisor) will:

- Monitor work activities related to installing ACO channelling to ensure:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - ACO channelling is installed in accordance with design specifications (i.e., drawings or plans)
    - Shape
    - Configuration; and
    - Gradient
  - Any required field checks are performed and recorded
  - Waste is correctly stored or disposed of off-site
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed and stored securely
  - The work site remain safe for work activities to protect the Job Crew, for example:
    - Any adjacent excavations have barriers to prevent unauthorised access
    - Work site is protected (e.g., fencing, warning tape and lighting); and
    - Safe in all aspects to allow work to continue

  Note 24.5.1: Until excavated areas have been fully restored to **ground level** the work site must remain secured against unauthorised access (e.g., fencing, warning tape and lighting).

- On completion of the installation of ACOL channelling confirm:
  - All waste and/or excess materials are removed from the work site
  - Mobile equipment is parked safely and secured
  - Handheld tools are removed and stored securely
  - Barriers, warning tape, signage, and floodlighting remain in place, where necessary; and
  - The work site is safe and ready in all aspects, for any required further work
- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit, when required

25. SHOP STRIP-OUT & FIT-OUT (IMS-08.01.5-25)

25.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to strip-out and fit-out retail stores, that has been identified as potentially involving significant risk (**Major Works**).This guidance document specifically details expectations regarding the **Strip-Out and Fit-out of Shops**.

25.2 PREPARATION FOR SHOP STRIP-OUT & FIT-OUT

25.2.1 GENERAL: WORK CONTROL INFORMATION

Contractors (i.e., Site Manager or Job Supervisor) will:

- Conduct an inspection of the designated work site(s):
- Identify:
  - Task specific hazards (i.e., related to the work and or equipment being used)
  - Work environment (i.e., related to site activities, infrastructure and/or operations); and
  - Risk reduction measures (i.e., controls)
- Review the content of the Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) and based on the findings the site inspection:
  - Determine if amendments are required to the Safe Method of Working or RAMS; and
  - Make any required amendments in consultation with the designated MFG Representative

  Note 25.2.1.1: If significant changes are required due to unforeseen risks or errors in the design information advise the designated MFG Project Manage, who will:
  - Contact the Principal Designer and request guidance and instruction regarding the action required; and
  - Ensure that the Principal Designer provides this information in a written format
- Review the content of the Safe Method of Working or RAMS with the MFG Representative and confirm mutual understanding
- Complete a MFG Clearance Certificate detailing:
  - Scope of Work
  - Hazards related to the:
    - Task (e.g., manual handling, slip, trips and falls, sharp edges, etc.); and
    - Work environment (e.g., traffic flow, hazardous energy, infrastructure, etc.)
  - Risk reduction measures (i.e., controls) to reduce risks to an acceptable level
  - Reference to the relevant Safe Method of Working or RAMS
- Obtain any required Work Control Permits (WCP) from the designated MFG Representative

  Note 25.2.2: Provide assistance regarding the correct preparation, review, and approval of the Work Control; Permit (**WCP**) and complete the authorisation and declaration section of the permit
- Confirm mutual understanding of work to be performed and the required risk reduction measures; as detailed in the:
  - Safe Method of Working or RAMS
  - Clearance Certificate; and
  - Work Control Permit, when required

25.2.2 PRIOR TO COMMENCING WORK ACTIVITIES

Contractors (i.e., Job Supervisor and Job Crew) will:

- Hold a Pre-Job Safety Brief with the Job Crew and other affected personnel to:

  - Review the work control documents and ensure mutual understanding, for example:
    - Safe Method of Working or RAMS
    - Clearance Certificate
    - Work Control Permit, when required; and
    - Relevant demolition and construction
  - Assign work duties to Job Crew and confirm mutual understanding of responsibilities
- Confirm:
  - Availability at the work site of:
    - Equipment
    - Materials; and
    - Identified risk reduction measures (i.e., controls) equipment (e.g., barriers)
  - Required Personal Protective Equipment (PPE) is supplied and worn correctly
  - Risk reduction measures (i.e., controls) for shop strip-out and fit-out are:
    - Explained to the Job Crew; and
    - Effectively implemented
- Ensure:
  - Door barriers are erected, as appropriate to the work environment, to prevent unauthorised access to identified work areas within the building
  - Identified work areas within the shop are protected against unauthorised access by the installation of warning tape and/or appropriate security barriers; and
  - Access to shop exterior work areas is protected against unauthorised access by the installation of appropriate barriers (e.g., Chapter 8 barriers)
  - Job Crew are:
    - Capable of performing their assigned duties safely, including medical suitability where applicable; and
    - Able to use the required safety equipment in a safe and proper manner
- Meet Delivery Drivers on arrival at site and provide relevant instructions regarding:
  - Vehicle parking location
  - Vehicle safety and security while on site
  - Site safety rules and regulations; and
  - Safe lifting and handling expectations
- Review the Driver's delivery documentation and confirm the:
  - Quantity of goods and/or materials delivered; and
  - Goods and/or material specifications
- Confirm that the goods and materials can be lifted safely from the delivery vehicle

  Note 25.2.3: Manual handling activities must be assessed, and suitable precautions identified and implemented to reduce the risk of harm. Where necessary the assessment will identify when lifting aids (e.g., sack trolly, forklift truck, Hiab, etc.) are required.
- Clearly identify the:
  - Specific location for offloading the goods and/or materials; and
  - Quantity of goods or materials to be offloaded at each work location

25.3 Stripping Out: Remodelling Project

25.3.1 Prior To Stating Physical Work Activities

Contractors (i.e., Job Supervisor) will ensure:

- Individual work locations are physically inspected to identify:
  - Site specific hazards
  - Task specific hazards; and
  - The required risk reduction measures (i.e., controls)
- Potential sources of hazardous energy are identified, for example:
  - Electrical feeder supply
  - Gas feeder supply; and
  - Water feeder supply
- Safe Methods of Working or RAMS are reviewed to:
  - Confirm appropriate for the planned work; or
  - Determine amendments when required
- Work control documents are prepared, reviewed, authorised and issued, for example:
  - Work Control Permits, when required; and
  - Clearance Certificates
- Required equipment, materials and accessories have been:
  - Inspected
  - Confirmed as meeting design specifications; and
  - Safely stored at the individual work locations
- Stripping out activities are carried out safely, according to construction drawings and plans
- The Job Crew is:
  - Trained and competent to perform their assigned duties
  - Provided with the required PPE, and correct tools and equipment for tasks; and
  - Aware of the safety precautions to be implemented and maintained throughout the work
- The proper (i.e., correct):
  - PPE for the required work is available to, and worn correctly by, the Job Crew
  - Tools for the job are used in a safe and proper manner; and
  - Manual handling techniques are used, including:
    - Pre-lift risk assessment
    - Identification of path of travel and put down points
    - Safe lifting techniques (including tandem lifts); and
    - Use of lift aid (i.e., trolley, lift frame, etc.) as applicable
- Establish and maintain all safety measures, for example:
  - Safe and coordinated work patterns, amongst Job Crew and other Contractors
  - Equipment and materials storage; and
  - Control of visitors and protection of Clients and members of the public

25.3.2 STRIPPING OUT

Contractors (i.e., Job Supervisor and Job Crew) will ensure:

- All **Stripping Out** activities are carried out:
  - Safely and in accordance with the construction drawings and plans; by
  - Trained and competent personnel using proper (i.e., correct) tools and correct PPE
- Work locations are secured to prevent unauthorised access (i.e., barriers, warning tape, etc.)
- Any required:
  - Safety signage and/or warning notices are displayed

  - Fire response equipment (i.e., fire extinguishers) are position within the work site(s)
  - Dust sheets or protective covering have been positioned before any works commences
- The work site, facilities and infrastructure to be dismantled, and exit points:
  - Are clear of obstruction; and
  - Safe access and egress routes are maintained
- Equipment and tools to be used are inspected to identify:
  - Suitability for purpose (i.e., correct tool for the job)
  - Defects. damage; and/or
  - Faults

  Note 25.3.2.1: Defective, damaged or faulty equipment or tools will be removed from service immediately and only the correct tool for the job must be used.
- Potential sources of hazardous energy (e.g., electricity, gas, etc.) and the location of the incoming supply points are identified and clearly marked
- Appropriate test equipment (e.g., Radar Scanner) is used to perform a scan survey of the interior walls to locate hidden services and then mark any services identified
- All sources of hazardous energy are effectively isolated, for example:
  - Electrical feed supply to the building (i.e., isolated by NICEIC Qualified Electrician)
  - Gas feed supply to the building (i.e., isolated by a registered GasSafe Engineer); and
  - Water feed supply to the building (i.e., made safe to work on by a Competent Person)
- Access to work at height locations are performed safely using:
  - Fall prevention (i.e., guard rails); and/or
  - Fall protection (i.e., full body harness and lanyard)

  Note 25.3.2.1: Refer to the following Sections of this Handbook for work at height guidance:
  - **Section 9:** Working at Height: General (**IMS-08.01.5-9**)
  - **Section 10:** Working at Height: Fixed Scaffold (**IMS-08.01.5-10**)
  - **Section 11:** Working at Height: Mobile Scaffold (**IMS-08.01.5-11**)
  - **Section 12:** Working at Height: Mobile Elevated Work Platform (**IMS-08.01.5-12**)
  - **Section 13:** Working at Height: Mobile Scaffold (**IMS-08.01.5-13**)
- Remove appliances and ancillary equipment:
  - Confirm hazardous energy isolations (e.g., electric, gas and water) are effective by bump testing (i.e., try to start)
  - Physically disconnect (i.e., separate) from sources of hazardous energy
  - Carefully dismantle using the correct tools for the job; and
  - Remove to the designated waste storage area or reclaim storage area
- Remove retail units and displays:
  - Confirm hazardous energy isolations (e.g., electric, gas and water) are effective by bump testing (i.e., try to start)
  - Physically disconnect (separate):
    - Displays from the electric incoming feed supply; and
    - Plumbing fixtures from the water incoming feed supply
  - Using the correct tools for the job, carefully dismantle:
    - Displays, taking precautions against sharp edges and pinch points
    - Plumbing fixtures (e.g., sinks, toilets, etc.) taking precautions against sharp edges, pinch points and biological hazards (i.e., bacteria)
    - Work surfaces (i.e., counter tops); and

        - Retail units

          Note 25.3.2.2: If there are upper and lower cabinets remove the lower cabinets first to improve access to the upper cabinets.

    - Remove waste to the designated waste storage or reclaim storage area

      Note 25.3.2.3: Manual handling activities will be risk assessed and appropriate risk reduction measures (e.g., tandem lift, mechanical lift aid, etc.) implemented to ensure that such activities can be safely performed.

- Remove existing wall finishes using the correct tools for the job (e.g., steam stripper)

  Note 25.3.2.4: Ensure that and appropriate risk reduction measures, including the correct use of PPE, as appropriate to the hazards created by the tools being used are implemented.
- Construction drawings and plans are used to:
    - Mark out positions of new services; and
    - Chase out walls (where necessary) using the correct tool for the job
- All core drilling/chasing activities are carried out using a dust extraction attachment, to reduce the level of dust particles in the work area

  Note 25.3.2.5: Ensure that eye and respiratory protection is worn during these activities.
- Remove existing floor covering using the correct tools for the job, including appropriate PPE and respiratory protection where required (i.e., tasks likely to create dust hazards):
    - Carpets and carpet tiles to be uplifted, taking care to avoid sharp edges (e.g., securing pins/plates); and
    - Tiled floors to be broken up and removed via hammer chisel
- Confirm that all debris and waste has been removed to the designated waste storage or reclaim storage area; and
- Do not leave tools and equipment unattended at any time; and
- Ensure area is left safe and properly secured at end of each working day

25.3.3 Making Good: Remodelling Project

Contractors (i.e., Job Supervisor and Job Crew) will ensure:

- All **Making Good** activities are carried out:
    - Safely and in accordance with the construction drawings and plans; by
    - Trained and competent personnel using proper (i.e., correct) tools and correct PPE
- Any required equipment, materials and accessories have been:
    - Delivered to site
    - Inspected
    - Confirmed as meeting design specifications; and
    - Safely stored at the work site
- Work site is physically inspected to identify:
    - Site specific hazards
    - Task specific hazards; and
    - The required risk reduction measures
- Any hazardous energy isolations remain effective, for example:
    - Electrical feeder supply
    - Gas feeder supply; and
    - Water feeder supply

  Note 25.3.3.1: Hazardous energy isolations should be tested (e.g., electrical test meter, or try to start, etc.) to ensure that they are effective.

- As appropriate to the scope of the project, that the following tasks are carried out:
  - Brick work repaired and or renewed, considerations:
    - Walls identified on the design drawings as requiring temporary supports
    - Aspects of the wall that may affect its stability (e.g., control joints, lintels, damp proof course, or openings, etc)
    - Walls connected to another facility or a general public area
    - Height, width, and layout of walls
    - Existing or planned excavation (including trench)
    - Identifying overhead and underground services; and
    - Selection of method to access work at height (e.g., mobile scaffold, Mobile Elevated Work Platform, portable ladder, etc.)

    Note 25.3.3.2: When required cement mixing will be carried out in a well-ventilated area, with adequate precautions implemented in accordance with Safe Method of Working or RAMS, including respiratory protection (e.g., dust mask) .
  - **Damaged plaster repairs, considerations:**
    - Remove any damaged or loose plaster with a scraper
    - Use a wire brush to clean the area
    - Dampen the surface surrounding the repair with a mix of PVA glue and water
    - Mix the quick-drying patch plaster, in accordance with manufacturer's instructions
    - Using a plastering trowel (including hawk board):
      - Apply plaster to the repair with vertical and horizontal movements; and
      - Press firmly to work the plaster into the damaged area
    - Leave the plaster to dry before using a brush to dampen the surface of the repair with water; and
    - Using the edge of a clean trowel, work across the plaster repair to smooth the finish.
  - **Damage plaster renewal considerations:**
    - Dilute PVA glue (1-part PVA to 4-parts water) and apply to the wall
    - Apply PVA glue, which is essential for holding the plaster to the wall, but do not allow to dry completely before proceeding (i.e., until it becomes sticky or tacky)
    - Thoroughly mix the plaster, in accordance with manufacturer's instructions
    - Pour plaster onto a spot board, the plaster should spread but not run across the board
    - Using a bucket trowel, cut away a section of the plaster and transfer to hawk board
    - To apply the plaster to the wall, spread the plaster firmly using an upwards stroke with the trowel angled slightly away from the wall
    - Flatten the trowel at the end of each stroke to smooth the plaster down
    - Work from the bottom corner of the wall upwards and outwards, using a small amount of plaster each time
    - Continue to apply plaster along the wall until the plaster has been evenly spread along the whole surface
    - Allow the first coat of plaster to dry (e.g., 20 minutes) before going over the plaster with a trowel to smooth out any bumps

    Note 25.3.3.2: If necessary, dampen the surface of the plaster with water, apply a second coat of plaster, and allow to dry sufficiently before going over the surface lightly with a clean trowel blade, dampening the surface with water as necessary

    Note 25.3.3.3: When required plaster mixing will be carried out in a well-ventilated area.

- Wooden framing for partition walls and doors is constructed and installed:
  - Using the construction drawings as reference:
    - Carefully cut framing timber to required lengths
    - Layout the exterior framing timbers, as per construction drawing
    - Mark the location of vertical timbers and any required horizontal timbers
    - Assemble the exterior framing timbers and secure, ensuring that the exterior frame and square; and
    - Assemble the internal timbers and secure, starting with the components of any door openings
  - When fully assembled carefully tilt the timber framing until located into correct position
  - Confirm proper alignment of the timber framing wall and secure into position using appropriate fixtures and fittings
- Partition walls are installed (e.g., timber board, dry wall or plasterboard):
  - For timber walls that are to be covered (e.g., facia boarding)
    - Measure boards
    - Cut to size
    - Carefully cut-out door, window or other access points; and
    - Secure using an appropriate fixture
  - For walls that are to be plastered:
    - Measure boards (i.e., 12mm less than floor to ceiling height)
    - Mark the cutting line on the ivory side of the board
    - Cut along the line using a craft knife and straight edge
    - Turn the board over, then cut to snap the board
    - Attach the boards to the frame, with the ivory side outwards:
      - Wedge a bolster chisel at the foot of the board
      - Slide a wood off-cut underneath; and
      - Press down on the wood off cut to force the board hard up against the ceiling
    - Secure the board in place with 32mm plasterboard screws:
      - At roughly 150mm intervals; and
      - 15mm away from the edges
    - Cut the boards to fit above doorway and around and windows of access points
    - Place plasterboard tape over all joints to provide a smooth finish; and
    - Apply plaster to the walls as detailed above for plaster renewal

    Note 25.3.3.4: When required partition walls will be plastered.
- Floor is prepared for new finish, for example:
  - Damaged floors may require concrete skim to make good
  - Floor levelling compound may be required to make good; and/or
  - Lay hardboard to provide level surface for vinyl flooring

  Note 25.3.3.4: If floor levelling compound is required the work area must be well-ventilated.

- The route for services (e.g., electric, gas, water and communications) are identified from the construction drawings and plans, and clearly marked for the fitting out stage
- Making good tasks are completed in accordance with construction drawings and plans and the work site is correctly prepared for the fitting out tasks; and

- The work locations are:
  - Clear of equipment, tools and materials (used for the making good tasks)
  - Free of construction debris and waste; and
  - Visually inspected to:
    - Confirm that the work has been completed to an acceptable standard; and
    - Identify any new hazards that may impact the fitting out phase; and the required risk reduction measures (i.e., controls)

25.4 Fitting Out

25.4.1 Preparation

Contractors (i.e., Job Supervisor and Job Crew) will ensure:

- All **Fitting Out** activities are carried out safely and in accordance with the construction drawings and plans
- The required preparatory work is carried out safely and in accordance with the relevant construction drawings and plans
- Safe Methods of Working or RAMS for fitting out are reviewed to:
  - Confirm appropriate for the planned work; or
  - Determine amendments when required
- Work control documents are prepared, reviewed, authorised and issued, for example:
  - Work Control Permits, when required; and
  - Clearance Certificates
- Required equipment, materials and accessories have been:
  - Delivered to site
  - Inspected and tested (where necessary)
  - Confirmed as meeting design specifications; and
  - Are available at the work site
- Work site is physically inspected to identify:
  - Site specific hazards
  - Task specific hazards; and
  - The required risk reduction measures
- The Job Crew are:
  - Trained and competent to perform their assigned duties
  - Aware of the:
    - Their individual responsibilities for safe performance of the work
    - Risk reduction measures required to safely perform the work; and
    - Importance of maintaining all risk reduction measures throughout the work

25.4.2 Fitting Out: First Fix (Electrical)

Contractors (i.e., Job Supervisor and Job Crew) will ensure:

- First fix electrical work is performed by trained and Competent Personnel (including NICEIC qualified electrician where required)

  Note 25.4.2.1: Those individuals assigned to make connections to electrical feeder supplies will be trained and competent (i.e., NICEIC qualified electrician).

- Safe Methods of Working or RAMS for first fix (Electrical) are reviewed and confirmed appropriate for the planned work, or amended as required

- A Clearance Certificate and any required Work Control Permits are prepared, reviewed, issued and effectively communicated to the Job Crew

  Note 25.4.2.2: The Job Supervisor will determine, by risk assessment, if a Work Control Permit (Hot Work) is required for any work involving a potential source of ignition.
- Electric feeder supply to the building is confirmed to be isolated using an electrical test meter
- Relevant construction drawings and plans are provided and reviewed by the Job Crew
- Proper (i.e., correct):
  - PPE for the required work activities is available to, and worn correct by, the Job Crew
  - Tools for the job are used in a safe manner; and
  - Manual handling techniques are used, including:
    - Pre-lift risk assessment
    - Identification of path of travel and put down points
    - Safe lifting techniques (including tandem lifts); and
    - Use of lift aid (i.e., trolley, lift frame, etc.) as applicable
- Preparatory work is performed safely to allow first fix electrical work to proceed, for example:
  - Opening suspended ceilings to allow routing of electrical cables and positioning of trays
  - Preparing routes for cables and trays into existing structures (e.g., wall surfaces); and
  - Locating and installing any required electrical grounding rods
- The following guidelines for the safe installation of electrical systems are implemented, as applicable to the scope of work:
  - Cable ladders, cable trays, and their supports should be strong enough to meet the load requirements of the cable management system including:
    - Cables and any future cable additions; or
    - Any other additional loads applied to the system
  - Fish plates or approved jointing materials should be used at tray joints for tray sizes 400 mm and above
  - Avoid cutting or drilling the structural building members without approval from the Job Supervisor
  - Cables installed on ladder racking should be spaced by one clear cable diameter of the largest cable
  - The radius of the cable ladder and cable tray fittings should be determined by reference to the cable manufacturer recommend minimum bend allowance for each type of cable
  - If cable ladder and/or cable tray support systems are fixed to primary supports (e.g., structural steelwork or structures of the building (e.g., walls) ensure that the primary supports are strong enough to carry the imposed loads
  - The fixings used to connect the cable ladder/tray support systems to the primary supports should be checked to ensure that they are strong enough
  - Cable trays:
    - Installed on roofs should be supported (e.g., GI brackets or concrete blocks) and a removable cable tray cover fitted
    - Should be installed with a minimum of 400 mm access between trays and any physical obstructions; and
    - Will be:
      - Electrically and mechanically continuous throughout their length
      - Bonded (e.g., 2 mm x 2.5 mm tinned copper links bolted across each joint in the system); and

- Provided with earth continuity along the whole route of cable trays, bonded to the main earthing system of the facility

- Electrical equipment is Installed and secured in accordance with construction specifications, drawings and plans, for example:
  - Electrical meter(s)
  - Distribution panel board
  - Circuit breaker(s), fuse box or breaker panel(s)
  - Electrical isolation boxes
  - Electrical wiring; and
  - Fixtures, lighting and appliances

  Note 25.4.2.2: Electrical equipment will be installed (including connections to earth where required) in accordance with the manufacturer's instructions and secured using correct type of connector.

25.4.3 Fitting Out: First Fit (Water)

Contractors (i.e., Job Supervisor and Job Crew) will ensure:

- Safe Methods of Working or RAMS for first fix (Water) are reviewed and confirmed appropriate for the planned work, or amended as required
- A Clearance Certificate and any required Work Control Permits are prepared, reviewed, issued and effectively communicated to the Job Crew

  Note 25.4.3.1: The Job Supervisor will determine, by risk assessment, if a Work Control Permit (Hot Work) is required for any work involving a potential source of ignition.
- Water feeder supply to the building is confirmed as effectively isolated
- Relevant construction drawings and plans are provided and reviewed by the Job Crew
- The proper (i.e., correct):
  - PPE for the required work activities is available to, and worn correct by, the Job Crew
  - Tools for the job are used in a safe manner; and
  - Manual handling techniques are used, including:
    - Pre-lift risk assessment
    - Identification of path of travel and put down points
    - Safe lifting techniques (including tandem lifts); and
    - Use of lift aid (i.e., trolley, lift frame, etc.) as applicable
- New water supply routes in the building are identified and marked
- Confirm that sewer drain stubs are available for connecting water drainage system to
- Drainage stacks and other fitting (e.g., toilet flanges) are safely installed, considerations include:
  - Drainage stacks are:
  - Used to centralise drainage systems, so they flow to one point and then out of the building
  - Located where all drainage fitting can reach; and
  - Deep enough that there's a downward slope
- Install drainage piping, considerations include:
  - Compliance with construction details
  - Carefully cutting to size using the correct tools of the job
  - Located in accordance with construction details
  - Constructed using an acceptable jointing method (e.g., compression joints)
  - Secured in the designated locations using appropriate fixtures and fitting
  - Connected to the water feed supply to the building; and

    - Connected to the drainage stack
- Install water piping, considerations include:
    - Compliance with design specifications and construction details
    - Located in accordance with construction details
    - Carefully cutting to size using the correct tools of the job
    - Constructed using an acceptable jointing method (e.g., soldering or compression joints)
    - Secured in the designated locations using appropriate fixtures and fitting; and
    - Connected to the water feed supply to the building

  Note 25.4.3.2: The water feeder supply must remain isolated (closed and locked) during the connection process and remain effectively isolated following connection.
- Water lines are bonded (i.e., electrical continuity) to the building's main earth terminal/cable using the correct type of connector

25.4.4 Fitting Out: First Fit (Gas)

Contractors (i.e., Job Supervisor and Job Crew will ensure:

- Safe Methods of Working or RAMS for first fit (Gas Lines) are reviewed to confirm appropriate for the planned work, or requiring amendment
- A Clearance Certificate and any required Work Control Permits are prepared, reviewed, issued and effectively communicated to the Job Crew

  Note 25.4.4.1: The Job Supervisor will determine, by risk assessment, if a Work Control Permit (Hot Work) is required for any work involving a potential source of ignition.
- Gas feeder supply to the building is confirmed as effectively isolated
- Relevant construction drawings and plans are provided and reviewed by the Job Crew
- A trained and Competent Person (i.e., registered GasSafe Engineer) will perform all gas pipe fitting and connection tasks
- The proper (i.e., correct):
    - PPE for the required work activities is available to, and worn correct by, the Job Crew
    - Tools for the job are used in a safe and proper manner; and
    - Manual handling techniques are used, including:
        - Pre-lift risk assessment
        - Identification of path of travel and put down points
        - Safe lifting techniques (including tandem lifts); and
        - Use of lift aid (i.e., trolley, lift frame, etc.) as applicable
- New gas supply routes in the building are identified and marked
- The gas supply piping is:
    - Compliant with design specifications and construction details
    - Located in accordance with construction specifications
    - Safely constructed using an appropriate method for jointing (e.g., compression fittings and gas seal tape or gas compound sealant on compression fittings, and normal lead solder fittings)
    - Secured in the designated location using appropriate fixtures and fitting; and
    - Connected to the gas feeder supply to the building

  Note 25.4.4.2: The gas feeder supply must remain isolated (closed and locked) during the connection process and remain effectively isolated following connection.
- Gas lines are bonded (i.e., electrical continuity) to the building's main earth terminal/cable using the correct type of connector

25.4.5 Fitting Out: Communications (Including IT)

Contractors (i.e., Site Manager or Job Supervisor) will ensure:

- Safe Methods of Working or RAMS for first fit (Communications) hardware and software is reviewed and confirmed appropriate for the planned work, or amended as required
- A Clearance Certificate and any required Work Control Permits are prepared, reviewed, issued and effectively communicated to the Job Crew

  Note 25.4.5.1: The Job Supervisor will determine, by risk assessment, if a Work Control Permit (Hot Work) is required for any work involving a potential source of ignition.
- Relevant construction drawings and plans are provided and reviewed by the Job Crew
- A trained and Competent Personnel will install communication systems (i.e., IT)
- The proper (i.e., correct):
  - PPE for the required work activities is available to, and worn correct by, the Job Crew
  - Tools for the job are used in a safe and proper manner; and
  - Manual handling techniques are used, including:
    - Pre-lift risk assessment
    - Identification of path of travel and put down points
    - Safe lifting techniques (including tandem lifts); and
    - Use of lift aid (i.e., trolley, lift frame, etc.) as applicable
- Communication cable routes are identified and marked; and
- Communication hardware and cables are:
  - Compliant with design specifications and construction details
  - Located in accordance with construction drawings and plans
  - Safely installed using appropriate connection methods
  - Secured in the designated locations using appropriate fixtures and fitting; and
  - Prepared for connection to the electrical supply

25.4.6 Fitting Out: Shop Units & Appliances

Contractors (i.e., Job Supervisor and Job Crew) will ensure:

- Safe Methods of Working or RAMS for installing:
  - Cabinets, including cupboards
  - Worksurfaces (i.e., countertops)
  - Appliances, including gas boilers; and
  - Retail units, including displays; are reviewed to confirm appropriate for the planned work, or requiring amendments
- A Clearance Certificate and any required Work Control Permits are prepared, reviewed, issued and effectively communicated to the Job Crew

  Note 25.4.5.1: The Job Supervisor will determine if a Work Control Permit (Hot Work) is required for any work involving a potential source of ignition.
- Relevant construction drawings and plans are provided to, and reviewed by, the Job Crew
- The installation of cabinets (including cupboards), worksurfaces (i.e., countertops), appliances (including gas boilers) and retail units (e.g., displays) is assigned to Competent Personnel

  Note 25.4.5.2: For electrical installation and connection activities a NICEIC qualified electrician is required to complete work. For gas installation and connection activities a Competent Person (i.e., Registered Gas Safe Engineer is required to complete the work.
- The proper (i.e., correct):
  - PPE for the required work activities is available to, and worn correct by, the Job Crew

- Tools for the job are used in a safe and proper manner; and
- Manual handling techniques are used, including:
  - Pre-lift risk assessment
  - Identification of path of travel and put down points
  - Safe lifting techniques (including tandem lifts); and
  - Use of lift aid (i.e., trolley, lift frame, etc.) as applicable

- The construction drawings and plans for fitting out are reviewed to confirm:
  - Installation location
  - Sequencing of the fitting out construction and installation processes; and
  - The location for cabinets, worksurfaces, appliances and retail units are identified and marked, where necessary
- The following tasks are carried out safely and in accordance with manufacturer's instructions and/or good industry practice:

  Pre-Assembled Floor Cabinets:
  - Position cabinets, ensuring that they are:
    - Level, at the required working height
    - Aligned on the forward-facing edge; and
    - Square, to ensure proper door alignment
  - Secure in position, using the correct type of fasteners and fixtures
  - Cut any required access holes in the back of the cabinet to allow connection of services
  - Fit and secure shelving; and
  - Install doors, ensure correct alignment and secure using the correct type of fasteners

  Fabricated Cabinets (Including Cupboards):
  - Review the construction drawings and plans for cabinet build to confirm:
    - Location
    - Size; and
    - Construction requirements
  - Construct timber framework in accordance with construction drawing and plans
  - Secure timber framework in position, ensure at the required height, level horizontally, and square

    Note 25.4.5.3: This applies to both floor and wall cabinets.
  - Cut facia boarding to appropriate sizes and secure to framing timber
  - Fit and secure shelving; and
  - Install doors, ensure correct alignment and secure using the correct type of fasteners

  Work Surfaces (i.e., Counter Tops):
  - Cut worksurfaces to the required size
  - Identify and mark areas to be cut-out of the work surfaces for the installation of any required fixtures (e.g., sink, etc.)
  - Install and secure:
    - Work surfaces, using the correct type of fasteners
    - Install and secure any fixtures in the work surfaces; and
    - Service connections (e.g., water, gas and electricity)

    Note 25.4.5.4: Electrical connections will be made by a NICEIC Qualified Electrician and gas connections by a registered GasSafe Engineer.

Pre-Assembled Wall Cabinets:

- Confirm the location for each cabinet
- Mark the position of the first cabinet on the wall
- Place cabinet fasteners for the first cabinet into position and secure
- Position first wall cabinet, ensure horizontal, then secure in position
- Continue to position and secure remaining cabinet, ensuring correct alignment; and
- Fit and secure cabinet shelving; and
- Install doors, ensure correct alignment and secure using the correct type of fasteners

Appliances (Including Gas Boilers):

- Confirm the location for each appliance
- Where appropriate, prepare appliances for installation in accordance with the manufacturer's instructions
- Position (i.e., install) appliances in accordance with the manufacturer's instructions
- Connect appliances to services (e.g., electric, gas, water, etc.)

  Note 25.4.5.5: Electrical connections will be made by a NICEIC Qualified Electrician and gas connections by a registered GasSafe Engineer.

- Secure appliances using the correct types of fasteners; and
- Perform any required test to confirm correct installation and operation

Retail Units (i.e., Displays):

- Confirm the location for each retail unit
- Prepare retail units for installation in accordance with the manufacturer's instructions
- Position (i.e., install) retail units in accordance with the manufacturer's instructions
- Connect retail units to electrical supply

  Note 25.4.5.6: Electrical connections will be made by a NICEIC Qualified Electrician and gas connections by a registered GasSafe Engineer.

- Secure appliances using the correct types of fasteners; and
- Perform any required test to confirm correct installation and operation

Connections to Earth:

- Verify that water piping, gas piping and any required appliance or electrical circuit to earther have been installed, tested, and confirmed as secure.

  Note 25.4.5.7: Connections to earth will be made, inspected, and tested by a NICEIC Qualified Electrician.

Second Fix Electrical Work:

- A NICEEIC Qualified Electrician will:
  - Supervise all aspects of the second fix electrical works
  - Assign tasks not involving electrical connections (e.g., cable securing) to competent personnel
  - Safely perform (i.e., connect) any required wired connections, for example to:
    - Distribution panel board
    - Circuit breaker, fuse box or breaker panel
    - Electrical isolation boxes; and
    - Fixtures, lighting and appliances
  - Safely perform all required electrical:
    - Inspections
    - Commissioning; and

- Tests
- Provide Electrical Test Certificates as required by relevant legislation (i.e., Electricity at Work Regulations)

Floors:

- Flooring will be laid in accordance with:
  - Construction drawings and plans; and
  - Manufacturers' instructions (i.e., laminate or wooden flooring)
- Competent personnel will:
  - Work safely
  - Use proper tools and materials for the job
  - Refer to relevant COSHH Assessments and apply the relevant risk reduction measures, when using:
    - Adhesives
    - Solvents; and
    - Pastes (e.g., grout)
  - Secure flooring in accordance with the type of flooring being used, for example:
    - Carpet adhesive or grippers
    - Tile adhesive and grout; and
    - Interlocking mechanism (e.g., laminate and wooden flooring)

Walls & Ceiling:

- Walls and ceiling will be finished in accordance with:
  - Construction drawings and plans; and
  - Manufacturers' instructions (e.g., decorative facia board)
- Competent personnel will:
  - Work safely, including work at height risk reduction measures
  - Use proper tools and materials for the job
  - Refer to relevant COSHH Assessments and implement the relevant risk reduction measures, when using:
    - Adhesives
    - Solvents
    - Pastes (e.g., grout); and
    - Paints
  - Secure wall and ceiling facias in accordance with the type of facia being used, for example:
    - Interlocking mechanism (e.g., laminate coverings); and
    - Tile adhesive and grout

25.5 Design Concerns or Construction Issues

Contractors (i.e., Site Manager or Job Supervisor) will ensure that concerns related to the design or unforeseen risks that occur during performance of the work are handled in accordance with the following requirements:

- Job Crew will immediately:
  - Suspend the work activity
  - Make equipment and work site(s) safe; and
  - Report the concern(s) to the Situ Site Supervisor

- Job Supervisor will:
  - Discuss the design concern or unforeseen risks with the Job Crew and affected personnel
  - Confirm mutual understanding of the concern raised
  - Clarify any misunderstanding that the Job Crew or affected personnel may have regarding the concerns raised, that will allow the works to recommence safely
  - Report the concerns raised to the:
    - MFG Project Manager; and
    - Principal Designer
  - Provide detailed information regarding the concern raised and the action taken on site
  - Not allow work to recommence until:
    - Relevant information, instruction and/or guidance is provided in writing by:
      - Principal Designer; and/or
      - MFG Project Manager
    - The Job Crew and affected personnel have been advised of the action to be taken to address the concerns

Note 25.5.1: Where necessary Contractors ensure that an suitable and sufficient Safe Method of Working or RAMS is provided for the work involved in correcting the concern raised.

25.6 Monitoring Work Performance & Work Completion

The Contractor (i.e., Job Supervisor) will:

- Monitor work activities related to shop strip-out and fit-out paving to ensure:
  - Activities are carried out in accordance with the work control documentation:
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
  - Strip-out and fit-out activities conform to design specifications (i.e., drawings or plans)
  - Any required field checks are performed and recorded
  - Waste is correctly stored or disposed of off-site
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed and stored securely
  - The work site remains safe for work activities to protect the Job Crew, for example:
    - Adjacent work activities being performed by other Contractors
    - Individual work locations are segregated wherever possible (i.e., warning tape); and
    - Safe in all aspects to allow work to continue

Note 25.6.1: Until all work activities have been completed, individual work locations must remain secured against unauthorised access (e.g., warning tape and lighting).

- On completion of the strip-out and fit-out activities confirm:
  - All waste and/or excess materials are removed from the work site
  - Mobile equipment is parked safely and secured
  - Handheld tools are removed and stored securely; and
  - The work site is safe and ready in all aspects, for any required further work
- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit, when required

26. MECHANICAL LIFTING OPERATIONS (IMS-08.01.5-26)

26.1 INTENT

The document is designed to provide guidance to Contractors who are awarded contracts for a specific work scope at a Company Service Station, that includes a requirement to use mechanical lifting equipment (e.g., crane, 360 Excavator, etc.) that has been identified as potentially involving significant risk (**Major Works**).This guidance document specifically details expectations regarding the **Mechanical Lifting Operations**.

26.2 LIFT CATEGORY

Mechanical lifts may be categorised as routine lifts and non-routine lifts:

Routine Lift

A lift that is regularly undertaken (e.g., normal forklift activity) and that can be controlled by a Safe Method of Working, Clearance Certificate, or **Generic Lift Plan**, which will be:

- Developed for routine lifts
- Referenced each time the routine lift is performed; and
- Reviewed periodically to confirm continued applicability

Non-Routine Lift:

A lift that is not routinely performed and that must be controlled by a **Lift Specific Lift Plan**, Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) and Clearance Certificate. When developing these documents consideration should be given to the physical attributes of the load, for example:

- Unstable loads with:
- The centre of gravity above the lifting points
- An offset centre of gravity
- A narrow or small base; and
- Long loads that tend to rotate

26.3 HAZARD IDENTIFICATION & RISK ASSESSMENT

Contractors (i.e., Site Manager or Job Supervisor) will carry out a hazard inspection of the work site and determine the risk reduction measures (i.e., controls) required when performing mechanical lifting operations. Consideration will be given to:

- The scope of work and associated tasks, for example:
  - Access and egress, including work site security
  - Mechanical lifting equipment including lifting accessories, to be used; and
  - Non mechanical hand tools
- Location of the work activity (i.e., workplace hazards)
  - Traffic movement
  - Flammable liquids and vapours
  - Infrastructure (i.e., dispensers, valeting, retail building and Food to Go)
  - Activities of other (i.e., customers, visitors, etc.); and
  - Overhead hazards (i.e., powerlines)

  Note 26.2.3.1: The presence of overhead electrical cables presents a risk of electrocution, for **230 kV cables** the recommended minimum safe working distance is **four (4) metres (13.1 feet)** and for **50kV cables** the minimum safe working distance is **three (3) metres (9.8 feet)**.
- Duration of the work

- Condition and stability of existing surfaces, including ground conditions
- Physical capabilities of the workers; and
- Emergency procedures required in the event of an incident

Contractors (i.e., Site Manager or Job Supervisor) will formally record the assessment findings as part of the task-specific Safe Method of Working or Risk Assessment and Method Statement (**RAMS**) that will include as a minimum:

- Hazards
- Associated risks to people, the environment and assets
- Risk ranking for existing risks (e.g., High, Medium or Low)
- The risk reduction measures (i.e., controls) required to reduce the existing risks
- A residual risk ranking following implementation of controls (e.g., High, Medium or Low); and
- Step by step description of how work tasks will be performed safely

Note 26.2.3.2: If residual risk is determined after implementation of additional risk reduction measures (i.e., controls) to remain **High Risk**, work cannot begin. Further assessment is required to identify other controls that, following implementation, will residual reduce to an acceptable level.

26.4 Mechanical Lifts: Responsibilities

26.4.1 Lift Supervisor

Contractors (i.e., Lift Supervisor) will:

- Be knowledgeable of applicable legal obligations and other requirements related to the planning and execution of lifts
- Supervise and be responsible for safe mechanical lifts, including the allocation of duties
- Assign responsibilities to those involved in the lift
- Confirm:
    - All relevant pre-lift planning has taken place
    - Required lift documentation has been developed and communicate
    - Identified risk reduction measures (i.e., controls) have been fully implemented
    - Sufficient resources (i.e., equipment and personnel) are available to safely perform the lift
    - Personnel are trained and competent to perform their assigned duties
    - Lift equipment is fit for purpose and certified/colour coded as appropriate, including:
        - Taglines; and
        - '**Hands-Off Load Tools**', where required
    - Pickup and laydown areas are within the lift equipment's radius for the load being lifted
    - There is:
        - Adequate lighting in the pickup and laydown areas; and
        - Clear, unobstructed access, egress, and escape routes
    - Any restrictions to the lift are removed (e.g., hold-down bolts or fastenings)
    - Rigging for the lift is correctly installed, for example:
        - Lifting sets are not twisted or snagged; and
        - Shackle bolts are tight and adequately secured
    - Load to be lifted is within the Safe Weight Limit (SWL) of the lift equipment and accessories being used

26.4.2 Lift Equipment Operator

Contractors (i.e., Lift Supervisor) will designate **Lift Equipment Operators**, who will:

- Be trained and competent (including certified where applicable) to operate lift equipment
- Provide technical advice on the safe operation of the lift equipment
- Confirm that the required lifting documentation is available, for example:
    - Lift Plan
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clearance Certificate
- Perform the required lift equipment pre-use inspection to confirm fitness for purpose
- Complete any required crane operation logs, pre-use inspection procedures and checks
- Check the load weight before it is lifted to confirm that the load is within the Safe Weight Limit (**SWL**) of the lift equipment
- Confirm all required hazard control measure are effectively implemented
- Maintain the high standards of safety to protect people and assets during:
    - Rigging activities, including hitching the load to the lift equipment
    - Initial lift of the load
    - Periods that the load is:
        - Suspended
        - Transferred to the laydown area
        - Lowered in the laydown area; and
        - Disconnected from the lift equipment
- Operate the crane under the direction of the Spotter (where necessary); and
- Suspend the lift if a potentially hazardous situation arises or a condition exists, where the safety of personnel, infrastructure or lift equipment may be jeopardised

26.4.3 RIGGERS

Contractors (i.e., Lift Supervisor) will assign **Riggers**, who will:

- Be trained for the types of lift they are involved in and be familiar with the:
    - Rigging hardware used
    - Communication requirements (including hand signals and radio)
    - Safety issues associated with rigging and lifting of loads; and
    - Planning of mechanical lifts
- Participate in the lift assessment process, when required
- Select lifting accessories (e.g., chains, slings and lifting cables) that are:
    - Properly designed and certified (i.e., SWL exceeds the known weight of the load)
    - Correctly identified and have a current inspection and test certificate; and
    - Verified as fit for purpose via visual inspection, for example no visible signs of:
        - Damage
        - Deformation; or
        - Deterioration
- Inspect any load lifting attachments to verify they are properly secured
- Securely attach lifting accessories and ensure properly secure the load for lifting
- Be easily identifiable and distinct from the Spotter (if applicable)
- Connect and/or disconnect the load
- Stand clear while a load is lifted and landed, or while slack is taken up, including while with or without, a load on the hook

- Confirm to the Spotter when they are clear of the load; and
- **NEVER:**
  - Touch a load other than with **Taglines** or **Hands-Off Load Tool** when suspended
  - Attempt to use hands and/or body to stop a swinging load; and
  - Physically touch a load until landed and secured

26.4.4 LOAD HANDLERS

Contractors (i.e., Lift Supervisor) will assign **Load Handlers**, who will:

- Assist with the selection and preparation of lifting equipment to be used prior to mechanical lifts
- Give standard signals that can be understood and followed by the lift equipment Operator
- Inspect the load prior to the lift and after the laydown
- Take control of the load only upon release by the Lift Supervisor
- Be easily identifiable and distinct from the Spotter
- Stand clear while a load is lifted and landed, or while slack is taken up, including while with or without a load on the hook; and
- Confirm to the Spotter when they are clear of the load
- **NEVER:**
  - Touch a load other than with **Taglines** or **Hands-Off Load Tool** when suspended
  - Attempt to use hands and/or body to stop a swinging load; and
  - Physically touch a load until landed and secured

26.4.5 SPOTTERS (BANKSMAN)

Contractors (i.e., Lift Supervisor) will assign **Spotters**, who will:

- Be trained for the types of lift they are involved in and be familiar with the:
  - Rigging hardware used
  - Communication requirements (including hand signals and radio)
  - Safety issues associated with rigging and lifting of loads; and
  - Planning of mechanical lifts
- Participate in the lift assessment process, when required
- Give standard hand signals that are understood and followed by the lift equipment Operator
- Control lift activities that are outside the lift equipment Operator's line of vision, via verbal radio commands, this includes initial lifting of the load and laydown of the load
- Confirm that:
  - Hands-Off Load tools are available where required
  - Taglines are attached, whenever the Lift Plan requires their use

    Note 26.4.5.1: Where required a minimum of two taglines should be attached.
  - A load is not lifted over **live** equipment unless control by:
    - Critical Lift Plan;
    - Risk Assessment and Method Statements (RAMS); and
    - Work Control Permit
- Control and direct movement of the lift equipment on an agreed load path
- Maintain effective communications with the relevant personnel, for example:
  - Lift Supervisor
  - Lift Equipment Operator
  - Rigger; and

    - Load Handler
- Keep the Load Handler in sight during the lift; and
- Stand in a prominent position that allows an unobstructed view of the lift

26.5 Lift Preparation

26.5.1 Lift Plan

Mechanical lifts will be planned and properly controlled by a development and implementation of the lift documentation, for example:

- Lift Plan
- Safe Method of Working
- Risk Assessment & Method Statement (RAMS); and
- Clearance Certificate

Lift Plans will be developed by Competent Personnel and be appropriate to the lift to be performed. The degree of planning will depend on the type of lift equipment used and the complexity of the lift, but will include as appropriate:

- An assessment of the lift and determination of the method of lifting and lift equipment to be used
- The overall level of detail required as related to the risk and complexity of the lift
- Designation of a trained and competent **Lift Supervisor** to:
    - Supervise the lift; and
    - Be accountable for the safe management of the lift
- The number of people required to perform the lift safely, their responsibilities and the agreed method of communication
- Possible restrictions (e.g., weather conditions, physical dimensions, etc.)
- Identification of simultaneous, conflicting, or nearby work; and
- Assessment of ground stability and anchoring

26.5.2 Pre-Lift Activities

Contractors (i.e., Job Supervisor or Lift Supervisor) will:

- Confirm that the following information is available, has been reviewed, and verified as accurate:
    - Equipment inspection, and test certificates, for example:
        - Crane
        - Excavator; and
        - Lifting Frame and Lifting Accessories (e.g., chains, slings, etc.)
    - Training certificates for those involved in mechanical lifts, for example:
        - Lift Equipment Operator (i.e., Crane Operator or Excavator Operator)
        - Lift Supervisor
        - Riggers; and
        - Spotter (Banksman)
- Review the content of:
    - Lift Plan; and
    - Safe Method of Working or RAMS; and confirm task-specific
- Determine if amendments or additions are required to the Lift Plan, Safe Method of Working or RAMS, based on the findings of the site inspection

  Note 26.5.2.1: Where advised by the designated MFG Representative that the lifting operation requires the issue of a Work Control Permit (WCP) assist the designated MFG Representative to

prepare, review and mutually agree the content of the permit prior to completing the authorisation and declaration section of the permit.

- Complete a Clearance Certificate ensuring all required information is recorded
- Hold a Pre-Job Safety Brief with the Job Crew and other affected personnel to:
  - Discuss the content of the:
    - Safe Method of Working or RAMS
    - Lift Plan
    - Clearance Certificate; and
    - Work Control Permit, when required
  - Assign work duties to the Job Crew and confirm their understanding of their duties
- Verify:
  - Risk reduction measures (i.e., controls) for the lift are implemented, including securing the lift site against access by unauthorised persons (i.e., barriers and/or warning tape)
  - Required lift equipment and lifting accessories are available; and
  - Job Crew have the necessary Personal Protective Equipment (PPE)

Mechanical lifts will not proceed until the there is a high degree of confidence that all identified risk reduction measures (i.e., controls) have been effectively implemented, and all required equipment and training certificates have been reviewed and confirmed as current (e.g., within test) and the proposed lift can be safely controlled.

26.6 Mechanical Lifting Operations

26.6.1 Pre-Lift

Contractors (i.e., Lift Supervisor) will:

- Confirm the:
  - Risk reduction measures (i.e., controls) have been, or will be, implemented, see:
    - Lift Plan
    - Safe Method of Working or RAMS
    - Clearance Certificate; and
    - Work Control Permit when required
  - All pre-lift inspections and activities have been completed; and
  - The Job Crew are ready in all aspect to perform their assigned duties
- Ensure:
  - All hazards associated with the lift and rigging are identified and mitigated
  - All safety devices installed on the lift equipment is operational
  - Lifting equipment is:
    - Certified for current use
    - In good working order
    - Verified as fit for purpose during a pre-use inspection; and
    - Compliant with applicable legal obligations and/or other requirements
  - Rigging of the load is carried out by Competent Personnel
  - The load does not exceed the dynamic and/or static capacities of the lift equipment or lifting accessories
  - The load path and areas of potential impact are clear of:
    - Personnel
    - Other obstructions; and

        - Is barricaded as necessary
    - The integrity and stability of the load is verified before the lift; and
    - Appropriate means of communication is established and maintained during the lift:
        - Standard hand signals; and
        - Verbal engagement; to be used

      Note 26.6.1.1: Lift Equipment Operators and Spotters must be familiar with the system of signalling to be used during the lift.

26.6.2 Lift Control & Management

Contractors (i.e., Lift Equipment Operator) will:

- Perform the lift in accordance with the:
    - Lift Plan
    - Safe Method of Working or RAM
    - Work Control Permit, when required; and
    - Clearance Certificate
- Use outriggers as necessary during the lift
- Not leave the operating controls while a load is suspended
- Take action if potential safety concerns are identified during a lift, for example:
    - Immediately **STOP** the lift
    - Seek advice from the Lift Supervisor; and
    - Not resume the lift until the safety concern had been adequately addressed

      Note 26.6.1.2: Potential safety concerns may include, by are not limited to:
        - Lifting equipment performance concerns
        - Signs of damage or wear to lifting accessories
        - Hazards not previous identified
        - Loss of effective communications with the Spotter; and/or
        - Loss of visual contact with the Spotter, including inclement weather and darkness
- Respond to:
    - Hand or verbal signals given by the designated Spotter; or
    - **STOP Signals** from other individuals in an emergency
- Acknowledge that a Hands-Off Load policy applies to all mechanical lifts
- Access to the lift area, and to lifting equipment is controlled, for example:
    - Safety barriers; and/or
    - Other access control measures, as applicable
- Those authorised to enter the lift area:
    - **DO NOT** stand below loads or between loads and walls or structures; and
    - Are aware of the escape routes that are available

26.6.3 Taglines

The use of taglines during mechanical lifts is recommended to aid load stability and the control of a load immediately prior to landing it. The following minimum requirements apply to the use of taglines

- They must not have any knots in a tagline
- The end of the line must:
    - Not be frayed; and
    - Be whipped with a proper whipping twine, or taped, to prevent the rope from unravelling

- Non-conductive taglines will be used if there is a danger of contact with energised electrical equipment or powerlines
- The length of the line should be a minimum of 5 metres, to allow the Load Handler to assist with the placement of a load without placing themselves in danger of being struck by the load
- Sufficient personnel must be available to control the load being lifted
- The tagline should not be released until it is clear of all obstructions or danger of entanglement with equipment or other material

26.7 Deviation from Lift Plan, Safe Method of Working or RAMS

If the lift deviates from the Lift Plan or other work control documents, and/or cannot be completed in accordance with planned arrangement, the Lift Supervisor will immediately:

- **STOP** the lift
- Make the area safe
- Secure the lift equipment; and
- Identify the measures to be implemented to allow a safe and compliant lift

Note 26.7.1: If deviations from the original Lift Plan, Safe Method of Working or RAMS, and/or Clearance Certificate are required they must be discussed with the MFG Representative or MGF's HSE Manager, authorised, and communicated to all affected personnel prior to implementation.

26.8 Monitoring Work Performance & Work Completion

The Contractor (i.e., Job Supervisor or Lift Supervisor) will:

- Monitor work activities related to mechanical lifting operations to ensure:
  - Activities are carried out in accordance with the work control documentation:
    - Lift Plan
    - Safe Method of Working or RAMS
    - Work Control Permit, when required; and
    - Clerance Certificate
  - Lifting operation is carried out safely and efficiently and the load lowered and secured
  - Any required field checks are performed and recorded
  - Waste is correctly stored or disposed of off-site
  - When not in use:
    - All mobile equipment is parked safely and secured; and
    - All handheld tools are removed and stored securely
  - The work site remains safe for work activities to protect the Job Crew, for example:
    - Adjacent work activities being performed by other Contractors
    - Individual work locations are segregated wherever possible (i.e., warning tape); and
    - Safe in all aspects to allow work to continue
- On completion of the mechanical lifting operations confirm:
  - All waste and/or excess materials are removed from the work site
  - Mobile equipment is parked safely and secured
  - Handheld tools are removed and stored securely; and
  - The work site is safe and ready in all aspects, for any required further work
- Sign-off the relevant work control documents, for example:
  - Clearance Certificate; and
  - Work Control Permit, when required