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PLANT AND EQUIPMENT

PURPOSE AND SCOPE

The purpose of this procedure is to ensure that mobile plant and static plant is fit for purpose, safe for use at site and that processes have been established for the ongoing maintenance and servicing of plant. This procedure applies to all mobile plant and static plant used at a Hansen Yuncken project.

RESPONSIBILITIES

HY PROJECT TEAM

- Ensure that plant and equipment is verified as fit for purpose prior to being authorised for use at site
- Ensure that plant and equipment inspection and maintenance is undertaken

PLANT REGISTRATION

The following types of plant are to be registered in HammerTech prior to being approved for use at a site:

- Access
- Earthmoving
- Electrical

- Emergency
- Fall Prevention
- Inspection, Measuring & Test Equipment
- Materials Handling
- Offices and Amenities
- Small Tools and Equipment

REGISTRABLE PLANT

The following plant must be registered with the relevant state regulator:

- Boilers categorised as hazard level A, B or C (according to criteria in section 2.1 of *AS 4343–2005: Pressure equipment – hazard levels*)
- Pressure vessels categorised as hazard level A, B or C (according to the criteria in section 2.1 of *AS 4343–2005: Pressure equipment – hazard levels*) except for gas cylinders; LP Gas fuel vessels for automotive use, and serially produced vessels
- Tower cranes including self-erecting tower cranes
- Lifts, escalators and moving walkways
- Building maintenance units
- Concrete placing booms
- Mobile cranes with a rated capacity of greater than 10 tonnes

Where applicable, evidence of registration must be provided as part of Plant Safety Verification. Plant design may also need to be registered with the state regulator (to be determined as part of Plant Safety Verification).

COMMISSIONABLE PLANT

Where plant is assembled or commissioned on site (e.g. hoists, cranes (either fully or partly assembled on site), concrete placing booms, loading bays, piling rigs), a commissioning or handover certificate must be provided before the plant is authorised for use. This must be issued by a competent person such as the supplier/manufacturer, licensed installer, or qualified engineer.

Where the plant or its components require design registration (e.g. tower cranes, passenger/goods hoists, concrete placing booms, lifts), the design must also be verified by an eligible design verifier in accordance with the WHS Regulations.

PROHIBITED PLANT

TOA TIPPERS

Tip Over Axel (TOA) semi tippers are a tip trailer whereby the trailer hinges directly from the rear axle and is not contained within the chassis of the trailer allowing the front two axles to leave the ground when unloading. The use and operation of TOA semi tippers is prohibited on all Hansen Yuncken projects.

PLANT SAFETY VERIFICATION

Plant Safety Verification must be conducted for mobile plant and static plant prior to being approved for use on site. This includes verification of (as applicable):

- Regulatory registration
- Certification of lifting points
- Servicing and maintenance
- Original Manufacturer's User Manual
- Guards and safety devices
- Provision of operating information
- Plant Risk Assessment
- For mobile plant:
  - SWMS
  - Warning Devices
  - Plant Setup Permit

PLANT RISK ASSESSMENT

The Subcontractor must provide a Plant Risk Assessment as part of the Plant Safety Verification. The Plant Risk Assessment must identify the hazards associated with the use of the plant, for example:

- Entanglement
- Crushing
- Cutting, stabbing or puncturing
- Shearing
- Striking
- High pressure fluid

- Electrical
- Explosion
- Slipping, tripping and falling
- Ergonomic
- Noise
- Ground collapse

The following should be considered as part of the plant risk assessment process:

- Hazard identification that considers all the activities that may be carried out during the life of the plant at the workplace, such as: transport, installation, commissioning, operation, inspection, maintenance, repair, storage and dismantling
- Controls that consider the hierarchy of risk controls and consider safety features associated with the plant such as warning devices, ROPS (considering roll over risks), FOPS (considering falling object risks based on the operational requirements of the task), guarding, edge protection, noise attenuation, hose burst protection valves, operational controls, emergency stops etc.
- Limitations on the use of plant may be required due to a lack of suitable plant controls
- The condition of the control measures should be reviewed during a risk assessment to ensure they continue to protect workers and others from hazards associated with the plant

Any controls identified in the plant risk assessment must be implemented on site and incorporated into any associated site documentation and safe operation of plant procedures.

PLANT VERIFICATION STICKER

A HY Plant Verification Sticker must be attached to plant that has been verified and approved for use on site.

ONGOING VERIFICATION

Plant Safety Verification is valid for 12 months (unless otherwise indicated). The due date for subsequent review of verification is to be entered against the item of plant in HammerTech. At or before the due date, a Plant Safety Re-verification must be conducted

by completing the relevant checklist.

The frequency of Loading Bay verification checks is to be in accordance with the supplier/manufacturer's recommendations. These are to be completed in the Registers module in HammerTech.

INSPECTION OF PLANT

Mobile plant inspections must occur in accordance with both the regulatory and manufacturer's inspection requirements relevant to that specific piece of plant. A daily pre-start inspection must be completed by the operator of mobile plant prior to use. Repairs and maintenance to any plant must only be done by persons qualified or authorised to do so. All damaged or faulty plant is to be reported to the Subcontractor or Hire Company immediately.

QUEENSLAND

Plant and equipment can spread weed seed if contaminated e.g. heavy machinery may contain weed seed contaminated mud on tracks, tyres or attached implements. Depending on the location of the project, mobile plant may also require a Weed Hygiene Inspection certificate. Precautions must also be taken to prevent the spread of fire ants in Queensland. Depending on the location of the project, Fire Ant checks and plant movement restrictions may be required.

SERVICING AND MAINTENANCE

Plant must be serviced and maintained in accordance with regulatory requirements and manufacturer's recommendations. Subcontractors must ensure that plant is serviced and maintained in accordance with the established schedule. Servicing and maintenance records must be submitted for plant that is on site as evidence that Subcontractors are maintaining their plant in a safe condition and in accordance with manufacturer's recommendations.

A SWMS must be provided to HY for plant that is to be maintained and serviced on site. The SWMS must include controls for the isolation of energy sources (https://www.hyworkzone.com.au/isolation-and-energisation-procedure/). This includes

the use of safety rams to trays/jibs in position when servicing trucks/excavators. Workers undertaking the servicing/maintenance must be inducted to site.

Replacement of belts or removal of foreign material from plant must not be undertaken without first shutting off the machine, and either tagging the switch or locking the switch in the off position. Electrical repairs must be carried out by a competent person in accordance with relevant State Legislation.

INSPECTION MEASURING AND TEST EQUIPMENT

Inspection, measuring and test equipment related to HSE must be maintained and stored in accordance with the manufacturer's recommendations. This includes:

- Anemometers
- Noise Meters
- Dust Meters
- Gas meters & monitors
- Breathalysers
- Lasers
- Light (Lux) meters
- RCD calibration testers
- Health monitoring equipment such as air monitors

The equipment must be registered in the project's HSE management software if:

- It is owned or hired by HY
- It is used by a Subcontractor on behalf of HY
- It is used to service and maintain equipment supplied by HY for the use of others on site (e.g. distribution boards)
- The calibration of equipment is assessed as critical for the health and safety of workers on site (e.g. personal air quality monitors)

EQUIPMENT CALIBRATION

Inspection, measuring and test equipment must be calibrated in accordance with *AS/NZS ISO 10012 Measurement management systems – Requirements for measurement processes and measuring equipment*. A copy of calibration records for registered equipment is to be kept in the Project HSE files.

LASERS

Lasers typically used in construction include Class 1, 1M, 2, 2M, and 3R Lasers.

A trained Laser Safety Officer must be present on site if using:

- Class 1M laser
- Class 2M laser
- Class 3R laser where someone could likely view the source of the laser through a scope (i.e. if using a scope or binoculars to view the laser from a distance).

The Laser Safety Officer is to be consulted for hazards and risks relevant to lasers and can assist in the safe set up and operation of lasers.

Class 3B and 4 must not be used on site as they pose risks of skin irritation and have the potential to start fires.

GUARDS

Guards must not be removed or made inoperative unless authorised personnel (competent persons) are carrying out repairs and adjustments. In such circumstances, the guards must be reinstated and be fully operational prior to returning the plant to service. Where guards have been provided on plant and equipment, it must not be used unless the guard is in the authorised position and is operable. Faulty guards must be reported to the Site HSE Coordinator or Site Supervisor immediately.

ROLL-OVER PROTECTIVE STRUCTURES (ROPS) AND FALLING-OBJECT PROTECTIVE STRUCTURES (FOPS)

Roll-Over Protective Structures (ROPS) and Falling-Object Protective Structures must be considered where there is a risk of:

- Plant overturning; and/or
- Objects falling onto the plant

The Subcontractor must determine the need for protective structures as part of the Plant Risk Assessment, accounting for the way the plant is to be operated. Refer to Demolition procedure for requirements for mobile plant. Where ROPS and/or FOPS have been fitted

they must include a compliance plate. The plate should include the following information:

- The name and address of the manufacturer of the structure
- The type and serial number of the structure if any
- The make and model of the plant that the structure is designed to fit
- The number of the standard or code which the ROPS meets, its approval number under that code if applicable, and the name of the testing station
- Any other information deemed appropriate (for example, installation date)

Following any repairs or modifications, an additional label must be put on the frame stating the repairs or modifications that have been made, when and by whom. Structural members must not be modified by welding on additional parts, drilling holes, cutting or grinding etc. as this can affect the rigidity of the ROPS/FOPS. Where a machine has been involved in an incident which has resulted in noticeable damage to the ROPS/FOPS structure, the damaged structure must be replaced and not reused.

EARTHMOVING EQUIPMENT

Earthmoving equipment must comply with AS2294 that prescribe requirements for protective structures. Where there is no prescribed requirement for ROPS and/or FOPS, a risk assessment must be conducted to determine the need for protective structures, accounting for the way the plant is to be operated. Earthmoving equipment includes bulldozers, scrapers, graders, rollers and excavators.

SEATBELTS

The primary purpose of ROPS and FOPS are to reduce the likelihood of an operator who is wearing a seat belt of being crushed or otherwise injured should the plant roll over or be struck by a falling object. As such, a seatbelt must also be fitted when ROPS and FOPS are installed.

QUICK HITCHES ON EXCAVATORS

Excavators with a Quick Hitch require a ‘Quick Hitch Pin Required’ sticker to be placed on either side of boom adjacent to pin location. This is to assist HY and Site Personnel during daily monitoring, Site HSE inspections and Task Observations to identify relevant excavators to ensure pins are in place.

CRANES

CRANE MAJOR INSPECTIONS

Registrable mobile cranes and tower cranes must undergo major services which are to be carried out at the end of the crane's design life per the manufacturer's instructions, or if these are not available, as determined by a competent person (i.e. Crane Service Technician/Engineer) to meet the same minimum requirements established by relevant technical standards. A visual inspection by the competent person may determine whether Non-Destructive Testing (NDT) for any components is required.

If it is not reasonably practicable to inspect a crane according to either of these the crane is to be inspected at least every 10 years from the date the crane was first commissioned or registered, whichever was first. This must include inspection of the structure as well as mechanical components. Service records are to be uploaded the Crane's equipment profile in HammerTech.

ELEVATED WORK PLATFORMS (EWPS)

Control devices for all EWPs must be protected against activation, other than that initiated by the operator, as per AS1418.10 Cranes, hoists and winches – Mobile elevating work platforms. The following requirements must be in place:

- Dead man switch / trigger on controls must be operational
- Controls must be protected to prevent unintentional operation with a manufacturer approved:
  - enclosed cover over the controls; or
  - a bar fixed over & around the controls

Refer to Work at Height for safe operating requirements.

SECONDARY OPERATOR PROTECTIVE DEVICES

All type EWPs must have a secondary operator protective device incorporated into the item of plant. This can comprise of one or more of the following:

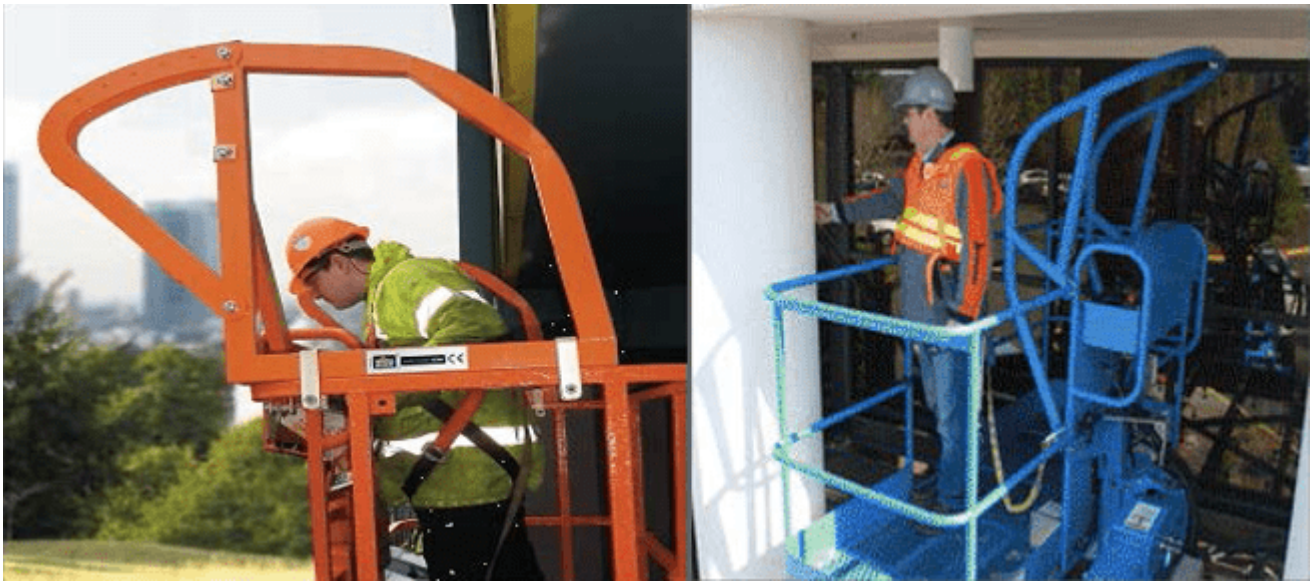
- Protective structure
- Pressure sensing device (crush bar)

- Proximity system

Subcontractors must determine which secondary operator protective device is most appropriate for their work activities by risk assessment. All Secondary Operator Protection devices must be manufacturer approved systems. No unauthorised temporary or ad hoc protective devices are to be fitted to type MEWPs e.g. timber, reo bar, steel.

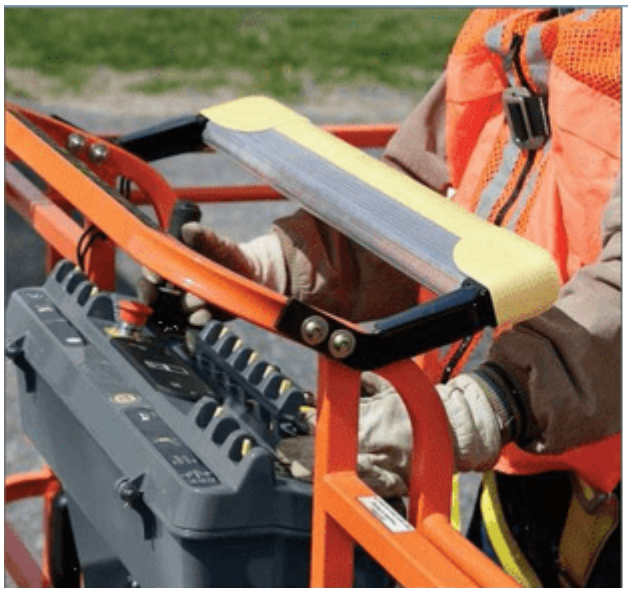
PROTECTIVE STRUCTURE

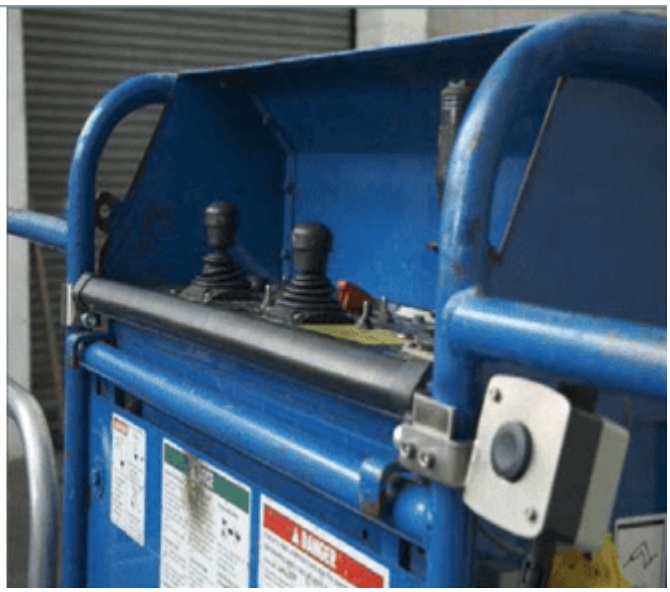
A device fixed to the existing guardrails designed to provide a protective mechanical barrier around the operator.



PRESENCE SENSING DEVICE (CRUSH BAR)

A device that when activated by the application of a force or pressure acting on it, emits an alarm and stops further motion of the work platform or reverses the last motion.





PROXIMITY SYSTEM

A system that operates on the same principle as parking sensor on cars. When the platform approaches a structure the system alarms and reduces the speed of movement.

PLANT SETUP PERMIT

A Plant Setup Permit must be issued in accordance with the Work Permit procedure for the following plant:

- Piling rigs
- Mobile cranes (including Vehicle Mounted truck cranes)
- Concrete boom pumps
- All terrain EWP (when operating outside of established work zones)

Note: All plant requiring the use of outriggers must use solid timber bearers or bog mats placed under each outrigger.

ENGINEERED WORK PLATFORMS

Certain items of plant require an Engineered Work Platform to be established prior to plant setup. An engineer designed and certified work platform is required for:

- Piling rigs
- Mobile cranes used for the installation of precast concrete components
- Mobile cranes used in operations that require a formalised lift study
- Concrete boom pumps

A geotechnical report confirming the suitability of the area and Engineered Work Platform certificated must be provided by Hansen Yuncken the relevant Subcontractor prior to the commencement of works.

Engineered Working Platforms adversely impacted by weather or other site activities must be re-established and re-certified by a geotechnical engineer prior to the recommencement of piling activities.

Further information on Geotechnical Reports is documented in the Ground Works procedure. (https://www.hyworkzone.com.au/ground-works-procedure/)

CONCRETE SLABS

Prior to the operation of plant on any concrete slab, the bearing capacity of the slab must be confirmed by a structural engineer and advice provided on the maximum static wheel loading allowable for the area.

Such advice may include but is not limited to:

- Types of plant permitted on the slab
- Maximum weight of specific items of plant
- Numbers and proximity of items of plant
- Back propping requirements

DEFINITIONS AND ABBREVIATIONS

Mobile Plant – (same as powered mobile plant) means plant that is provided with some form of self-propulsion that is ordinarily under the direct control of an operator

RTO – Registered Training Organisation

VOC – Verification of Competency

ROPS – Roll Over Protective Structure

FOPS – Falling Object Protective Structure

REFERENCES

- Work Health & Safety Regulation 2011 (QLD), 2012 (SA/TAS) and 2017 (NSW) – Chapter 5 Plant and structures
- Occupational Health and Safety Regulations 2017 (Victoria) – Part 3.5 Plant
- Land Protection (Pest and Stock Route Management) Act 2002 (QLD) – Section 46
- Biosecurity Act 2014 (QLD)
- Model Code of Practice for Managing the risks of plant in the workplace
- AS/NZS ISO 10012 Measurement management systems – Requirements for measurement processes and measuring equipment
- AS/NZS 2294: Earth Moving Machinery
- Federal Safety Commission (FSC) Audit Criteria – WH14 Health Surveillance and Exposure Monitoring
- Federal Safety Commission (FSC) Audit Criteria – H16 Mobile Plant

ASSOCIATED DOCUMENTS

- Quick Guide – Elevated Work Platforms
- Cranes and Lifting procedure
- Mobile Plant procedure
- Work at Height procedure
- Work Permit procedure

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