MORGAN SINDALL INFRASTRUCTURE

Plant and Equipment Minimum Standards

Contents

Plant and Equipment Minimum Standards

1 Introduction

Objective
To provide a consistent standard of plant safety across all Morgan Sindall Infrastructure controlled projects.

This document is to be used in conjunction with project specific vehicle and plant management plans and is subject to on-going improvement as new technologies are developed.

This document is also supported by SH9 STD4 Compact Plant Standard which gives further guidance regarding use of compact plant on Morgan Sindall Infrastructure controlled projects.

Compact plant document covers the following items of plant; compaction rollers below 1000mm drum width, mini excavators below three tonne, dumpers below two tonne, skid steer loaders, and ride on mowers and All-Terrain vehicles (ATV's).

Minimum Standards
This section sets out the minimum standards for construction machinery (plant), equipment and tools, and the operator / driver for both Magnor Plant assets, those supplied through our central Plant Hire Desk, and supply chain, in order to achieve best practice.
Special consideration may need to be given for plant and equipment, operating in London, regarding latest emission engine requirements.

Engine Emissions

- As a minimum, all plant machinery covered by this Standard should meet EU Stage IV emissions, and all vehicles registered for road use covered by this Standard should meet EURO 5
- Minimum requirements for London Central Activities Zone and Opportunity Areas (including Canary Wharf) are as follows:
  - For construction machinery (nrmm), EU Stage IV in the London Central Activities Zone and Opportunity Areas (including Canary Wharf) and Stage IIIB in the rest of London
  - EU stages IIIB and IV have not yet been defined for machines with constant speed engines, such as generators. This means that these machines will need to meet Stage IIIB
  - Currently the requirements only apply to nrmm of net power between 37 kW and 560 kW
  - Stage IV has also not been directly defined for variable speed engines smaller than 56 kW. In most cases these engines will need to meet Stage V if they are in the London Central Activities Zone and Opportunity Areas (OA's)
- Some cities may introduce the EU Stage V engine emissions requirement in their air quality standards. For further details, see appendix C of; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672406/E31_-_Air_Quality_v1.5.pdf
- For more details regarding this legislation and clarification on what equipment falls into scope please consult https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/nrmm

In respect of plant and equipment used by our supply chain partners, the minimum standards will form part of our expected standards and in some cases, transitional action plans will need to be agreed and put in place, to achieve the Morgan Sindall Infrastructure minimum standards.

A summary poster can be found in Appendix 6.

All mobile plant needs to incorporate the "thumbs Up" livery.
Toolbox Talks (TBT's) / guidance needs to be completed at all sites demonstrating the concept and best practice relating to "thumbs up" is embedded at all site locations.

Plant and Equipment Minimum Standards

For road vehicles covered by this Standard, content of the Traffic Signs Manual Chapter 8 Part 2 (Chapter 8), to be adopted, as follows:

- Roof-mounted beacons – in accordance with the Chapter 8, Clause O5.3, that includes;
  - Any vehicle stopping on the highway for works purposes or inspections shall be equipped with either a roof-mounted flashing amber warning light bar (comprising at least two independent light sources) or two independent roof-mounted flashing amber warning beacons, visible through 360°
  - Roof-mounted flashing amber warning beacons must comply with the requirements of the Road Vehicle Lighting Regulations and should also comply with the United Nations Economic Commission for Europe (UNECE) Regulation 65 on Special Warning Lamps
  - If the main roof-mounted beacon is likely to be obscured from the rear by parts of the vehicle or any equipment carried on the vehicle, additional beacons should be fitted toward the rear of the vehicle where they will remain visible
  - The roof-mounted beacons shall be in use when entering, leaving or moving within the site, when travelling in traffic at less than the general traffic speed, and when stationary on the hard shoulder
  - When stationary within the confines of a fully installed traffic management arrangement, the roof-mounted beacons shall be switched off, unless they form part of the guarding of the works, e.g., works on minor roads, or are required for mobile works
  - Vehicles engaged in work activities shall display a flashing amber warning beacon at all times when operating

- Vehicle conspicuity –
  - Road vehicles fitted with hi-visibility markings in accordance with the Chapter 8, Clause O5.2

- Highway maintenance sign –
  - The sign “HIGHWAY MAINTENANCE” to diagram 7404, with 140mm capital letter height, fitted externally on rear of each vehicle, in accordance with Chapter 8, clause O5.5.3

Plant and operators / drivers

- Details provided in Section 2 “General Minimum Requirements” and for each plant item in the pages (below), lists requirements for plant and operators / drivers that may not apply to every situation, but must be used when applicable

Hazards / Risks

- Significant hazards / risks are identified in Section 2 “General Minimum Requirements” and with details provided for each plant item (below), however the safe operation and use of plant and equipment on site will be subject to a full documented risk assessment

Legislation

There are references to legislation throughout the document however it is not intended to list all legislative requirements relating to plant operations.

For further information please refer to the following applicable legislation (note this is not exhaustive):

- Provision and Use of Work Equipment Regulations (PUWER)
- Lifting Operations and Lifting Equipment Regulations (LOLER)
- Work at height regulations
- Personal Protective Equipment (PPE) regulations
- Control Of Substances Hazardous to Health (COSHH) regulations
- Road vehicles (construction and use) regulations
- Construction plant and equipment (harmonisation of noise emission standards) regulations
- The control of noise at work regulations

Plant and Equipment Minimum Standards

2 General Minimum Requirements (Page 1 of 2)

Introduction

- Information (text) contained in this "General Minimum Requirements" section (2 pages) is relevant to the safe management, operation and use of all plant and equipment – as applicable
- This information has been removed from text of all items, numbers 3 to 28 inclusive, included in this PET STD 01 document, to:
  - Streamline the document
  - Provide a summary listing of "common" elements relevant to all plant and equipment (as applicable)

General

- All plant and equipment to be inspected prior to first use and the appropriate pre-start check sheet completed and daily recorded inspections thereafter
- Pre-use inspection signed off (all hire companies to supply operator pre use inspection checklist Planned Preventative Maintenance (PPM))

Legal

- Compliant with current UK legislation
- Compliant with European Commission (EC) Machinery Directive 2006/42/EC, or UKCA certification, and supplied with a declaration of conformity

Plant Equipment

- Evidence of pre-hire inspection
- Operator instruction manual available with plant or equipment
- Access handrails and steps to be colour coded
- All safety decals in place and legible
- Evidence of regular inspection plus 'next service and or inspection due' date/hours sticker
- Seat belt/belts must be fitted and operational
- Tyres labelled each side with inflation pressure
- Wheel Nut indicators on all wheel nuts unless proved impractical
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic

Environmental Protection

- Be considerate to our neighbours and select the most appropriate plant to undertake a task with the least disturbance. This may include the use of electric plant. Switch off plant when not in use
- Do not damage environmental protection measures i.e., fencing, water courses etc
- Ensure that environmental permissions to undertake the task are gained prior to undertaking an activity near to a sensitive receptor. This may include a permit to clear or permission from regulators

Operator / Driver (excluding non-working delivery drivers)

- Attend full induction prior to starting work
- Competency assessment prior to being put to work – be familiar with plant / equipment
- Complete Pre-use check sheet/e-inspection
- Comply with pre-use and defect reporting system
- Evidence of having signed onto the appropriate Safe System of Work documentation for the task
- Be briefed on the site-specific Plant, Vehicle and People Management Plan (PVPMP) and check for overhead obstructions and hazards
- Always operate/use plant and equipment in accordance with manufacturer's instructions / recommendations
- Engine must be turned off and keys removed from ignition before leaving the vehicle unattended
- Operator to mount and dismount machine using fixed access arrangements and always facing the machine using 3 points of contact

Plant and Equipment Minimum Standards

2 General minimum requirements (Page 2 of 2)

Operator / Driver (excluding non-working delivery drivers) (cont'd)

- Operator to stop work if the event of unauthorised personnel entering working area / zone
- Report all unsafe conditions
- Where vehicle or mobile plant utilised on site has to be driven on the public highway, the driver/operator must hold a current valid driving licence with the appropriate category for that vehicle/mobile plant
- Full site-defined PPE required if outside cab - non loose fitting PPE required in all cases to avoid catching on controls
- Additional PPE to be worn as defined by risk assessment specific for the task to be undertaken

Non-working delivery drivers on site outside cab

- Full site-defined PPE

Training and Competency Requirements

- A current competence card (or equivalent training accepted by Morgan Sindall Infrastructure) is required for all plant machinery, vehicles or equipment being used
- A listing of competence cards / training is included in "Appendix 5" (at the end of this document) for info / ref.

Hazards / Risks

Significant hazards/risks identified when operating the plant item or equipment and for those adjacent to plant items or equipment:

- Access into cab/refuelling and maintenance
- Clothes can get snagged on controls prior to release of servo isolator/safety handle
- Danger of crushing in slew zone
- Effect of weather on visibility and working/traffic surfaces
- Fire
- Hazardous substances such as fuels, oils, and greases
- Limitations to all round visibility / restricting operator vision
- Overhead obstructions – cables/bridges / power lines / telephone lines
- Plant and personnel interface
- Public interface – working alongside pedestrians/vehicles / plant crossings
- Transportation including loading/unloading

Note: All persons preparing risk assessments involving plant or equipment are encouraged to visit the proposed area of work and to review previous risk assessments undertaken for similar.

Plant and Equipment Minimum Standards

2.1 Index Listing (A to Z) of Acronyms Used

ACRONYM	Full phrase or title
ALLMI	Association of Lorry Loader Manufacturers & Importers (UK)
ATV	All-terrain Vehicle
BS	British Standard
CCTV	Closed-Circuit Television
CE	Conformité Européene
CFA (piling)	Continuous Flight Auger
CLOCS	Construction Logistics and Community Safety
COSHH	Control Of Substances Hazardous to Health
CPC	Certificate of Professional Competence
CPCS	Construction Plant Certification Scheme
CSCS	Construction Skills Certification Scheme
DTH (piling)	Down The Hole
DPF	Diesel Particulate Filters
DVS	Direct Vision Standard
DVSA	Driver Vehicle Standards Agency
EA	Environment Agency
EC	European Commission
EU	European Union
EUSR	Energy & Utility Skills Register
FLS	Frontline Supervisors
FOPS	Falling Object Protective Structure
FORS	Fleet Operator Recognition Scheme
FTA	Freight Transport Association
GB	Great Britain
GMR	General Minimum Requirements (Section 2)
GPS	Global Positioning System
GS6	General Series 6 (Avoiding danger from overhead power lines)
GVW	Gross Vehicle Weight

ACRONYM	Full phrase or title
HAVS	Hand Arm Vibration Syndrome
HGV	Heavy Goods Vehicle
HSE	Health and Safety Executive
IMS	Integrated Management System
INDG	(HSE) Industry Guidance
IPAF	International Powered Access Federation
ISO	International Organisation of Standardisation
JCB	Joseph Cyril Bamford Excavators Ltd
kg	Kilogramme
km	Kilometre
kVA	kilovolt-ampere – (A kilovolt-ampere (kVA) is 1000 volt-amperes. Electrical power is measured in watts (W): The voltage times the current measured each instant)
LA(AP)	Lifting Appliance (Appointed Person)
LDP	Large Diameter Pile
LED	Light Emitting Diode (an electronic light source that uses a semiconductor)
LOLER	Lifting Operations and Lifting Equipment Regulations
MEWP	Mobile Elevating Work Platform
MOT	Ministry Of Transport
NOCN	National Open College Network
NPORS	National Plant Operators Registration Scheme
NRMM	Non Road Mobile Machinery Defined as any mobile machine or vehicle that is not solely intended for carrying passengers or goods on the road
OA's	Opportunity Areas
OEM	Original Equipment Manufacturer
OND	Outdoor Noise Directive
OPS	Operator Protective System
PET STD	Plant Equipment and Transport Standard

MORGAN SINDALL INFRASTRUCTURE

Plant and Equipment Minimum Standards

ACRONYM	Full phrase or title
PPE	Personal Protective Equipment
PPI	Plant Person Interface
PPM	Planned Preventative Maintenance
PUWER	Provision and Use of Work Equipment Regulations
PVPMP	Plant, Vehicle and People Management Plan
RAL	Reichs-Ausschuß für Lieferbedingungen und Gütesicherung – A European colour matching system
RAMS	Risk Assessment Method Statement
RCBO	Residual Current circuit Breaker with Overcurrent protection
RCD	Residual Current Device
RCI / RCL	Rated Capacity Indicator / Rated Capacity Limiter
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
ROPS	Roll Over Protective Structure
RtB	Raising the Bar
RTITB	Road Transport Industry Training Board
SEPA	Scottish Environment Protection Agency
SSSTS	Site Safety Supervisor Training Scheme
STGO (requirements as per CPA TIN 104)	Special Types General Order – (CPA = Construction Plant-hire Association, and TIN 104 = Requirements for In-service Performance Testing of the Chassis Brakes of Mobile Cranes Operating Under STGO)
SWL	Safe Working Load
TBT	Tool Box Talk
TM	Traffic Management
TOPS	Tip Over Protection Structure
UK	United Kingdom
UKCA	United Kingdom Conformity Assessed
UNECE	United Nations Economic Commission for Europe
VED	Vehicle Excise Duty (UK road tax)
VIN	Vehicle Identification Number
VMS	Variable Message Signs
VOSA	Vehicle and Operator Services Agency

ACRONYM	Full phrase or title
WAH	Work At Height(s)

Plant and Equipment Minimum Standards

3 Tools

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document. Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details relating to tools contained below

General

- All tools (petrol / diesel / air) must be inspected prior to first use and the appropriate pre-start check completed and daily inspections thereafter
- Pre-use visual inspections must be completed
- Cables and connection fitments to be inspected prior to use

Operator

- Appropriate training and proof of that training for the tool / equipment being used, i.e., chainsaw
- Operator understanding of stop start procedures
- Be familiar with HAVS monitoring requirements

Hazards / Risks

Significant hazards / risks identified when operating the tool or equipment and for those adjacent to tool or equipment:

- Correct procedure for fitting blades i.e., Stihl saw
- Dust
- Emissions from material or work being undertaken
- Guards fitted and being used correctly
- Hand Arm Vibration Syndrome (HAVS)
- Lack of appropriate PPE
- Lack of training / supervision
- Other work activities in the same area
- Noise
- Sparks
- Use of accessories and how they are attached/inspected such as blades

Plant and Equipment Minimum Standards

3.1 Powered Hand Tools

Hazard identification

- Powered hand tools contain a number of inherent hazards which can be compounded through environmental factors on our work sites
- They fall under the Provision and Use or Work Equipment Regulations which should ensure that tool design mitigate some of the inherent hazards if used and maintained

Inherent hazards

1. Electricity
2. Equipment weight
3. Heat build-up and hot surfaces
4. Noise
5. Potential and stored energy
6. Rotating equipment (hand, finger and arm injuries)
7. Projectiles

Environmental hazards

8. Availability of power sources
9. Dust (in the area of use and generated in operation)
10. Ergonomics of the work location
11. Hazardous / flammable environments
12. Materials to be drilled
13. Use in slippery / wet conditions
14. Use in poor light conditions
15. Vibration

To help minimise the risks associated from the above hazards, the following minimum standards for selection of powered hand tools is recommended:

6. Rotating equipment 7. Projectiles	**Must** be fitted with a chuck and bit guard. (These can often be referred to as dust extraction systems) **Must** have over-run limited switch (active breaking system)
1. Electricity 3. Heat build-up	Preferably DC battery powered. • Battery design should include active condition monitoring
5. Potential and stored energy	**Must** be fitted with two-hand handles and grips. • **Must** have dead-man's switch and/or torque limited
2. Equipment weight	Select appropriate to need and situation use. • Consider augmenting lifting using exoskeleton support systems • Consider adding the associated proprietary tethering system
4. Noise 15. Vibration	**Must** be fitted with active vibration reduction system
14. Low light equipment	**Must** be fitted with LED work light

Plant and Equipment Minimum Standards

4 Generators

The electrical requirements for all generator's, are defined in Electrical Procedure 10 - Generators (SH4 STD 01 EP10).
The following forms shall be used for all types of generator's;

- PM FRM 36 Generator On Hire checks
- PM FRM 36a Generator Weekly - Quarterly checks

4.1 Petrol Generator <10 kVA

Petrol powered site generator with a maximum output of 10 kVA.

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

- 110v outputs should be centre tapped to earth, the phase earth voltage should not exceed 63.5 volts
- Electric start for generators above 5 kVA
- Fire extinguisher available
- Frame mounted up to 3 kVA, Trolley mounted above 3 kVA
- Isolation switch key for generators above 5 kVA
- Non-armoured extension cables must not be used on voltages above 110v
- Switchable dual voltage (110v/230v) 32 and 16 amp outlet sockets protected by 30mA residual circuit breaker
- The use of these generators must comply with Health and Safety Executive (HSE) guidance "Electrical Safety on Construction Sites"
- When operating / installing these machines site must comply with Morgan Sindall rules for electrical safety (See Integrated Management System (IMS))
- Where the generator does not comply with the above an isolating tool transformer may be used in conjunction with the generator

Operator

- Must have completed a product familiarisation briefing
- Abide by specific Morgan Sindall Infrastructure company policies, procedures and permits
- Always operator / use the equipment in accordance with manufacturer's instructions
- Ensure generator has adequate ventilation
- The Residual Current Device (RCD) operation should be checked before first use and after each time the generator is moved

Desirable

- 110v only outlets or 230v outlets can be blanked off
- Additional fume extraction system
- Drip trays or plant nappy to be used in conjunction with the generator
- Trolley mounted

Hazards / Risks

Significant hazards / risks identified when operating the generator and for those adjacent to the generator:

- Do not refuel when engine is hot, running and do not overfill with fuel
- Do not site the machine on uneven ground
- Electric shock
- Manual handling- heavy equipment
- Noise – hearing protection must be used as appropriate
- Refuelling – possible fuel spillage
- Slips, trips and falls from trailing power leads

Plant and Equipment Minimum Standards

4.2 Diesel Generators <20 kVA

Diesel powered site generator with a maximum output of 20 kVA.
These Generators shall be earthed in compliance with the Earthing Best Practice Guidance (SH4 GUID 02).

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General

- 110v outputs should be centre tapped to earth, the phase earth voltage should not exceed 63.5 volts
- 110v/240v, 64, 32 and 16 amp outlet sockets protected by 30mA residual circuit breaker
- Electric start
- Fire extinguisher available
- Isolation switch with key
- LOLER inspected central lifting eye if applicable
- Must have volt meter and hour meter
- Non-armoured extension cables must not be used on voltages above 110v
- The use of these generators must comply with HSE guidance "Electrical Safety on Construction Sites"
- Towing and lifting weight to be clearly displayed on generator
- When operating / installing these machines site must comply with Morgan Sindall rules for electrical safety (See Integrated Management System (IMS))
- When supplying items other than portable tools specific earthing requirements should be checked by a competent person
- Where the generator does not comply with the above an isolating tool transformer may be used in conjunction with the generator

Operator

- Must have completed a product familiarisation briefing
- Abide by specific Morgan Sindall Infrastructure company policies, procedures and permits
- Always operator / use the equipment in accordance with manufacturer's instructions
- Ensure generator has adequate ventilation
- The Residual Current Device (RCD) operation should be checked before first use and after each time the generator is moved

Desirable

- Additional fume extraction system
- Drip trays or plant nappy to be used in conjunction with the generator
- Auto start system
- Hybrid / smart stored energy system
- Trailer or skid mounted

Hazards / risks

Significant hazards / risks identified when operating the generator and for those adjacent to generator:

- Manual handling - heavy equipment
- Refuelling – possible fuel spillage
- Noise – hearing protection must be used as appropriate
- Slips, trips and falls from trailing power leads
- Do not site the machine on uneven ground
- Do not refuel when engine is hot, running and do not overfill with fuel
- Electric shock

Plant and Equipment Minimum Standards

4.3 Diesel Generators >20 kVA

Diesel powered site generator with an output of 20 kVA or above for large power distribution, either skid or trailer mounted.
These Generators shall be earthed in compliance with the Earthing Best Practice guidance (SH4 GUID 02).

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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General

- 110v outputs should be centre tapped to earth, the phase earth voltage should not exceed 63.5 volts
- 230v / 400v with 63 and 32 amp outlet sockets mounted on distribution board, protected by circuit breaker
- Automatic voltage regulator
- Electric start
- Emergency stop button
- Engine protection shutdown system with warning lights
- Fire extinguisher available
- Fuel level gauge
- Isolation switch with key
- LOLER inspected central lifting eye if applicable
- Must have RCD or Residual Current Breaker with Over-current (RCBO) protection
- Must have volt meter and hour meter
- Non-Armoured extension cables must not be used on voltages above 110v
- Silencing pack
- The use of these generators must comply with HSE guidance "Electrical Safety on Construction Sites"
- Towing and lifting weight to be clearly displayed on generator
- Voltmeter with phase to phase selector switch
- When operating / installing these machines site must comply with Morgan Sindall rules for electrical safety (See Integrated Management System (IMS))
- Where the generator does not comply with the above an isolating tool transformer may be used in conjunction with the generator

Operator

- Must have completed a product familiarisation briefing
- Abide by specific Morgan Sindall Infrastructure company policies, procedures and permits
- Always operator / use the equipment in accordance with manufacturer's instructions
- Ensure access to the generator is restricted to authorised qualified persons only
- Ensure generator has adequate ventilation
- Must be qualified and competent to carry out electrical connection activities if installing generator
- The Residual Current Device (RCD) operation should be checked before first use and after each time the generator is moved

Desirable

- Additional fume extraction system
- Auto start system

Plant and Equipment Minimum Standards

- Automatic refuelling system from external fuel tank
- Bund level alert system
- Drip trays or plant nappy to be used in conjunction with the generator
- Hybrid / smart stored energy system

Hazards / risks
Significant hazards / risks identified when operating the generator and for those adjacent to generator:

- Do not refuel when engine is hot, running and do not overfill with fuel
- Do not site the machine on uneven ground
- Electric shock
- Manual handling- heavy equipment
- Noise – hearing protection must be used as appropriate
- Refuelling – possible fuel spillage
- Slips, trips and falls from trailing power leads

Plant and Equipment Minimum Standards

5 Towable Equipment

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Inspection regime

- Inspections to be carried out by supplier / provider representative
  - Examples of towable equipment includes; compressors, tower lights, variable message (VMS) signs, mobile (towable) welfare units, site and highway (towed) bowsers
- Frequency of inspections for each item (towable equipment) to be determined by respective site teams following discussions with supplier / provider on the intended use
  - Items which are regularly towed on the public highway (daily / weekly) must be inspected every 12 weeks
  - Items which are predominantly static and or only towed infrequently onsite (i.e., not regularly towed on the public highway) must be inspected every 26 weeks

General / operator pre-use checks

- All towable compressors or air systems must come supplied road legal and fitted with integral fuel bunding for environmental protection
- Checks on wheel nuts and wheel nut indicators
- All lighting towers must come supplied complete with mast deployment alarm and safety system
- Breakaway cable
- Drawbar assembly breaking systems and towing eye
- Equipment securing devices
- Floor access and access ramp
- Full wheel bearings inspected to be completed every 12 months (minimum)
- Jockey leg / wheel
- Lights
- Tyre depth and condition
- Whip checks to be provided between hose and compressor and hose and tools

Operator

- Must be suitably trained in the use of towing equipment and for the host vehicle / item of plant
- Competency assessment prior to being put to work – be familiar with the towing equipment to be used

Hazards / risks

Significant hazards / risks identified when operating the equipment and for those adjacent to equipment:

- Access for moving, loading and maintenance
- Collision and towing at speeds
- Driver towing techniques
- Incorrect securing of loads
- Lack of training / supervision
- Other work activities in the same area
- Overloading on axles
- Use of accessories and how they are attached / inspected

6 Excavator

6.1. 180º Excavator / Backhoe Loader

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Minimum requirement - Plant

- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Flashing amber beacon
- Brake efficiency testing to be carried out e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- Check valves must be fitted to excavators boom and dipper circuits
- External green light fitted to indicate when seatbelt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
  - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°) - as applicable
- Reversing alarm to be fitted working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS to cab
- If wheeled duties use axle locks for other duties stabilisers must be deployed
- Isolation controls by a secondary device, such as seat rotation
- All buckets supplied with machines must come without teeth unless requested
- Maximum age eight years

- If quick hitch fitted:
  - Must be fully automatic double locking for machines over five tonnes (unless fixed as a direct attachment no quick hitch)
  - For machines five tonnes and below, twin locking fully automatic quick hitch devices or direct mounted
  - Have an in-cab warning alarm where quick hitch fitted
  - Copy of manufacturers operating instructions
  - Pre-use Inspection signed off

- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines' must be followed

Plant and Equipment Minimum Standards

Minimum requirement - Lifting

- Current 12 month LOLER thorough examination certificate
- Unless demonstrated that it will not be used for lifting:
  - Six month LOLER thorough examination on lifting accessories
  - Certified lifting point required for all lifting duties
  - SWL to be clearly marked on certified lifting points
  - When using a lifting eye, an internal thrust bearing type swivel hook, must be used to ensure load can be manoeuvred without risk of swinging back or overloading. Short sling chain to be employed to stop side load
  - Audible or visual overload warning system fitted and operational
  - A machine specific lifting duty sheet, lift plan and risk assessment

Minimum requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Category B driving licence for road use
- Authorisation required prior to driving on public highway by site manager / contractor
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Operator to ensure buckets are carried safely at all times and secured safely when being transported
- Seat belt must be worn

- If quick hitch fitted:
  - Be briefed on safe use of quick hitches
  - Operator shall be trained in how to use specific quick hitch attachments
  - Daily inspection signed off

- If used for lifting:
  - Operator shall be trained in how to use excavator as a crane and specific lifting attachments
  - Lift plan and/or permit to lift must be briefed and understood

Desirable - Plant

- A 270°/360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- A list of weights of potential items to be lifted should be maintained (lift plan)
- Complete people exclusion area around plant and operation
- Seat belt operation interlocked with ignition switch / warning indicator
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks
- Use of slew restrictors where appropriate

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Overturning if on uneven ground or lifting duties exceeded
- Underground services
- Use of accessories and how they are attached / inspected such as breaking hammer

Plant and Equipment Minimum Standards

6.2. Mini Excavator (including machines 8 tonnes and below)

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when seatbelt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
  - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- ROPS and FOPS to cab
- Tip Over Protection Structure (TOPS) to cab as minimum. It applies to compact excavators (as defined in ISO 6165) with swing type boom, having an operating mass of 1000 kg to 6000 kg
- All buckets supplied with machines must come without teeth unless requested
- Extendable tracks for machines three tonnes and below
- Risk assessments to be completed to assess the largest / most stable machine possible to complete the task
- Maximum machine age five years

- If quick hitch fitted:
  - Must be fully automatic double locking for machines over five tonnes (unless fixed as a direct attachment no quick hitch)
  - For machines five tonnes and below, twin locking fully automatic quick hitch devices, manual quick hitch or direct mounted
  - Have an in-cab warning alarm where quick hitch fitted
  - Copy of manufacturers operating instructions
  - Pre-use Inspection signed off

- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Lifting

- Current 12 month LOLER thorough examination certificate
- Unless demonstrated that it will not be used for lifting:
  - Six month thorough examination on lifting accessories
  - Certified lifting point required for all lifting duties
  - SWL to be clearly marked on all certified lifting points
  - Audible or visual overload warning system fitted and operational

Plant and Equipment Minimum Standards

- A machine specific lifting duty sheet, lift plan and risk assessment
- When using a lifting eye, an internal thrust bearing type swivel hook must be used to ensure load can be manoeuvred without risk of swinging back or overloading Short sling chain to be employed to stop side load
- Check valves must be fitted to excavators' boom and dipper rams for machines of five tonnes and above

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Category B driving licence for road use
- Do not break ground unless briefed on, received and fully understood a permit to break ground
- Operator to ensure buckets are carried safely at all times and secured safely when being transported
- Seat belt must be worn

- If quick hitch fitted:
  - Be briefed on safe use of quick hitches
  - Operator shall be trained in how to use specific quick hitch attachments
  - Daily inspection signed off

- If used for lifting:
  - Operator shall be trained in how to use excavator as a crane and specific lifting attachments (Note: A mini-excavator is only suitable for mechanical lifting/lowering, if check valves have been fitted to boom and dipper arm)
  - Lift plan and/or permit to lift must be briefed and understood

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Reversing alarm to be fitted working and audible outside of the cab
- Reversing cameras on machines of eight tonnes and below
- Complete people exclusion area around plant and operation
- Seat belt operation interlocked with ignition switch / warning indicator
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks
- Use of slew restrictors where appropriate
- When used for lifting a list of weights of potential items to be lifted should be maintained
- With quick hitch, an in-cab warning alarm for detachment

Desirable - Emissions

- Electric engines available for 1.9T mini-excavators
- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Underground services
- Use of accessories and how they are attached / inspected such as breaking hammer

Plant and Equipment Minimum Standards

6.3. Tracked 360º Excavator (All machines above 8 tonnes)

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when seatbelt is fastened
- Mirrors to satisfy one metre high at one metre distance visibility criteria
- 270°/360° camera system to be fitted to all machines above eight tonnes
- Movement alarm fitted, working and audible outside of the cab, in residential or built up areas this may need to be exchanged for a white noise alarm
- Roll over protection structure (ROPS) to cab
- Falling object protective structure (FOPS) where required by risk assessment where the working environment requires
- Handrails on body where access is required
- All buckets supplied with machines must come without teeth unless requested
- Work at height protection to provide safe work environment when on the machine for refuelling and maintenance etc.
- Maximum machine age five years
- Quick hitch:
  - Must be fully automatic double locking
  - Have an in-cab warning alarm
  - Copy of manufacturers operating instructions
  - Pre-use inspection signed off
- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement – Lifting

- Current 12 month LOLER thorough examination certificate
- Unless demonstrated that it will not be used for lifting:
  - Six month thorough examination on lifting accessories
  - Certified lifting point required for all lifting duties
  - SWL to be clearly marked on all lifting points
  - When using a lifting eye, an internal thrust bearing type swivel hook, must be used to ensure load can be manoeuvred without risk of swinging back or overloading. Short sling chain to be employed to stop side load
  - Audible or visual overload warning system fitted and operational
  - A machine specific lifting duty sheet, lift plan and risk assessment
  - If lift and carry duties to be undertaken specific risk assessment to be completed taking into account manufacturer's instructions
  - Check valves must be fitted to excavators boom and dipper circuits

Plant and Equipment Minimum Standards

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Operator to ensure buckets are carried safely at all times and secured safely when being transported
- Seat belt must be worn

- Quick hitch:
  - Be briefed on 'safe use of quick hitches'
  - Operator shall be trained in how to use specific quick hitch attachments
  - Daily inspection signed off

- If used for lifting:
  - Operator shall be trained in how to use the excavator as a crane category for lifting operations is A58c (<10 tonne) or A59c (>10 tonne)
  - Operator shall be trained in how to use specific lifting attachments.
  - Lift plan and/or permit to lift must be briefed and understood

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Complete people exclusion area around plant and operation
- Handrails on body on thirteen tonne and above where access required
- Seat belt operation interlocked with ignition switch / warning indicator
- Track direction indicator note
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks
- Use of remote banksman cut off switch where appropriate
- Use of slew restrictors where appropriate
- When used for lifting a list of weights of potential items to be lifted should be maintained
- Zero tail swing ballast / counterweight

Desirable - Emissions

- Engine emissions compliant to EU Stage V
- Hybrid engines available for 20T to 40T excavators

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Controls can be caught inadvertently if near to safety lever
- Underground services
- Use of accessories and how they are attached / inspected such as breaking hammer

Plant and Equipment Minimum Standards

6.4. Wheeled 360º Excavator (All machines above 8 tonnes)

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- On public highway –insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Flashing amber beacon
- Brake efficiency testing to be carried out e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when seatbelt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
    - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- Mirrors to satisfy one metre high at one metre distance visibility criteria
- 270°/360° camera system to be fitted to all machines above eight tonnes (with the exception of JCB Hydrodig Machine)
- Reversing alarm to be fitted working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS to cab
- Handrails on body where access required
- All buckets supplied with machines must come without teeth unless requested
- System to prevent operation at speeds in reverse
- Work at height protection to provide safe work environment when on the machine for refuelling and maintenance etc.
- Maximum machine age eight years
- Quick hitch:
    - Must be fully automatic double locking
    - Have an in-cab warning alarm
    - Copy of manufacturers operating instructions
    - Pre-use inspection signed off
- Unless demonstrated that it will not be used for lifting:
    - Six month thorough examination on lifting accessories
    - Certified lifting point required for all lifting duties
    - SWL to be clearly marked on all certified lifting points
    - When using a lifting eye, an internal thrust bearing type swivel hook, must be used to ensure load can be manoeuvred without risk of swinging back or overloading. Short sling chain to be employed to stop side load

Plant and Equipment Minimum Standards

  - Audible or visual overload warning system fitted and operational
  - A machine specific lifting duty sheet, lift plan and risk assessment
  - If lift and carry duties to be undertaken specific risk assessment to be completed taking into account manufacturer's instructions

- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Lifting

- Current 12 month LOLER thorough examination certificate
- If used for lifting:
  - Operator shall be trained in how to use specific lifting attachments
  - Lift plan and/or permit to lift must be briefed and understood
  - Check valves must be fitted to excavators boom and dipper circuits

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Category B driving licence for road use
- Authorisation required prior to driving on public highway by site manager / contractor
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- If wheeled duties use axle locks, for other duties stabilisers must be deployed
- Operator to ensure buckets are carried safely at all times and secured safely when being transported
- Seat belt must be worn

- Quick hitch:
  - Be briefed on safe use of quick hitches
  - Operator shall be trained in how to use specific quick hitch attachments
  - Daily inspection signed off

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple camera
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Complete people exclusion area around plant and operation
- Handrails on body 13 tonne and above where access required for refuelling or maintenance
- Seat belt operation interlocked with ignition switch / warning indicator
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks
- Use of remote banksman cut off switch where appropriate
- Use of slew and height restrictors where appropriate, risk assessed
- When used for lifting a list of weights of potential items to be lifted should be maintained

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Operating in reversing mode
- Overturning if on uneven ground or lifting duties exceeded
- Underground services
- Use of accessories and how they are attached / inspected such as breaking hammer

Plant and Equipment Minimum Standards

6.5. Plant Accessories and Attachments

This covers accessories manufactured by a different organisation to the host item of plant, examples include piling hammers, breakers etc. Where specific guidance exists e.g., with fully automatic quick hitches this should be prioritised before this document.

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for plant accessories and attachments

General

- All accessories must be compatible with the host machine (weight, pressures, hydraulic flow etc.)
- All accessories should be installed and tested by a competent person, ideally from the supplying company
- All accessories must be designed for the purpose for which they are proposed to be used and for the item of plant and connection system to which they are to be connected
- Attachments must be supplied with manufacturer's instructions for installation, operation and maintenance
- Compatibility must be checked for all attachments with quick hitches where applicable

Operator

- Must be suitably trained and competent in the use of this type of equipment and for the host item of plant
- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Ensure that the machine and ancillary equipment is operated in accordance with the manufacturer's instructions and guidelines
- All hoses should be inspected regularly (daily, pre-use checks)

Hazards / Risks

Significant hazards / risks identified when using accessories or attachments and for those adjacent to accessories or attachments:

- Accessories can increase instability in the host item, consideration must be given to ground conditions
- Entrapment between plant item and accessory
- Hydraulic hoses and cables can become trapped between moving parts, this may potentially cause a hydraulic oil spill if the hose bursts
- Reduced visibility following the installation of accessory

Plant and Equipment Minimum Standards

7 Dumpers

General
Dual View dumpers are mandated across all Morgan Sindall Infrastructure sites for machines six tonne and above. This applies to all dumpers provided by sub-contractors.

All plant to be inspected prior to first use and the appropriate pre-start check sheet completed and daily recorded inspections thereafter. Dumpers and dump trucks must always be operated in accordance with manufacturer's instructions and shall not be filled above the safe load line inside the skip or above the metal rim where no safe load line is indicated to avoid restricting driver's vision.

7.1 Dual View Dumpers six tonne and above / forward and side tipping dumper three tonne

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Flashing amber beacon
- Brake efficiency testing to be carried out e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seatbelt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
    - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- Mirrors to satisfy visibility one metre high at one metre distance visibility criteria
- Reversing alarm to be fitted working and audible, in residential or built up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS cab structure
- For all Dual View dumpers six tonne and above, a rear camera must be fitted, alerting the driver/operator to persons or obstructions within the immediate proximity of the rear of the dumper
- Morgan Sindall has mandated the use of an audio visual warning device in-cab tilt monitor, for fitting to its own fleet Dual view dumpers
- For all three tonne standard Forward Tipping Dumpers front and rear collision avoidance systems must be fitted and operational
- Selection of dumpers below six tonne must have a specific risk assessment prior to work to determine suitability for task. This must take account of the inclines and speeds at which they are to be used and any risk regarding visibility

Plant and Equipment Minimum Standards

- For 3T dumpers, fitted with ROPS protection only, operator must dismount whilst being loaded
- For Dual View dumpers 6T and above, operator may remain in the cab whilst being loaded, subject to a task specific risk assessment being carried out and OEM impact testing completed and satisfactory for dumper being used
- Locking caps / covers
- Tipping mechanism to be in good condition
- Tow hitch (where permissible) must have correct pin with chain attached to dumper
- Maximum age six years

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Operators operating Dual View dumpers must have completed the Rotating Seat Dumper familiarisation SiteRight training course, assured / accredited by the NOCN Group. This must be in place for all providers / supply chain members, by 01 June 2023
- Where turntable dumpers are narrow mouth, or high lift equipment, the operator must have received additional training in accordance with manufacturer recommendations
- Operator must hold a Category B driving licence for road use
- Authorisation required prior to driving on public highway by site manager / contractor
- Do not operate if machine is, or appears to be damaged
- Do not tip whilst on the move or during high winds
- Do not travel or operate onto stock piles or soil heaps
- Ensure stop blocks used to prevent fall into excavation
- Seat belt must be worn

- If towing required:
  - Be trained in towing and operational risk assessed
  - Register of persons authorised to tow must be maintained
  - Special care must be taken to weigh towed especially for breaking activities
  - Operator must consider stability issues when towing and the operator must refer to operators manual prior to towing

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple camera
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- A rule of thumb, 25 per cent of dumper capacity should be placed in a skip / discharge area prior to towing
- A three-way or side-tipping dumper must be three-way complete left or right or forward only. Diagonal tipping should be avoided as non-compliance can result in loss of stability
- Supply chain to fit audio visual warning device in cab tilt monitors, to all Dual view dumpers six tonnes and above, used on Morgan Sindall projects
- Complete people exclusion area around plant and operation
- Directional white noise reversing warning
- Front and rear cameras to be fitted to all Dual View Dumpers six tonne and above
- Full ROPS, FOPS and OPS (Operator Protective System) cab structure for 6T dumpers and above
- Load measurement device
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Plant and Equipment Minimum Standards

Hazards / Risks
Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Consider risk of towed items
- Falls / overturning into excavations
- High risk of overturning at speed and on inclines. Refer to manufacturer's recommendations
- The buckets on side tipping dumpers can protrude significantly when turned to the side, creating a hazard to pedestrians
- Wet materials / clay is prone to stick and cause instability during tipping

Plant and Equipment Minimum Standards

7.2 Articulated Dump Truck

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

- Daily inspection records for plant to be completed. (Omni tag or similar systems must be displayed).

Minimum Requirement – Plant

- Fire extinguisher in cab
- Flashing amber beacon
- Break efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when seatbelt is fastened
- Mirrors to satisfy visibility one metre high at one metre distance visibility criteria
- 270°/360° camera system to be fitted to all machines
- Reversing alarm to be fitted, working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- ROPS cab structure. Cabs must have a minimum of two points of egress including one for emergency use; these must not be restricted in any way

- All Articulated Dump Trucks are to be fitted with Inclinometers
- Articulation lock must be fitted and operational
- Cab steps and grab handles to ensure 3 points of contact is achievable and preferably high visibility
- Locking caps/covers to fuel and all other tanks
- Locking doors with key to all cabs
- Maximum load capacity (payload) to be clearly marked
- Mechanical prop fitted under body (for maintenance purposes only)
- Must have a visual and/or audible warning when the body is in the raised position
- No tailgates unless specifically requested and subject to risk assessment
- Plant exceeding three metres in height must have a notice displayed in a prominent position in the cab showing the overall travelling height of the base machine, its load or equipment
- Safe access for refuelling, maintenance and to any place where accessories are stored
- Tyres to be suitable for the ground conditions, have sufficient tread and be free from defects

- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed
  - Tipping prohibited / or ejector type only

Plant and Equipment Minimum Standards

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- All site and road speed limits must be briefed and complied with
- Body is not to be tipped while on the move
- Ensure machine is operated in accordance with manufactures instructions and in accordance with their training
- Report defects and stop machine where defect is safety critical
- Seat belt must be worn

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Coloured seat belts improve visibility
- Dump trucks can be supplied fitted with Ejector Bodies, therefore eliminating the need to tip on site. The Ejector Body offers clean load ejection and the capability to work in areas with restricted overhead clearance and soft underfoot conditions
- Sites are to be provided a suitable area where operators can conduct regular brake testing. It is recommended as a minimum that these tests are completed and recorded on a weekly basis
- Site management to look at ways in which reversing distances can be reduced (Risk Assessment Method Statement (RAMS)). Tipping areas onsite need to be maintained to avoid unstable ground conditions and/or unnecessary slopes / inclines

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Falls / overturning into excavations
- High risk of overturning at speed and on inclines. Refer to manufacturer's recommendations
- Wet materials / clay is prone to stick and cause instability during tipping

Plant and Equipment Minimum Standards

7.3 Tracked Dumpers (Three tonne to 15 tonne)

These are self-propelled diesel powered, steel or rubber tracked, forward / rear / side tipping dumpers from three tonne to 15 tonne.

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when seatbelt is fastened, the exception to this being by risk assessment for vehicles travelling on the public highways
- Mirrors to ensure one metre high and one metre distance visibility criteria
- All machines supplied with reversing camera as a minimum, 11 tonne and above all machines to be supplied with full 270°/360° camera system
- Reversing alarm to be fitted working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS cab structure
- Mechanical prop fitted under body (for maintenance purposes only)

Minimum requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Seat belt must be worn

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- 11 tonne machines and above to come fitted with latest 270°/360° degree camera technology, c/w machine and pedestrian interface capability
- Coloured seat belts to improve visibility
- Skip inclinometer in cab warning device

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Load should be level with the skip
- Maintenance below skip hazardous, propping arrangements required
- Only to be used on gradients that are within the machine's capability
- Risk of overturning on inclines
- Stop blocks can be used to prevent falling in excavation

Plant and Equipment Minimum Standards

8 Cranes and lifting devices

8.1 Crawler Cranes (Hydraulic cranes only permitted not mechanical)

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- Fire extinguisher in cab
- Flashing amber beacon
- Mirrors / to satisfy one metre high at one metre distance visibility criteria
- Reversing alarm to be directional, working and audible outside of the cab, in residential or built-up areas this may need to be exchanged with a white noise alarm
- 360° all round visibility aids (camera system) to fitted to all crawler cranes / piling rigs (mini rigs excluded)
- ROPS and FOPS cab structure
- Maximum machine age 15 years
- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Lifting

- Current 12 monthly LOLER thorough examination certificate
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide Maintenance, inspection and thorough examination of mobile cranes)
- Current six monthly LOLER thorough examination certificate for all lifting tackle carried
- Current six monthly LOLER certificate for the crane
- Lifting accessories marked with SWL
- Aircraft warning lights fitted (if working within 6km of airports or aerodromes)
- Boom hoist cut-out facility
- Crane fitted with anemometer or other device to monitor in service wind speeds
- Door lock keys supplied
- Fitted and operational audible or visual overload warning system
- Handrails fitted to running boards and crane upper structure
- Hook block over hoist cut-out facility
- Load bearing hydraulic cylinders fitted with check valves
- Slew alarms
- Slew, jib height and radius restrictors if working in the vicinity of overhead power lines, railways, adjacent live traffic, etc Tracks only to be retracted on flat level stable ground, crane must be fitted with spirit level in the operator's sight line showing acceptable limits
- Where cranes have extendable tracks and where there is a limitation on gradient for carrying out extension/retraction the crane must be fitted with a spirt level in the operator's sight line showing acceptable limits

Plant and Equipment Minimum Standards

- Independent checks to be completed (Magnor Plant) for all external crawler cranes. Note: Magnor Plant personnel must attend a full site induction, before entering each respective site / project

Minimum Requirement - Man Riding Requirements

- Ability to restrict the working speed of all crane functions to 0.5 metre per second
- Carrier hoisting and lowering ropes minimum diameter of eight millimetre
- Control levers return to neutral automatically
- Current six monthly LOLER thorough examination certificate for crane and all lifting accessories
- Hook fitted with safety catch
- Power lowering capacity fitted to the crane. If not, free fall capability must be locked out.
- SWL of crane configuration in use is at least twice the rated capacity of the carrier
- Refer to BS7121-1:2016 “Code of practice for safe use of cranes, Part 1: General” for further guidance

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Valid medical certificate
- Must have passed an alcohol and drug test prior to starting work
- Competency assessment prior to being put to work – log book checks
- Evidence of familiarisation training for type of crane to be operated
- Lifting plan and permit to lift in place as appropriate
- Seat belt must be worn

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Block stand to be provided when reeving rope into hook block whilst block is lying down
- Fitted with hook block cameras
- Jib head tracker if working on sites with blind lifting issues
- Means for operator to monitor hoist rope tension such as camera or mirror
- Red, amber and green high-level illumination to indicate crane is operating within safe limits
- Seat belt operation interlocked with ignition switch / warning indicator
- Telescopic operator cabs fitted
- Where crawler cranes are used over shaft work, it is desirable for:
  - Cranes to be fitted with elevated cabs
  - Window guards

Desirable - Emissions

- Maximum desirable machine age eight years and compliant to Stage 4 (Diesel Particulate Filters (DPFs)) or better engine emissions

Desirable – Operator / Supervisor

- Crane supervisor to have hand held anemometer to measure wind speeds
- Operator to have minimum of three years relevant operating experience
- Operator subject to on-going medical screening / surveillance

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Dropped loads
- Ground conditions capable of withstanding imposed track loadings
- Imposed loadings on underground services
- Jib clash with adjacent cranes / tall plant
- Load path – slewing over site personnel
- Potential excessive noise
- Overturning if lifting duties exceeded
- Operating in reversing mode
- Use of jib walkways – falls from height

Plant and Equipment Minimum Standards

8.2 **Mobile Crane** (hydraulic cranes only permitted not mechanical)

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Fire extinguisher in cab
- Flashing amber beacon
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°) - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab, in residential or built-up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS cab structure
- Door lock keys supplied
- Protective mesh must be in place to side of cab on jib side if window is opening type
- Safe access for refuelling, maintenance and to any place where accessories are stored
- Maximum vehicle age 15 years

- If used under overhead cables or obstructions
  - Height restrictors with indication on machine
  - Health and safety executives GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement – FORS

- Fleet Operator Recognition Scheme (FORS) compliant (vehicle specification)
- For further guidance, refer to – https://www.fors-online.org.uk/cms

Minimum Requirement – Lifting

- CE certificate and current test certificate
- Current 12 monthly LOLER thorough examination certificate minimum. Sites with exceptional hazards it is recommended a six-monthly thorough examination to be completed, this would be identified through risk assessment
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide
- Current six monthly LOLER thorough examination certificate for all lifting accessories carried and marked with SWL as minimum. Sites with exceptional hazards it is recommended a three-monthly thorough examination of all lifting accessories, this would be identified through risk assessment
- Lifting accessories marked with SWL
- Aircraft warning lights fitted (if working within 6km of airports or aerodromes)
- Anemometer fitted to all cranes
- Any cranes that are accompanied with independent ladders, these

Plant and Equipment Minimum Standards

ladders must contain inspection stickers to evidence checks have been carried out and are in date, on a regular basis
- Carrier hoisting and lowering ropes minimum diameter of eight millimetres
- Chassis brakes to be tested under Special Type General Order (STGO) requirements as per Construction Plant-hire Association (CPA) Technical Information Notice (TIN) 104 requirements for in-service performance testing of the chassis brakes of mobile cranes
- Crane needs to be fitted with a 'Dead Man' (the operator has to be in the seat to operate the crane, once operator leaves the seat the 'Dead Man' is operational
- Fitted and operational audible or visual overload warning system
- Hook fitted with safety catch
- Load bearing hydraulic cylinders fitted with check valves
- Operation manual including load charts to be available with the machine on site
- Over hoist limit device installed
- Regular checks must be carried out on the cranes out rigger mats including the condition of the handles
- Slew alarms
- Slew, jib height and radius restrictors if working in the vicinity of overhead power lines, railways, adjacent live traffic, etc.

Minimum Requirement - Man Riding Requirements
- Current six monthly LOLER thorough examination certificate for crane and all lifting tackle
- Ability to restrict the working speed of all crane functions to 0.5 metres/second
- Control levers return to neutral automatically when released
- Hook fitted with safety catch
- Power lowering capacity fitted to the crane. If not, free fall capability must be locked out
- SWL of crane configuration in use is at least twice the rated capacity of the carrier
- Refer to BS7121-1:2016 "Code of practice for safe use of cranes, Part 1: General" for further guidance

Minimum Requirement - Operator
- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Minimum of category C driving licence when unit over 7.5 tonne GVW
- Valid medical certificate [See BS7121 -1:2016 "Code of practice for safe use of cranes, Part 1: General" and RtB 12 "Occupational health"]
- Competency assessment prior to being put to work – log book checks
- Evidence of familiarisation training for type of crane to be operated
- Must have passed an alcohol and drug test prior to starting work
- Lifting plan and permit to lift in place as appropriate
- Seat belt must be worn

Desirable - Plant
- Block stand to be provided when reeving rope into hook block whilst block is lying down
- Camera to be fitted to cathead to give operator clear view of load when blind lifting
- Crane supervisor to have hand held anemometer to measure wind speeds
- Fall restraint system fitted to boom for rigging super-lift
- For driving activities, seat belt operation interlocked with ignition switch / warning indicator
- Means for operator to monitor hoist rope tension for example camera or mirror
- Red, amber and green high-level illumination to indicate crane is operating within safe limits
- Reversing alarm to be directional and white noise
- Sectional / lightweight or circular outrigger pads if manually handled to reduce risk to personnel
- Use of slew restrictors where appropriate

Plant and Equipment Minimum Standards

Desirable - Emissions
- Engineer emissions compliant to EURO 6

Desirable - Operator
- Operator to have relevant operating experience on type of crane
- Operator subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks
Significant hazards / risks identified when operating the machine and for those adjacent to machine:
- Dropped loads
- Imposed loadings on underground services
- Jib clash with adjacent cranes / tall plant
- Load path – slewing over site personnel
- Outrigger pads can be very heavy and awkward shapes
- Overturning if lifting duties exceeded
- Reversing manoeuvres

Plant and Equipment Minimum Standards

8.3 Telehandler

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- Check valves must be fitted
- External green light to be fitted to indicate when seatbelt is fastened, exception to this being by risk assessment for plant machinery traveling on public highways.
  - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- All round mirrors and 360° all round visibility aids to be fitted. As a minimum the machine must be fitted with all round vision mirrors and reverse camera
- Reversing alarm to be fitted working and audible outside of the cab, in residential or built-up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS cab structure
- All machines to be restricted to ten mph (miles per hour) in forward gears
- Forks to be folded / secured if travelling on public highway
- Protective mesh to be in place on jib side of cab if window is of opening type
- Maximum vehicle age five years
- If used under overhead cables or obstructions;
  - Height restrictors with indication on machine
  - Health and Safety Executive GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Lifting

- Current 12 monthly LOLER thorough examination certificate (six monthly required if machine being used in conjunction with man-riding basket)
- Current six monthly LOLER certification for all on-board lifting tackle and/or fork attachments
- Lifting duty chart to be displayed on boom or in cab
  - Certified lifting points for all lifting duties
  - Safe load indicator or rated capacity indicator
- Boom ram lock facility must be provided with the machine
- Fitted and operational audible or visual overload warning system
- If lifting from forks (under slinging) proper attachments must be fixed

Plant and Equipment Minimum Standards

with heel pins (not T screws) and have specific lift plan
- Mechanical prop fitted under boom for maintenance purposes
- No materials including lifting tackle to be stored beneath the boom
- Only fully integrated man-riding baskets are permitted when supported by a task specific risk assessment.

Minimum requirement – Towing
- A standard hitch is acceptable on Telehandlers which is engaged in infrequent / ad hoc towing of trailers / equipment less than 1000kgs.
- If used for constant towing of trailers / equipment "over 1000kgs" the Telehandler must be fitted with a hydraulic tow hitch (Agri Hitch System).
- Hydraulic tow hitch (Agri Hitch System) is available for use with 7, 9 and 10m machines

Minimum Requirement - Operator
- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Must have current relevant driving licence (category B) if driving on public highway
- Training in lifting suspended loads, when operating Telehandler with suspended loads driver must have correct CPCS category (Suspended loads).
- Authorisation required prior to driving on public highway by site manager / contractor
- Check for ground conditions prior to lifting and must consider stabilisers where appropriate
- Competent to check Rated Capacity Indicator (RCI) and Rated Capacity Limiter (RCL)
- Competency assessment prior to being put to work – be familiar with machine and telehandler attachments
- Lift plan and/or permit to lift must be briefed and understood
- Machine levelling devices must be used in all cases if fitted
- Operator must ensure the boom is carried at a safe level at all times in accordance with the manufacturer's recommendations
- Seat belt must be worn

Desirable - Plant
- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Boom angle indicator
- Complete people exclusion area around plant and operation
- Green seat belt beacon and operation interlocked with ignition switch / warning indicator
- Inclinometer gauge and/or decal advising of gradient limits for safe operation
- Maintain a list of weights of potential items to be lifted
- ROPS particularly with all-terrain models
- Tracker unit – immobilising method independent of factory fitted locks, locking caps / covers to fuel and all other tanks

Desirable - Emissions
- Engine emissions compliant to EU Stage V
- Electric engine available for 6m Telehandlers

Desirable - Operator
- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:
- Lifting and carrying suspended loads
- Overturning if on uneven ground or lifting duties exceeded

Plant and Equipment Minimum Standards

8.3.1 Rotary Telehandler

Self-propelled, diesel-powered rotational telehandler with a reach from 21m- 35m and lift capacity from 4000kg - 7,000kg.

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- Check valves must be fitted
- External green light fitted to indicate when seatbelt is fastened, the exception to this being by risk assessment for vehicles travelling on the public highways
  - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- All round mirrors and 360° all round visibility aids to be fitted. As a minimum the machine must be fitted with all round vision mirrors and reverse camera
- Reversing alarm to be fitted working and audible outside of the cab, in residential or built-up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS protected cab
- 4x4 drive train
- Air conditioning
- Cab steps and handles painted high visibility yellow ensuring three points of contact is achievable
- Isolation switch with key
- Labelled each side with tyre inflation pressure and wheel nut torque figures
- Live tracking system
- Locking caps / covers to fuel and all other tanks
- Locking doors with keys
- Where access is required at height for security and maintenance purposes, suitable handrails must be in place to prevent falling from height
- Tracker unit fitted
- Maximum vehicle age five years

Plant and Equipment Minimum Standards

- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Lifting

- Current 12-month LOLER thorough examination certificate
- Current six monthly LOLER certification for all on-board lifting tackle and/or fork attachments
- Lifting duty chart to be displayed on boom or in cab
- Certified lifting points for all lifting duties
- Boom ram lock facility must be provided with the machine
- Height restriction
- If lifting from forks (under slinging) proper attachments must be fixed with heel pins (not T screws) and have specific lift plan
- Live load chart computer (visual and audio)
- Live load chart to prevent and shut off before overload occurs
- Longitudinal load movement control system
- Red pre-overload beacon
- Rated Capacity Indicator (RCI) or Rated Capacity Limiter (RCL)
- Slew restriction

Minimum Requirement - Accessories

- 1.8 metre fork extensions
- 300kg-1000kg / 2.2m metre – four metre extendable fully integrated man platform
- 360° rotating forks
- Carriage hook four tonne – six tonne capacity
- Carriage winch four tonne – seven tonne capacity
- Fly jib winch 2.5 metre long two tonne – three tonne capacity
- Reduced height hook four tonne – six tonne capacity
- Standard fork carriage
- Three metre crane jib two tonne – six tonne capacity
- Two-metre-wide carriage forks

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Full on-site familiarisation offered by UK Forks FOC
- Familiar and competent to utilise Roto accessories
- Competent to check Rated Capacity Indicator (RCI) and Rated Capacity Limiter (RCL)
- Must have current relevant driving licence (category B) if driving on public highway
- Abide by specific company policies, procedures and permits to work
- Always operate / use the equipment in accordance with manufacturer's instructions / recommendations
- Authorisation required prior to driving on public highway by site manager / contractor
- Check for ground conditions prior to lifting and must consider stabilisers where appropriate
- Lift plan and/or permit to lift must be briefed and understood
- Seat belt must be worn

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Attachment auto recognition
- Complete people exclusion area around plant and operation
- Forward fork camera for working at height (gives operator visibility of what they are lifting at full reach)
- Green seat belt beacon and operation interlocked with ignition switch / warning indicator
- Stabiliser pads for stabiliser legs
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks

Plant and Equipment Minimum Standards

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Lifting and carrying suspended loads

Plant and Equipment Minimum Standards

8.4 Lorry Loader Crane

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Vehicle

- Current Ministry of Transport (MOT) plating certificate
- Current operator 'O' licence displayed in the cab windscreen
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Reversing alarm to be fitted working and audible outside of the cab, in residential or built-up areas this may need to be exchanged with a white noise alarm
- Audible and visual warning to be fitted in the cab to remind driver / operator including the hydraulic arm fitted, is not safety stowed prior to travelling
- Edge protection or fall arrest arrangements where access to vehicle body required
- Safe access to all areas where operator or slinger / signaller required to work
- Use of slew restrictors where appropriate
- Maximum machine age eight years
- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - Health and safety executives GS6 avoidance of danger from overhead electric power lines must be followed.

Minimum Requirement - Lifting

- Current 12 monthly LOLER thorough examination certificate
- Current six monthly LOLER certification for all on-board lifting tackle and accessories
- Have either a four yearly overload test certificate or thorough examination in line with Association of Lorry Loaders Manufacturers and Importers (ALLMI) guidance note 010 and CPA
  - ALLMI management of lifting operations with lorry loaders best practice guide June 2010
- Accessories to be marked with safe working loads
- Crane duties chart displayed on boom or at operator's station
- Functioning audible warning devices – safe load indicator / rated capacity indicator / device with hydraulic lock-out / warning light / alarm

Minimum Requirement – Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Plant and Equipment Minimum Standards

Minimum Requirement - FORS

- Fleet Operator Recognition Scheme (FORS) compliant (vehicle specification)
- For further guidance, refer to – https://www.fors-online.org.uk/cms
- Direct Vision Standard (DVS) – HGV's greater than 12 tonnes gross vehicle weight (category N3) and operating within the London Low Emission Zone must hold a DVS safety permit

Minimum Requirement – Chapter 8

- Refer to Section 1 "Introduction" (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirement – Stabilisers

- All lorry loaders attending projects/sites must have the type of stabiliser identified:
  - The operator's manual and instructions must be strictly adhered to
  - Establish if the stabilisers are operated from fixed positions or via remote
  - The risk of crushing injuries is increased when hydraulically operated tilting / rotating stabilisers are fitted. This is increased if the tilting / rotating leg retracts towards where the operator needs to stand to operate the controls
  - The operator must observe the extension and tilting / rotating leg at all times when it is being operated
  - Simultaneous deployment/retraction of stabiliser extensions and tilting / rotating legs is not permitted under any circumstances
  - Outrigger lock-out preventing crane operation with legs in stowed position
  - Stabiliser legs not stowed warning device

- If unsure, do not allow the activity to proceed and seek further guidance from the Lifting Appliance Appointed Person [LA(AP)], Health and Safety Team or both
- Refer to the following safety alerts for further details -
  - ALLMI Safety Alert – Swing-up Stabilisers [Oct 21] – https://www.allmi.com/latest-news/latest-news/568-allmi-safety-alert-swing-up-stabilisers-2
  - National Highways Safety Alert NHa/276, Lorry loader stabilisers https://www.highwayssafetyhub.com/uploads/5/1/2/9/51294565/nha276_-_national_highways_for_information_safety_alert_-_lorry_loader_stabilisers.pdf

Minimum Requirement - Driver / operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Minimum of Category C driving licence when unit is over 7.5 tonne GVW
- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Lift plan and/or permit to lift must be briefed and understood
- Seat belts must be worn

Desirable - Vehicle

- For driving activities, seat belt operation interlocked with ignition switch / warning indicator
- Sensor de-rate system if crane is used short-rigged
- Traffic cones or other means of maintaining safe zones and avoiding pedestrian traffic near lifting

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Driver / operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Plant and Equipment Minimum Standards

Hazards / Risks
Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Dropped loads / instability of load
- Ground conditions capable of withstanding imposed track loadings
- Imposed loadings on underground services
- Incorrect (unsafe) deployment and retraction of stabilisers
- Jib clash with adjacent cranes / tall plant
- Load path – slewing over site personnel
- Overturning if lifting duties exceeded

Plant and Equipment Minimum Standards

9 Mobile Elevating Work Platform (MEWP) General

All plant to be inspected prior to first use and the appropriate pre-use inspection sheet completed and daily recorded inspections thereafter.

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant - all MEWP's

- Current Six monthly LOLER thorough examination certificate
- All MEWP's must adhere to EN280:2003 or later (introduction of load sensing at the platform)
- Controls should be designed in such a way to protect against the risk of sustained involuntary operation. This can take the form of physical guards or standoff bars
- Direction of travel must be clearly indicated
- Key out system for lorry mounted booms, to allow safe operation with ignition key removed
- Fire extinguisher available with MEWP
- If MEWP's are to be used to lift materials to height, then appropriate material handling attachment must be used (Refer to HSE Guidance GEIS 6)
- Movement / travel alarm to be fitted, working and audible
- Outrigger / wheel loading details
- Power failure safe lowering system
- SWL displayed in platform
- When MEWP's are used in situations involving a risk of crushing against overhead structures or equipment, specific control measures must be implemented, and the use of electronic secondary guarding devices must be used
- Maximum machine age six years
- If used under overhead cables or obstructions
  - Height restrictions with indication on machine
  - HSE GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Boom type MEWP's only

- Flashing amber beacon
- Harness anchorage points in boom platform

Minimum Requirement – Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)
- Specific Emergency Recovery / Rescue Procedures must be established and effectively communicated and practised prior to works commencing

Plant and Equipment Minimum Standards

Minimum Requirement – Chapter 8

- Refer to Section 1 “Introduction” (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Category B driving licence for road use
- Evidence of familiarisation training for the particular type of MEWP to be operated, including training in emergency recovery from the ground, and provision of a second/safety person on the ground to operate emergency lowering system
- Trained in use of harness as appropriate
- Lift plan and/or permit to lift must be briefed and understood
- Use of harness – harness to be worn in boom type MEWP or in the scissor lift if travelling and to be appropriate for specific use

Desirable - Plant

- Audible alarm for lowering and for entrapment of operator
- Effective fleet management system should be used to drive efficiency and improve safety (see Sky Sentry on Nationwide Platforms Service Level Agreement)
- Fire suppression in engine compartment if working in a zone of fire risk or if emergency basket to basket evacuation procedures not practical
- Fish eye mirrors for all round vision when travelling
- It is desirable for all machines used on site to come fitted with the latest secondary guarding system and where applicable material handling attachments to be utilised. See appendices for more detail
- MEWP’s to have 110 volt supply available in basket pre-wired
- Tilt alarm fitted
- Toolbox equipment storage in basket

Desirable – Boom type MEWP’s only

- Audible parking position of the boom in air should not be permitted

Desirable - Scissor type MEWP’s only

- Flashing beacon on scissor lift
- Harness anchorage point in scissor lift (mandatory if it is to be used whilst travelling)

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Clearances between buildings / other platforms
- Falls from height / falling objects
- Ground conditions capable of withstanding imposed wheel track loadings
- Ground conditions / underground services – imposed wheel / outrigger loadings
- Handling materials on MEWP platforms can overload machinery or be at risk of falling
- High wind speed
- Interface with crane/load during lifting operations (e.g., if MEWP used for completing joints) with consideration
- Operating in reversing mode
- Operator recovery from an incapacitated machine
- Overturning if lifting duties exceeded or poor ground conditions
- Potential for clashes with other plant working in the vicinity
- Stability when travelling machine with platform raised
- Uneven ground conditions and driving up ramps during travelling can create a risk of crush / impact injury

Plant and Equipment Minimum Standards

9.1 MEWP – Spider Lift Type Only

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Minimum Requirement - Plant

- Current Six monthly LOLER thorough examination certificate
- A power failure emergency lowering facility must be fitted
- All engines (where fitted) able to run only using red or white diesel
  - No Petrol engines acceptable under any circumstances
- Damage responsibility decals must be fitted
- Fire extinguisher available with MEWP
- Four spreader pads of an appropriate standard size must be supplied with each machine
- If used to install materials, an appropriate material handling device must be used (refer to HSE Guidance GEIS 6)
- International Powered Access Federation (IPAF) 1B safe driving advice decal must be fitted
- On lithium battery powered machines a charging decal must be fitted
- Outriggers must display the maximum load applied by them
- Safety decals indicating the partial deployment of outriggers when moving machines over soft or rough ground must be fitted
- Where the operator cage can be removed from the machine (for narrow access) a suitable approved safety mechanism must be fitted so that the cage is always secure when replaced

- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Evidence of familiarisation training for the particular type of MEWP to be operated, including emergency recovery from the ground
- Any machine 30m working height or above to be supplied with IPAF operator on first day for extended familiarisation
- Trained in use of harness as appropriate
- Lift plan and/or permit to lift must be briefed and understood

Desirable - Plant

- A decal should be fitted indicating the safe angle and direction of any climb, the use of any safety chocks and safe positioning of an operator when climbing gradients
- A facility for extending/retracting the tracks to make the machine wider or narrower
- Crane lifting attachment points should be marked with an appropriate decal
- It is desirable for all machines used on site to come fitted with the latest

Plant and Equipment Minimum Standards

secondary guarding system and where applicable material handling attachments to be utilised. See appendices for more detail.

- Machines should have either umbilical cord remote control or radio remote control to drive them around.
- Where a machine is able to be run on battery or mains electric it should be capable of being run on either 240v or 110v

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Incorrect set up of machine leading to instability or disablement
- Stability when driving over soft or rough ground
- Stability when driving the wrong way across side to side gradients
- Stability when driving with tracks / wheels retracted

Plant and Equipment Minimum Standards

10 Road Sweeper / Collector

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Vehicle

- All current certificates / service documents provided
- Current Ministry of Transport (MOT) plating certificate
- Current VED and operator 'O' licence displayed in the cab windscreen
- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Reversing alarm to be fitted, working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- Appropriate waste permits if leaving site and exemption/ consent if disposing on-site
- Dual gulley brush and wide main brush
- Gulley sucker and hand lance
- Park brake not engaged warning device
- Reversing camera
- Safe and clean access to cab
- Safe and clean access for refuelling
- Maximum vehicle age 15 years

Minimum Requirement – Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirement - FORS

- Fleet Operator Recognition Scheme (FORS) compliant (vehicle specification)
- For further guidance, refer to – https://www.fors-online.org.uk/cms
- Direct Vision Standard (DVS) – HGV's greater than 12 tonnes gross vehicle weight (category N3) and operating within the London Low Emission Zone must hold a DVS safety permit

Minimum Requirement – Chapter 8

- Refer to Section 1 "Introduction" (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Plant and Equipment Minimum Standards

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Calm Networks training in safe operation, use, cleaning and storage of standpipes (training available through - www.waterservices.org.uk)
- Demonstrable training and experience in operation of sweeper / collector
- Operator to be Traffic Management (TM) trained in mobile works
- Minimum of Category C driving licence when unit is over 7.5 tonne GVW
- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Seat belt must be worn

Desirable - Vehicle

- Base colour to be conspicuous as per Chapter 8 requirements
- For driving activities, seat belt operation interlocked with ignition switch / warning indicator.
- Reversing alarm to be directional and white noise
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Driver / operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Danger of crushing under un-propped body
- Danger of flying debris during wash out of bin and filters or using hand lance
- Incorrect opening of rear door or raising of body / travelling with body in raised position
- Incorrect or no documentation - Appropriate waste permits if leaving site and exemption/ consent if disposing on-site
- Uncontrolled disposal/discharge of waste

Plant and Equipment Minimum Standards

11 Compressors / Air Systems

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- Unique ID number to be displayed on plate including Vehicle Identification Number (VIN)
- Noise emissions label incompliance with OND 2000/14/EC
- All current pressure systems regulation certificates in place
- 12 weekly inspection on running gear
- Access to a portable fire extinguisher at the place of work
- Integral fuel bunding for environmental protection
- Towing eye type attachment only
- Whip checks to be provided between hose and compressor and hose and tools
- Maximum machine age eight years

Minimum Requirement – Chapter 8

- Refer to general minimum requirements section (above) for details relating to vehicle conspicuity and highway maintenance signage requirements

Minimum Requirement - Operator

- Demonstrable training and experience in operation of compressor / air system
- Be familiar with HAVS monitoring requirements
- All hoses should be inspected regularly (daily, pre-use checks).

Desirable - Plant

- Security hitch lock
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and other tanks

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Damage to jockey wheel due to misuse / lack of proper maintenance.
- Flying debris
- Manual handling when moving compressor and when using of heavy attachments
- Noise and vibration
- Open hoses when airline switched on
- Overturning
- Towing and lifting operations
- Trailing hoses

Plant and Equipment Minimum Standards

12 Rollers

12.1 Ride on Compaction Roller

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- All current certificate / service documents
- Access to a portable fire extinguisher at the place of work
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seat belt is fastened the exception to this being by risk assessment for plant machinery travelling on public highways
  - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- Mirrors to satisfy one metre high at one metre distance visibility criteria
- 270°/360° all round visibility aids (camera system) to be fitted to all cabbed compaction Rollers only
- Reversing alarm to be fitted, working and audible outside the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- Small machines – ROPS
- Large machines – ROPS and FOPS
- Safe and clean access to cab
- Safe and clean access for refuelling
- A clear safety zone around the operating areas
- Isolation switch with key
- Locking caps and covers
- Under seat starter / isolator pressure switch
- Maximum age of plant 15 years

Minimum Requirement – Chapter 8

- Refer to Section 1 "Introduction" (above) for details relating to beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirement - Driver / operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Operator must have a current driving licence (Category B) if driving on the public highway

Plant and Equipment Minimum Standards

- Authorisation required to drive roller on public highway by site manager / contractor
- Seat belt must be worn

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Base colour to be conspicuous as per Chapter 8 requirements. Refer to Introduction (Section 1) for further details.
- Seat belt operation interlocked with ignition switch / warning indicator. Cabbed machines only
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Driver / operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection
- Whole body vibration monitoring

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Effect on adjacent excavations, buried services or structures from vibration
- Noise and vibration
- Serious risk of overturning on inclines or when working on edges
- All hazards associated with an activity to be risk assessed and, where necessary, supported by a specific method statement.
- Items of Plant / Rollers to selected based on task and the hazards associated with working environment.
- Setting to work briefings must be specific to the task and the location.
- Plant must be operated on well compacted ground, away from the leading edges to reduce the risk of overturning.

Plant and Equipment Minimum Standards

13 Tracked Dozer

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when seatbelt is fastened
- Mirrors / to satisfy one metre high at one metre distance visibility criteria
- 270°/360° camera system to be fitted to all machines
- Reversing alarm to be fitted, working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- ROPS to cab structure
- If winch fitted – associated lifting gear to have current six monthly LOLER thorough examination certification
- Safe and clean access to cab
- Safe and clean access for refuelling
- Maximum age eight years

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Ensure door is closed when machine is operating
- Seat belt must be worn

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Coloured card system for operator to acknowledge presence of other persons or vehicles
- Complete people exclusion zone around plant and operation
- FOPS to cab where risk of falling debris
- Global Positioning System (GPS) control system for blades as this will reduce the need for persons on the ground for surveying
- GPS control system to be installed at ground level to avoid working at height
- Proximity detection system
- Reversing alarm to be directional and 'white noise'
- Seat belt operation interlocked with ignition switch / warning indicator
- Track adjustment particularly slackening by competent personnel only with appropriate tools and PPE
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks
- Two way radio system / hands free to communicate with operator

Plant and Equipment Minimum Standards

Desirable - Emissions

- Engine emissions compliant to EU Stage V
- Hybrid engine available for 6T tracked dozers

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Falls from height when erecting GPS masts
- Reversing movements
- Risks of towed items e.g., roller
- Serious risk of overturning on inclines or when working on edges
- Speed of machine movement – proximity of plant marshal
- Underground services

Plant and Equipment Minimum Standards

13.1 Wheeled Loading Shovel

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Minimum Requirement - Plant

- Fire extinguisher in cab
- Flashing amber beacon
- Brake efficiency testing to be carried out e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seat belt is fastened the exception to this being by risk assessment for plant machinery travelling on public highways
    - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- All round mirrors to satisfy one metre high at one metre distance visibility criteria –
- 270°/360° camera system to be fitted to all machines
- Reversing alarm to be fitted, working and audible outside the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- ROPS and FOPS cab structure
- Articulation lock must be fitted and operational
- Ensure door is closed when machine is operating.
- Locking caps and covers
- Power isolation switch with key
- Safe and clean access for refuelling and maintenance
- Safe and clean access to cab
- Maximum machine age eight years

Minimum Requirement - Lifting

- Current 12 month LOLER thorough examination certificate
- Current six month LOLER examination of all on-board lifting equipment or handling attachments
- Lifting duty chart displayed on boom or in cab
- Machine lifting points / tie down points must be clearly labelled and be in good condition

Minimum Requirement - Driver / Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- If driving on the public highway, operator must have current driving licence (category B) and be a minimum of 18 years of age
- All site speed limits must be briefed and complied with
- Authorisation to take plant onto public highway by site manager / contractor
- Ensure door is closed when machine is operating
- Seat belt must be worn

MORGAN SINDALL INFRASTRUCTURE

Plant and Equipment Minimum Standards

Desirable - Plant

- A 360º camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- Automatic braking systems which stop the machine if an obstruction is detected
- Proximity detection system
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Operator falling from machine when alighting or dismounting machine
- Restricted visibility on larger machines or if travelling with bucket raised too high
- Reversing movements
- Serious risk of overturning on inclines, soft or uneven surfaces
- Trapping fingers / hand in door due to accidental closure

Plant and Equipment Minimum Standards

14 Agricultural Tractors

Self-propelled diesel powered agricultural tractors

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- 'O' licence required if machine used in a goods carrying activity on the public highway (not including plant crossings). If required, current operator 'O' licence displayed in the cab windscreen.
- On public highway - insured, and compliant with C&U regulations (VED registered, working Lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when seat belt is fastened, the exception to this being by risk assessment for vehicle travelling on public highways
  - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight and mirrors
- Audible reversing alarm audible outside of the cab
- Roll over protective structure (ROPS) & falling object protective structure (FOPS) cab structure
- Cab steps and grab handles to ensure 3 points of contact is achievable and preferably high visibility
- Front and rear work lights
- If used for towing must have hydraulic and/or air braking capability.
- Locking caps/covers to fuel and all other tanks
- Locking doors with keys
- If used under overhead cables or obstructions
  - Height restrictions with indication on machine
  - HSE GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Operator must have a current, relevant driving licence if driving on the public highway.
- Authorisation required prior to driving on public highway by site manager / contractor

Plant and Equipment Minimum Standards

- Controls should be secured so that unauthorised operation is effectively prevented when the machine is not in use
- Do not use if equipment is, or appears to be damaged
- Ensure correct fuel type is used dependent on task, if unsure check with plant department on use of rebated fuel in tractors
- Ensure machine is operated in accordance with manufacturer's instructions and guidance
- If towing special consideration must be given to the weight being towed, the operator must consider stability when towing and must refer to the operators manual prior to towing for weights and capabilities
- Not to be used for towing unless an approved and operational tow hitch is fitted
- Seat belt must be worn
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Total train weight must not exceed the rated payload of the machine

Desirable – Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Safe and clean access into the cab before entering and dismounting as well as refuelling
- High risk of overturning at speed on inclines or when towing
- Only to be used on gradients that are within the machines capabilities (please refer to operators manual)

Plant and Equipment Minimum Standards

15 Mixer Truck

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Minimum Requirement - Vehicle

- Current Ministry of Transport (MOT) plating certificate
- Current operator 'O' licence displayed in the cab windscreen.
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- All current certificates / service documents provided
- Fire extinguisher in cab
- Reversing alarm to be fitted, working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- Safe access to all areas where the operator is required to work including full handrail protection etc.
- Maximum vehicle age 10 years

Minimum Requirement – Remote Control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirement - FORS

- Fleet Operator Recognition Scheme (FORS) compliant (Vehicle specification)
- For further guidance, refer to – https://www.fors-online.org.uk/cms
- Direct Vision Standard (DVS) – HGV's greater than 12 tonnes gross vehicle weight (category N3) and operating within the London Low Emission Zone must hold a DVS safety permit

Minimum Requirement – Chapter 8

- Refer to Section 1 "Introduction" section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirement - Driver / operator

- Demonstrable training and experience in operation of mixer truck
- Minimum of Category C driving licence when unit is over 7.5 tonne GVW
- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Hand and skin dermatitis protection / monitoring
- Seats belt must be worn

Plant and Equipment Minimum Standards

Desirable - Vehicle

- For driving activities, seat belt operation interlocked with ignition switch / warning indicator
- Isolation method independent of factory fitted locks
- Locking caps / covers to fuel and all other tanks
- Provision and use of a ConcreteSock™, or equivalent, to prevent unwanted discharges from concrete truck mixers during transit (refer to EA innovation briefing 17, issue dated May 2011, for further details - https://drive.google.com/file/d/1GAz48Ezk5msNiILYFcHcND9errcO-NfH/view)
- Reversing alarm to be directional and white noise
- Statement on hours to next service

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Danger of moving parts – rotating drum
- Danger of spills when filling or discharging or driving up steep inclines
- Hazard from concrete washout discharging
- Imposed loadings on underground services
- Noise and visibility
- Number of climbing operations in to and out of the cab and when inspecting drum contents
- Proximity to concrete skips being lifted
- Tripping over hoses on ground or slipping on spills
- Work at height – access on to top of tank / body

Plant and Equipment Minimum Standards

16 Vacuum / Suction Excavator (lorry mounted 26 tonne and 32 tonne machines) c/w either hydraulic or counterbalanced suction arm

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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General

- Utilising the no-dig suction excavation method for material removal, extraction and excavation enable individuals to work across a huge array of projects from huge construction sites to one off residential projects
- The benefits of using this high powered suction method allows underground services to be exposed, without damage to cables and most importantly, the operative
- Vacuum / suction excavators are ideal for the extraction and removal of wet and dry materials (e.g., water, clay, soil, stones, dust and ballast) via vacuum into a debris tank, which immediately removes any unsightly debris from the working site. Suction excavation also helps reduce the amount of additional equipment / vehicles used to undertake the activity

Minimum Requirement - Vehicle / Plant

- Current MOT plating certificate
- 'O' licence required if vehicle used in a goods carrying activity on the public highway (not including plant crossings). If required, current operator 'O' licence displayed in the cab windscreen.
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- All machines need to have annual MOTs and main dealer inspection records (12 weekly)
- 10 weekly Driver Vehicle Standards Agency (DVSA) inspection
- Annual truck MOT
- Must have whole vehicle type approval if registered after Oct '14
- Mirrors (including Class V & VI)/CCTV to satisfy 1m high at 1m distance 360° visibility criteria
- Reversing camera
- White noise reversing alarm audible outside of the cab
- 250mm / 280mm non-conductive nozzles must be used in preference to metal nozzles
- Castled (sometimes described as serrated) design of nozzles is to ensure air flow is maintained when placed against the ground; it is not to be used to cut the earth when extracting soil
- Compressor hoses must be fitted with whip check cables
- Edge protection or fall restraint arrangements where access to vehicle body is required
- Fire extinguisher in cab
- Ground piercing accessories should not be used unless agreed with site before work commences and should always be subject to risk assessment
- Only non-conductive and / or insulated hand held tools and air lances which incorporate 'dead man trigger and guard' are to be used
- Operating instructions must always be followed for both machine start up and shut down procedures

Plant and Equipment Minimum Standards

- Safe access to all areas where the operator and banksman are required to work
- Stabilisers must be fully extended before any tipping operation commences
- All tools must be made of non-conductive material
- Appropriate warning signage including noise levels
- Emergency stops fitted front and rear
- First aid kit and eye wash in cab
- Isolation switch with key
- Lights – Daylight running
- Lights – rear working
- Live tracking system
- Locking caps/covers to fuel and all other tanks
- Locking doors with key
- Park brake not engaged warning device
- Suction nozzles must be made of non-conductive material only
- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement – Remote Control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)
- If remote control is used - Specific Emergency Recovery / Rescue Procedures must be established and effectively communicated and practised prior to works commencing

Minimum Requirement - FORS

- Scheme (FORS) compliant (vehicle specification)
- For further guidance, refer to – https://www.fors-online.org.uk/cms
- Direct Vision Standard (DVS) – HGV's greater than 12 tonnes gross vehicle weight (category N3) and operating within the London Low Emission Zone must hold a DVS safety permit

Minimum Requirement – Chapter 8

- Refer to Section 1 "Introduction" (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirement - Driver / Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Minimum of Category C driving licence when unit is over 7.5 tonne GVW
- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Operator with similar (vacuum / suction excavator) machine experience must have undergone no less than seven hours targeted training with a vacuum extraction system
- Operator with unrelated machine experience must have undergone no less than 14 hours targeted training with a vacuum extraction system
- Training in use of air-ex
- All operators must be trained in Working at Heights to a recognised standard
- Novice operator with industry experience but no machine experience must have undergone no less than 28 hours targeted training with a vacuum extraction system
- Novice operator with no industry or machine experience must have undergone no less than 35 hours targeted training with a vacuum excavator

Plant and Equipment Minimum Standards

- Ensure a 'second man' has been briefed and is aware of the location of all emergency stop buttons, as noted in the CPA Good Practice Guide (8.68) suction excavators should be considered a two- person operation unless suitable risk assessments and method statements have been put into place to reduce the risk as far as reasonably practicable. The CPA Good practice Guide defines lone working as "where an individual is working by themselves without close support or supervision"
- A secondary person must be in the vicinity of the operation at all times who is fully trained to operate the machine in case of an emergency
- Site specific risk assessment must be undertaken by operator before the commencement of works
- A safe system of work must be in place for all working at height activities, including: - hose blockage, maintenance and repairs
- A full exclusion zone must be established around the operation which must include the operating radius of the boom as a minimum
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Excavator Daily inspection checklist signed off
- Vehicle Daily inspection checklist signed off
- Cease suction operations & turn off engine if exclusion zone is entered by others
- Golden Rule – Stop for Safety, and report to site supervisor
- If fitted with a hydrostatic drive an operator must be present in the driving seat in addition to the operator controlling the machine externally
- Lone working is not permitted
- Never work below the boom of the arm
- Remain in control of the remote control unit at all times
- Seat belt must be worn (when driving)
- Spoil shall be tipped to an agreed area
- Trial holes must be agreed with the customer and are subject to risk assessment
- Undergo a recorded annual operator assessment
- Work from a position of safety at all times
- Working hours to be legally compliant for HGV drivers (Working time regulations 1998, EU driving rules, GB domestic driver rules)
- Full face protection (safety goggles may be worn by risk assessment)
- Hearing protection

Desirable - Plant

- CCTV/Proximity sensor system
- Independent isolation system
- Locking caps/covers to fuel and all other tanks
- Remote hydrostatic drive
- Telematics system c/w geo fencing

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection
- Driver operator to have passed safety critical worker medical.

Desirable - Emissions

- Engine emissions compliant to EURO 6

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Public interface – working alongside pedestrians / vehicles / plant crossings
- Poor communication – communication protocols must be agreed with other team members prior to any work commencing
- Emergency procedures – emergency arrangements and procedures shall be communicated to a 'second man' by the operator. These procedures must be adhered to and practiced before work commences
- Remote control operation – sufficient length of the umbilical cord when operating with a pendant control unit to allow operations from a safe

Plant and Equipment Minimum Standards

place. Isolating of all operating controls when using a remote unit, when carrying out other functions or during rest periods

- Plant and personnel interface - no manoeuvring or reversing to commence unless authorised by a nominated vehicle marshaller in defined areas. Physical barriers that contain full operating radius or reach of boom and/or hose nozzles and prevents unauthorised access to the working area. Prevention of working directly beneath the boom and/or hose nozzle
- Public interface – area to be fenced off and screened as necessary to protect public and others from noise, dust and flying particles
- Entry to exclusion zones – procedures to stop all works, move components / hose to a safe position and machine isolated when operator is approached by others. Protection of open excavations to prevent slips, trips and falls
- Underground services – procedures and hierarchy procedures for the identification and location of underground services. Ground piercing accessories shall not be used unless agreed with site before work commences and should always be subject to risk assessment
- Effects of ground conditions – compressed air or water can be used to agitate and displace porous and semi porous ground conditions. If the ground is parched and solid, water should be introduced and allowed to soak, air-ex can then be used.
- Working adjacent to live traffic
- Danger of crushing by boom or manoeuvring vehicle
- Danger or crushing under un-propped body
- Disposal of waste products
- Do not operate if machine is or appears to be damaged
- Controls should be secured so that unauthorised operation is effectively prevented when the machine is not in use
- No steel suction nozzles are allowed
- Noise
- At no time must anyone work or walk underneath the boom or vacuum nozzle, whether it is being operated or not
- No entry into exclusion zone unless signalled by operator
- Non-invasive excavation techniques to be used only, as per manufacturer's instructions
- Working adjacent to live traffic
- Working at height

Plant and Equipment Minimum Standards

17 Concrete Pump

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

If truck mounted:

- Current Ministry of Transport (MOT) plating certificate
- Current VED (Vehicle Excise Duty) and operator 'O' licence displayed in the cab windscreen
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Current 12 month LOLER thorough examination certificate
- Fire extinguisher in cab
- Reversing alarm to be fitted, working and audible outside of the cab, in residential or built up areas this may need to be exchanged with a white noise alarm
- Ball catcher fitted to discharge end during cleaning operations
- Door lock keys supplied
- Handrails / edge protection on body where access required
- Locking caps and covers
- Park brake not engaged warning device.
- Remote controls for the operator
- Safe access for maintenance activities
- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement – Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirement - FORS

- Fleet Operator Recognition Scheme (FORS) compliant (vehicle specification)
- For further guidance, refer to – https://www.fors-online.org.uk/cms
- Direct Vision Standard (DVS) – HGV's greater than 12 tonnes gross vehicle weight (category N3) and operating within the London Low Emission Zone must hold a DVS safety permit

Minimum requirement – Chapter 8

- Refer to Section 1 "Introduction" (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Plant and Equipment Minimum Standards

Minimum Requirement - Driver / Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Evidence of familiarisation training for the type of pump to be operated
- Evidence that the operator is medically fit to operate the pump
- Minimum of Category C driving licence when unit is over 7.5 tonne GVW
- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with the current Driver CPC qualification
- Hand and skin dermatitis protection / monitoring
- Seat belt must be worn (when driving)

Desirable - Plant

- For driving activities, seat belt operation interlocked with ignition switch / warning indicator
- Handrails fitted around pipe storage areas at rear of vehicle
- Hands free voice activated radio communications between pump operator and concrete team/second man
- Illuminated pump control panel
- Nylacast outrigger pads
- Spill kit

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risk identified when operating the machine and for those adjacent to machine:

- Blockages in pipework
- Boom clash with overhead obstructions, power lines, adjacent cranes
- Failure of pressurised lines and use of compressed air to clean pipes
- Hazard from concrete washout discharging
- Hazardous substances such as cement and additives
- Overturning – ground capable of withstanding imposed outrigger loadings
- Potential excessive noise
- Remote control operation
- Trapping/crushing of site operatives
- Uncontrolled discharge of waste concrete
- Vibration and manual handling when using compressed air system
- Whip from flexible hoses
- For further guidance, refer to BS8476:2007 code of practice for using concrete pumps. Also, British Concrete Pumping Group Publication Safe use of Concrete pumps https://www.cpa.uk.net/safety-and-technical-publications/concrete-pumping-guidance

Plant and Equipment Minimum Standards

18 Concrete Extrusion Machine

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirement - Plant

- CE Declaration of Conformity and current test certificate
- Current 12 month LOLER thorough examination certificate for lifting equipment
- Access platform with guardrail around horizontal auger to access front of auger for cleaning and maintenance
- Adequate task working lights
- Elephant ears rubber guards fitted to both sides of concrete feeder hopper
- Emergency stops
- Exclusion zone between tracks and adjacent to structures
- Fire extinguisher available with machine
- Fixed guards on horizontal auger incorporating isolation switches to immobilise auger when guards are removed
- Fixed hinged guard and access steps across concrete feeder hopper and fixed hinged guards to inclined auger
- Flashing amber beacons front and rear at a height not to interfere with driver visibility
- Handrail to sides of inclined auger to facilitate use of access steps
- Podium steps for access to inclined auger access steps
- Pressure washer to be available for cleaning off
- Rubber track bumper guards
- Solid guard rails around mould and driving platforms
- Steps fitted to access above guards and to mould and driving platforms
- Storage facilities for hand tools and lubricants etc
- Travel / movement alarm fitted (working and audible)
- Towing facility to facilitate for lighting sets
- Working platforms to be kept clear from debris
- If used under overhead cables or obstructions:
  - Height restrictors with indication on machine
  - HSE's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirement - Operator

- Evidence of appropriate training for extrusion machines
- Evidence of familiarisation training for the type of machine to operated
- Evidence of pressure washer training
- Ensure that exclusion zone is established with cones not fewer than five metres around machine prior to movement of machine (this forms part of RAMS)
- Hand and skin dermatitis protection / monitoring

Plant and Equipment Minimum Standards

Desirable - Plant

- Adequate lighting for night time working as given in raising the bar standard guidance document RtB15 “Task lighting”
- Adjusting compensation plate
- Guards on conveyors
- Training records to be developed to show course content

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Clothing snagged on chute leading into auger
- Entrapment by inserting limbs into moving machinery
- Ground conditions / imposed loadings on underground services
- Hazardous substances e.g., concrete
- Noise and vibration
- Transportation, loading / unloading and fitting of moulds

Plant and Equipment Minimum Standards

19 Mobile Crushing Plant

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Minimum Requirement - Plant

- Crusher to be registered with Environment Agency (EA) / Scottish Environment Protection Agency (SEPA)
- Maintenance records to be available
- All control functions clearly marked on both machine and remote control
- All exposed, contactable, moving parts fully guarded
- Automatic greasing
- Conveyor fitted with trip wires (where not fully shrouded)
- Dust suppression fitted and operational
- Effective belt scrapers to prevent build-up of material on conveyor.
- Emergency stop controls to be available at various locations around machine
- Fire extinguisher available with machine
- Flashing amber beacon
- Guards to be fitted with interlocks to prevent operation with guards removed
- If loading buckets are used, ensure that they are compatible with the capacity of the crusher
- Isolation procedure to ensure that no person enters the hopper / crusher to clear blockages. Power must be switched off if any tools are to be used to dislodge material
- Isolation procedure with multi locking main panel arrangement to facilitate safe maintenance
- Mechanical means to remove blockage, operated remotely
- Plant to be operated remotely or ensure that the ramp to loading hopper is effectively bunded
- Provision of safe area of where operator can view and monitor the performance of the feed hopper
- Stalled crusher procedure to ensure safe system is in place to deal with machine that has installed under load
- Working platforms on machine in good order and edge protection secure and intact

Minimum Requirement - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Trained in isolation and stalled crusher procedures
- Ensure minimum 5m physical exclusion zone around crushing area.
- No access to crusher when operational

Desirable - Plant

- CCTV fitted to breaker / pecker mounted on machine to deal with hopper blockages
- Fixed cameras to monitor machine operation
- Metal detector installed on feed belts
- Remote emergency stop controls for use by loader / loading shovel operators
- Sizing bars on hopper feeds to eliminate oversize materials
- Water mist dust suppression rather than directional jets

Plant and Equipment Minimum Standards

Desirable - Emissions
- Engine emissions compliant to EU Stage V

Desirable - Operator
- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks
Significant hazards / risks identified when operating machine and for those adjacent to machine:
- Build-up of material at tail drum of machine
- Clearance of blocked / stalled crushers
- Deterioration of loading access ramp – vehicles sliding or driving off the edge
- Dust generation by crusher and from stockpiled material / access roadways. High silica content of some crushed materials, e.g., concrete / bricks
- Ejected materials – general use and when magnet ejector is in use, e.g., crushing demolition waste
- Entrapment in moving parts of machine
- Falls from height whilst checking / maintaining machine
- High silica content of some crushed materials e.g., concrete / bricks
- Interface with site plant and vehicles
- Noise output – noise induced hearing loss
- Potential delays / poor access for emergency services, particularly where crushing is being undertaken in remote locations
- Slips, trips, and falls due to accumulation of waste on platforms and around machine
- Stockpile stability, machine overturn
- Stored energy from electrical, hydraulic, compressed air, mechanical sources, and gravity
- Whole body vibration when working on platform

Plant and Equipment Minimum Standards

20 Volumetric Mixer

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Minimum Requirement - Vehicle

- Current Ministry of Transport (MOT) plating certificate
- Current operator 'O' licence displayed in the cab windscreen
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Reversing lights and reversing alarm audible outside of the cab
- Fire extinguisher in cab
- Chain inspection holes must be fitted with guards / covers
- Isolator for auger, belt, chains and drives must incorporate a lock-out device
- Park brake not engaged warning device
- Safe access for refuelling and maintenance
- Safe access to volumetric mixer controls
- The auger guard must be fitted with interlock device

Minimum Requirement – Remote Control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirement - FORS

- Fleet Operator Recognition Scheme (FORS) compliant (vehicle specification)
- For further guidance, refer to – https://www.fors-online.org.uk/cms
- Direct Vision Standard (DVS) – HGV's greater than 12 tonnes gross vehicle weight (category N3) and operating within the London Low Emission Zone must hold a DVS safety permit

Minimum Requirement – Chapter 8

- Refer to Section 1 "Introduction" (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirement - Driver / operator

- Evidence of appropriate training and competence assessment for machine (either by the manufacturer or in-house by an operator previously trained by the manufacturer)
- Minimum of Category C driving licence when unit is over 7.5 tonne GVW

Plant and Equipment Minimum Standards

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Fix safety chains prior to moving off with auger in the raised (and locked) position
- Hand and skin dermatitis protection / monitoring
- Seat belts must be worn
- Working hours to be legally compliant for Heavy Goods Vehicles (HGV) drivers (Working time regulations 1998, EU driving rules, GB domestic driver rules).

Desirable - Vehicle

- For driving activities, seat belt operation interlocked with ignition switch / warning indicator
- Locking caps / covers to fuel and all other tanks

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Clothing snagged on chute leading into auger
- Entrapment by inserting limbs into moving machinery
- Hazardous substances e.g., concrete

Plant and Equipment Minimum Standards

21 Side-by-side All-Terrain Vehicles (ATV's)



Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item
- Further guidance on the use of ATV's on Morgan Sindall Infrastructure projects can be found on document "PET1 GUID13"

General information

- ATV's are self-propelled, diesel/petrol powered, with a payload capacity up to 900kg
- There are two main types of ATV used in off-road working in agriculture, forestry, and the land-based industries. They are (**1**) Side-by-side, and (**2**) ***Sit-astride*** ATV's
  - Side-by-side ATV's, sometimes referred to as utility vehicles (UTV's), are permitted for use on Morgan Sindall projects. They are designed to cope with a wide variety of off-road conditions, but if used carelessly can very rapidly become unstable
  - ***NOTE: Sit-astride ATV's,*** *that may also be referred to as quad bikes,* ***are NOT permitted for use on Morgan Sindall projects***
- Most side-by-side vehicles are capable of carrying two occupants in this way; however, some vehicles are equipped with a second row of seating (and can therefore carry four occupants), while others have bench-style seats allowing up to three people to be seated in a row
- The majority of side-by-side vehicles have four wheels, although six-wheel and full and partially tracked versions are also available
- There is usually a cargo bed behind the seating area

Minimum Requirement – Plant

- If used on Public Highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- All road wheels to be fitted with wheel nut indicators and tyre pressures and wheel nut torque settings to be displayed
- All seats fitted with a 3-point seat belt and operational
- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling on public highways
  - Note: You can use an external green light on vehicle when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- Flashing amber beacon
- Mirrors to satisfy visibility one metre high at one metre distance visibility criteria
- Reversing alarm to be fitted working and audible outside of the cab
- Roll over protection structure (ROPS)
- Maximum age of machine 5 years

If used for Towing;

- ATV must be fitted with manufacturer approved tow hitch only
- If ATV is fitted with a capstan winch it must have a valid 12-month LOLER thorough examination certificate

Minimum Requirement – Driver / Operator

- It is a legal requirement for employers to provide adequate training for employees who use ATV's, and to make sure that only employees who have received appropriate training in their safe use, including the use

Plant and Equipment Minimum Standards

of any towed equipment or attachments, are permitted to ride them
- Details of suitable training courses are available from franchised ATV dealers, manufacturers' websites, LANTRA, the Forestry Commission, EASI (European ATV Safety Institute), the British Off Road Driving Association (BORDA) and through colleges and training providers
- All operators for ATV's must complete full product familiarisation training and or show proof that this has been completed within the last 24 months before operating the ATV's on site
  - Always operate / use the ATV in accordance with the manufacturer's instructions / recommendations
  - **ALL** passengers must receive awareness training prior to riding / travelling on ATV's
- Operators must hold a driving licence (category B)
- Authorisation required prior to driving on public highway - by site manager / deputy
- Carry out safety checks and maintenance in accordance with the manufacturer's recommendations, for example - regularly check tyre pressures, brakes, controls and general condition
- Don't overload racks
- Seat belt must be worn
  - The driver/operator is responsible for ensuring that seat belts are worn by all passengers
- Secure loads on racks and make sure they are not over loaded and evenly balanced
- Stick to planned routes, where possible, and walk new routes if necessary to check for hidden obstructions, hollows, or other hazards
- If towing is required:
  - Operator must be trained / experienced in towing and operational risk assessed
  - Operator must consider stability issues when towing and the operator must refer to / comply with the manufacturers recommended towing procedures and maximum weights
  - Register of persons authorised to tow must be maintained

Desirable – Plant
- ATV to be fitted with Full cab (full windscreen c/w wipers and side doors or side door mesh)

Desirable – Emissions
- Engine emissions compliant to EU Tier V

Desirable – Operator
- Operator to have passed drug and alcohol test on induction and subject to on-going medical screening / surveillance
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:
- Being thrown off during vehicle overturns or after loss of control
- Being trapped / asphyxiated under an overturned vehicle
- Collisions with structures, trees, other vehicles etc.
- Danger of overloading
- Pedestrians being struck or run over by ATV's
- Travelling over rough ground conditions

Contributory factors / underlying causes of injuries, incidents and near misses with ATV's can include:
- Age of the operator
- Excessive speed
- Incorrect / lack of appropriate head protection
- Lack of formal operator training and / or experience
- Loss of control on a steep slope combined with other factors, for example: ground or load conditions
- Poor maintenance, for example: faulty brakes, incorrect tyre pressures etc
- Tipping on a bank, ditch, rut, or bump
- Towing excessive loads with unbraked equipment
- Unbalanced loads or overloading

Plant and Equipment Minimum Standards

22 Site Tow Bowser

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Section 5 "Towable equipment"

- Refer to Section 5 (above) for towable equipment inspection regime

General

- Trailer mounted water / fuel bowser with a capacity of 1,000 – 13,500 litres

Minimum Requirements - Plant

- 12v Electric / Petrol / Diesel driven dispensing pump
- 40mm towing eye
- Automatic shut off nozzle
- Fuel bowsers must be bunded 110% (double bunded)
- Fuel / water level gauge
- Handbrake / Wheel chocks
- Jockey leg designed to be secure in transit
- Lockable dispensing compartment c/w hand pump dispenser with minimum 6m delivery hose
- Off road tyres
- Safety chain
- Supplied with lights as required by risk assessment
- Where access is required at height for security & maintenance purposes, suitable system must be in place to prevent falling from height

Minimum Requirements - Operator

- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Competent to deal with spills and environmental protection
- Ensure COSHH data is available for liquids (if applicable)
- Ensure that towing vehicle and trailer does not exceed rated capacity
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- If towing required:
  - Operator must consider stability when towing and the operator must refer to operator's manual prior to towing
  - Special consideration must be given to weight being towed especially for braking activities

Desirable - Plant

- Security wheel clamps
- Spill kit
- Tow hitch lock

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Do not use if equipment is, or appears to be damaged
- Ensure that good housekeeping is applied, and trailer is kept clean and tidy
- Only to be used on gradients within the machine's capability (Refer to manufacturers manual)
- Refuelling – fuel spillage
- Stability during Loading and unloading
- Stability moving around site

Plant and Equipment Minimum Standards

23 Highway Tow Bowser

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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Section 5 "Towable equipment"

- Refer to Section 5 (above) for towable equipment inspection regime

General

- Highway use trailer mounted water / fuel bowser with a capacity of 500 – 2,000 litres

Minimum Requirements - Plant

- Type approved for use on the UK public Highway in accordance with Directive 2007/46/EC
- Supplied with lights and if used on Public Highway compliance with Construction and Use regulations – (working Lights, indicators, registration plate's rear etc.)
- 12v Electric / Petrol / Diesel driven dispensing pump
- 40mm towing eye
- Automatic shut off nozzle
- Fuel bowsers must be bunded 110% (double bunded)
- Fuel / water level gauge
- Handbrake
- Jockey wheel designed to be secure in transit and maximise ground clearance i.e., above the bottom of the chassis frame
- Lockable dispensing compartment c/w hand pump dispenser with minimum 6m delivery hose
- Mud guards
- Off road tyres
- Overrun Braking system
- Safety chain
- Where access is required at height for security & maintenance purposes, suitable system must be in place to prevent falling from height

Minimum Requirements - Operator

- Must have correct driving licence category for towing
- For carriage of diesel or fuel oil on the public highway, in quantities greater than 1,000 litres, the driver must be trained and hold an ADR certificate
- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Competent to deal with spills and environmental protection
- Ensure correct registration number is displayed on the rear of the trailer
- Ensure COSHH data is available for liquids (if applicable)
- Ensure road worthiness of the trailer
- Ensure that towing vehicle and trailer does not exceed rated capacity
- Operator must consider stability when towing and the operator must refer to operator's manual prior to towing
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Special consideration must be given to weight being towed especially for braking activities

Plant and Equipment Minimum Standards

Desirable - Plant

- LED lights in lieu of bulbs, should be able to work with towing vehicle without need for retro fit resistor packs
- Security wheel clamps
- Spill kit
- Suitable number plate holder to facilitate quick change over and security of attachment
- Tow hitch lock
- Wheel chocks

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Do not use if equipment is, or appears to be damaged
- Ensure that good housekeeping is applied, and trailer is kept clean and tidy
- Only to be used on gradients that are within the machine's capability (Refer to manufacturers manual)
- Refueling – fuel spillage
- Stability during Loading and unloading
- Stability moving around site and on the public highway

Plant and Equipment Minimum Standards

24 LDP Piling Rig

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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General

- A large diameter piling rig with a width capacity up to 3m diameter to a depth of up to 70m

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Aircraft warning lights fitted (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Door lock keys supplied
- Handrails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- No modification to the "Dead mans" handle
- Rig instrumentation shall be fitted to the rig to control/aid with the construction of the piles and meet the required specification
- Safe access for refuelling, maintenance and to any place where accessories are stored
- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements - Crane

- Current 12-month LOLER thorough examination certificate for lifting equipment
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide
- Current 6-month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Load bearing hydraulic cylinders fitted with check valves
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) to be clearly marked
- The auxiliary line must be fitted with an over-hoist limit switch
- The rig shall be within 6 months of having its thorough examination if the single line is to be used to lift people

Plant and Equipment Minimum Standards

Minimum Requirements - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in lifting operations if using the auxiliary winch
- Shall be trained in line with all associated works instructions / procedures / processes which shall include but are not limited to boring under fluids, coring, obstructions, dry bores
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area
- Shall not track or slew the rig unless under direction from a designated rig attendant

Desirable - Plant

- Mobile elevating work platform in full time attendance to assist in rigging up, routine inspections and other maintenance operations
- Proximity detection equipment to be fitted to the rig
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator / Supervisor

- A crane supervisor to be on site
- Operator to be slinger/signaller trained
- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Instability:

- By removal of obstructions
- Caused by soft spots
- Due to obstructions that have not been suitably backfilled after removal
- Due to operating on inadequately prepared piling platforms
- Due to poor definition of the edge of the piling platform
- Due to strong winds. MUST HAVE AN ANENOMETER ON SITE
- Of mast or rig due to failure to follow the manufacturer’s guidelines on mast inclination
- Underground services
- Whilst travelling on inappropriate access ramps where gradients are not within the stability constraints of the rig

Other:

- Being struck by bore spoil while spinning off pile arising’s
- Being struck by items falling from height
- Being struck by plant and vehicles or piling rig hitting plant or vehicles
- Component failure caused by rig maintenance not being carried out in line with the manufacturer’s guidelines
- Entrapment between pile casings and rig ballast
- Falling into open bore because the pile casings are too low during digging, cage placement and concreting operations
- Hydraulic hose failure & spray of hydraulic oil due to hose burst
- Installing piles adjacent to the site hoarding or 3rd parties
- Operatives falling into bores that have not been suitably backfilled or suitably fenced off
- Over rotation/dig of the auger that affects the stability of the rig during pre-bore
- Over rotation of the auger resulting in undermining and subsequent damage of adjacent structures

Plant and Equipment Minimum Standards

25 Mini Rotary Piling Rig

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

- Diesel powered tracked mini rotary rig capable of CFA, Rock Anchor, DTH, Supa Jaw, Micro Piling, Odex Drilling, Soil Nailing applications

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Ability to restrict the working speed of the rotation whilst gate is open
- Dead man button
- Safety gate to be in place at all times
- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements - Crane

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Current 6 month LOLER thorough examination certification for all lifting accessories and attachments
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) to be clearly marked

Minimum Requirements - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in line with all associated works
- Understand and follow the specific site lift plan for the rig they are operating
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area

Desirable - Plant

- Computer monitored piling system to be fitted
- GPS tracker unit installed
- Locking caps/covers to fuel and all other tanks
- Remote Control Loading/Unloading
- Remote Control Operation (All Functions)
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Plant and Equipment Minimum Standards

Desirable – Operator / Supervisor

- Operator to hold a current driving licence
- Operator to be Crane lift supervisor trained
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Being struck by items falling from height
- Being struck by plant and vehicles or piling rig hitting plant or vehicles
- Component failure caused by rig maintenance not being carried out in line with the manufacturer's guidelines
- Consider risk of accessories – e.g., hammer
- Entanglement – gate on rig to be closed at all times whilst rotary works are conducted
- Excessive noise and vibration from Piling Operation
- Hydraulic hose failure & spray of hydraulic oil due to hose burst
- Installing piles adjacent to the site hoarding or 3rd parties
- Overturning if lifting duties exceeded
- Precast concrete pile shearing while being driven
- Trapping of site operatives – All movements to be supervised by a plant and vehicle movement marshal at all times
- Underground services

Plant and Equipment Minimum Standards

26 CFA Piling Rig

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

- Continuous flight auger piling rig capable of a boring depth between 10m and 33m and up to 1.2m diameter

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Roll over protective structure (ROPS) and falling object protective structure (FOPS) cab structure
- Aircraft warning lights (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Locking doors with key
- Hand rails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- Must be fitted with 'hold to run' levers
- No modifications to the machines 'Dead Man's Handle'
- Rig instrumentation shall be fitted to the rig to control / aid with the construction of the piles and meet the required specification
- Safe access for refuelling, maintenance and to any place where accessories are stored
- An auger cleaner must be fitted to prevent spoil flighting up the auger string
- An external 'Emergency Stop' must be fitted
- Auger guarding shall be fitted to the mast ensuring that no one comes in contact with the rotating auger
- Blow out adaptors shall have two air exhaust valves fitted and a pressure gauge to clearly identify the pressure within the pumping lines
- Isolation switch with key
- Protective mesh/guard must be installed to the window on the jib side of the cab if window is opening type
- Rubber concrete pipes fitted at height on the rig shall have whip checks fitted to all joints
- Shall have a mechanical auger cleaner fitted
- The auger cleaner must be fitted with a secondary restraint to prevent components falling from it
- The concrete Loop hose over its entire length shall be doubled bagged
- Not to be used beneath or adjacent to overhead power lines or obstructions

Plant and Equipment Minimum Standards

Minimum Requirements - Crane

- Current 12-month LOLER thorough examination certificate for lifting equipment
- Current 6-month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Load bearing hydraulic cylinders fitted with check valves
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) to be clearly marked

Minimum Requirements - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in lifting operations if using the auxiliary winch
- Shall be trained in the operation of the auxiliary winch in association of all lifting operations
- Operate the rig to prevent excessive swing of the load during movement
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area
- The auxiliary line must be fully lowered to ground to prevent the wire rope or hook assembly fouling on the rotary table

Desirable - Plant

- Audible/visual slew alarm
- Auger gate canopy fitted to cover the rig attendant when placing the auger cap
- Computer monitored piling system to be fitted
- Hydraulic rams on engine compartment covers to prevent slamming
- Independent isolation system
- Locking caps/covers to fuel and all other tanks
- Mobile elevating work platform in full time attendance to assist in rigging up, routine inspections and other maintenance operations.
- Proximity detection equipment to be fitted to the rig
- Rear facing, counterweight mounted CCTV cameras
- Seat belt operation interlocked with ignition switch / warning indicator
- Tracker unit
- Travel movement alarm

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- A crane supervisor to be on site
- Operator to be slinger/signaller trained
- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Instability:

- By removal of obstructions or bores not suitably backfilled after removal
- Caused by soft spots
- Due to operating on inadequately prepared piling platforms
- Due to poor definition of the edge of the piling platform
- Due to strong winds. MUST HAVE AN ANENOMETER ON SITE
- Due to the rig being manoeuvred on its jack up legs
- Whilst travelling on inappropriate access ramps where gradients are not within the stability constraints of the rig
- Of the mast or rig due to failure to follow the manufacturer’s guidelines on mast inclination

Plant and Equipment Minimum Standards

Other:

- Being struck by bore spoil while spinning off pile arisings
- Being struck by items of plant falling from height
- Being struck by plant and vehicles or piling rig hitting plant or vehicles
- Component failure caused by Rig Maintenance not being carried out in line with manufacturers guidelines
- Installing piles adjacent to the site hoarding or 3rd parties
- Operatives falling into bores not suitably backfilled/suitably fenced off
- Entrapment caused by coming into contact with the rotating auger
- Flighting – over rotation of the auger resulting in affecting the stability of the rig or undermining and subsequent damage of adjacent structures or previously constructed fluid piles
- Hydraulic hose failure & spray of hydraulic oil / Concrete due to hose burst caused by worn or damaged hoses
- People and property being struck by concrete during the clearing of blockages from within the pumping lines
- Piles constructed do not meet the required specification
- Reinforcing cages/bars falling from height during the cage installation process
- Rig malfunction
- Slumping of piles due to inadequate pile sequencing
- Unauthorised personnel within the piling area

Plant and Equipment Minimum Standards

27 Driven Piling Rig

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

- Sections 1 and 2 (above) contain information common to all items of plant and equipment covered by this standard, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

- As standard driven piling rigs can be fitted with 3, 4, 5 and 6 tonne hammers

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher in cab of machine
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Aircraft warning lights (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Door lock keys supplied
- Handrails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- Must be fitted with 'hold to run' levers
- No modifications to the machines Dead Man's Handle
- Safe access for refuelling, maintenance and to any place where accessories are stored
- Not to be used beneath or adjacent to overhead power lines or obstructions
- Minimum Requirements - Crane
- Current 12-month LOLER thorough examination certificate for lifting equipment
- Current 6-month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) to be clearly marked
- The auxiliary line must be fitted with an over-hoist limit switch
- The rig shall be within 6 months of having its thorough examination if the single line is to be used to lift people

Minimum Requirements - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training

Plant and Equipment Minimum Standards

- Shall be trained in lifting operations
- Shall be trained in line with all associated works
- Understand and follow the specific site lift plan for the driven rig they are operating
- Instructions/procedures/processes which shall include but are not limited to: Unloading precast piles, Drawing a precast pile into the rig and jointing precast piles
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area
- Shall not track or slew the rig unless under direction from a designated rig attendant
- Use safe communication via two-way radio systems

Desirable - Plant

- Computer monitored piling system to be fitted
- GPS tracker unit installed
- Locking caps/covers to fuel and all other tanks
- Proximity detection equipment to be fitted to the rig
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- Operator to be Crane lift supervisor trained
- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Instability:

- By removal of obstructions
- Caused by soft spots
- Due to obstructions which have not been suitably backfilled after removal
- Due to operating on inadequately prepared piling platforms
- Due to poor definition of the edge of the piling platform
- Due to strong winds. MUST HAVE AN ANENOMETER ON SITE
- Of mast or rig due to failure to follow the manufacturer's guidelines on mast inclination
- Underground services
- Whilst travelling on inappropriate access ramps where gradients are not within the stability constraints of the rig

Other:

- Being struck by items falling from height e.g., timbers packings / concrete and hammer helmet retaining bolts vibrating loose
- Being struck by plant and vehicles or piling rig hitting plant or vehicles
- Component failure caused by rig maintenance not being carried out in line with the manufacturer's guidelines
- Entrapment between pile casings and rig ballast
- Excessive noise and vibration from repeated blows of the pile
- Hydraulic hose failure & spray of hydraulic oil due to hose burst
- Installing piles adjacent to the site hoarding or 3rd parties
- Precast concrete pile shearing while being driven
- A rope failure causing the hammer or pile section to runaway down the mast
- Instability of the rig due failure of non-compliance to the lift plan
- Pile section clashing with delivery wagons while being loaded or unloaded
- Sub-contractors e.g., testing and setting out engineers operating in the rig's exclusion zones

Plant and Equipment Minimum Standards

28 Piling Rigs Vibro

Sections 1 & 2, "Introduction" and "General Minimum Requirements"

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- Content of sections 1 and 2, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

- Steel casing vibro piling rig up to 600mm diameter and up to 40m in length

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher fitted in cab
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Roll over protective structure (ROPS) and falling object protective structure (FOPS) cab structure
- Aircraft warning lights (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Locking doors with key
- Hand rails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- Must be fitted with 'hold to run' levers
- No modifications to the machines 'Dead Man's Handle'
- Safe access for refuelling, maintenance and to any place where accessories are stored
- A sledge over hoist knock out system must be fitted
- An external 'Emergency Stop' must be fitted
- Isolation switch with key
- Protective mesh guard must be in place to side of cab on jib side if window is opening type
- Safe and clean access into cab
- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements - Crane

- Current 12-month LOLER thorough examination certificate for lifting equipment
- Current 6-month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)
- All lifting accessories to be marked with safe working load (SWL)
- Load bearing hydraulic cylinders fitted with check valves
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) must be clearly displayed
- The auxiliary line must be fitted with an over-hoist limit switch

Plant and Equipment Minimum Standards

Minimum Requirements - Operator

- A listing of competence cards, accepted by Morgan Sindall Infrastructure, is included in Appendix 5 (at the end of this document)
- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in lifting operations if using the auxiliary winch
- Operator must be familiar with the pile jointing method and safe systems of work
- Operate the rig to prevent excessive swing of the load during movement
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area

Desirable - Plant

- Complete people exclusion area around plant and operation (5m)
- Isolation method independent of factory fitted locks
- Live tracking system
- Locking caps/covers to fuel and all other tanks
- Proximity detection sensors to be fitted and operational
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Instability:

- Due to operating on inadequately prepared piling platforms
- Of mast or rig due to failure to follow the manufacturer’s guidelines on mast inclination
- Underground services

Other:

- A rope failure causing a runaway flot sledge on the mast
- Air hose failure
- Concrete flexible hose burst at height
- Concrete or stone falling from height
- Excessive noise and vibration from repeated driving with the flot
- Exclusion zones being ignored by other operatives on site
- Installing stone columns adjacent to the site hoarding or 3rd parties
- Lorry Loader instability during flot changes
- Multiple rigs and cranes working in close proximity
- Rig Attendant not monitoring the exclusion zone effectively and keeping others clear
- Rig instability in strong winds
- Spray of hydraulic oil due to hose burst
- Zone testing engineers being trapped or crushed due to working in close proximity to piling rig

Plant and Equipment Minimum Standards

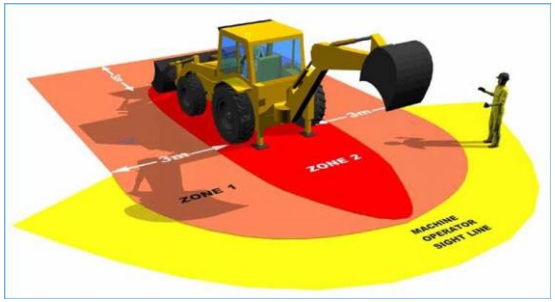
Appendix 1 – Plant Safe Zones

The following diagrams give an understanding of the safe zones applicable to a range of plant machinery likely to be used on site.

Zone 1	Always signal the plant operator and receive a positive response before entering Zone 1
Zone 2	Keep out of at all times

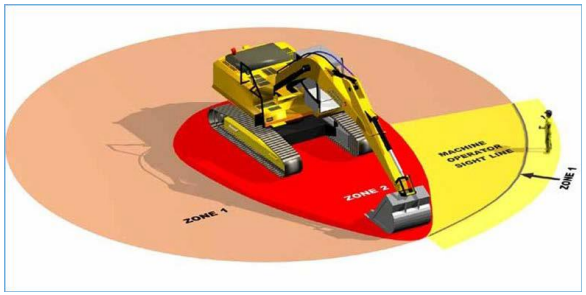
Anyone approaching plant must make eye contact with the operator and wait until signalled.

Operators are to ensure that any safety levers are activated, and machines switched off before people approach.

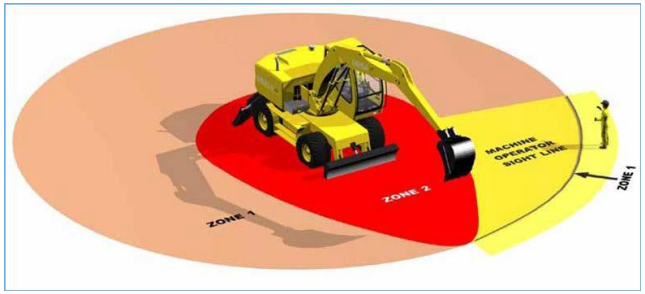


180° Excavator / loader (JCB3x etc.)

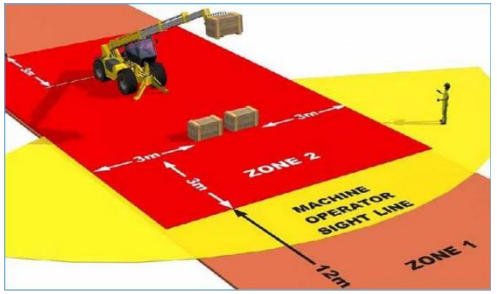
Forward tipping dumper



360° tracked excavator



360° wheeled excavator



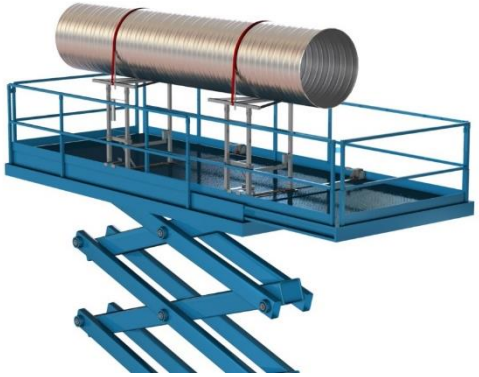
Telehandler

Plant and Equipment Minimum Standards

Appendix 2 – Material Handling Attachments for MEWP's

A lightweight material handling attachment designed to work with a wide range of materials. Fits most small electric scissor lifts to enable the fast and safe installation of materials up to 150kg (300kg if fitted as a double and MEWP capacity allows). Materials are securely fastened using the straps provided.
(SkyRak)

A material handling attachment designed to carry a wide range of materials up to 600kg in weight, which is safely stored on most large double decked diesel scissor lifts, with no weight on the MEWP handrails.
(SkyRakPlus)

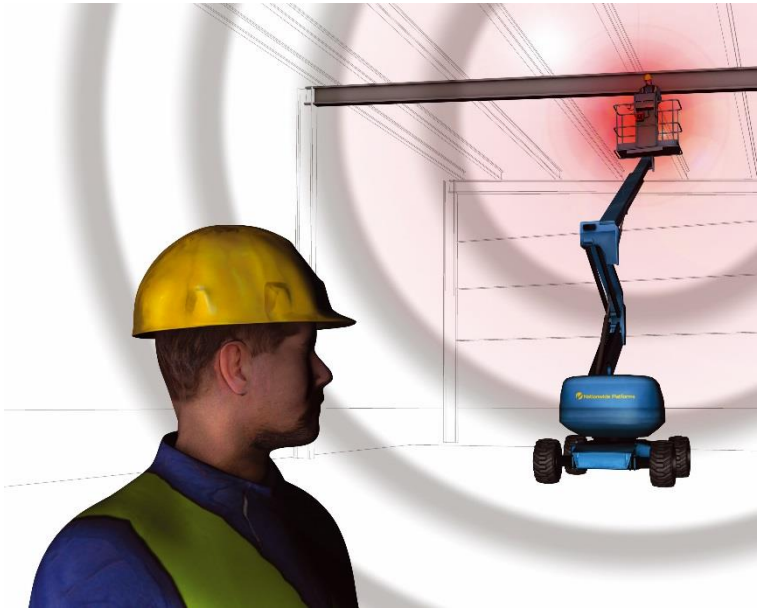


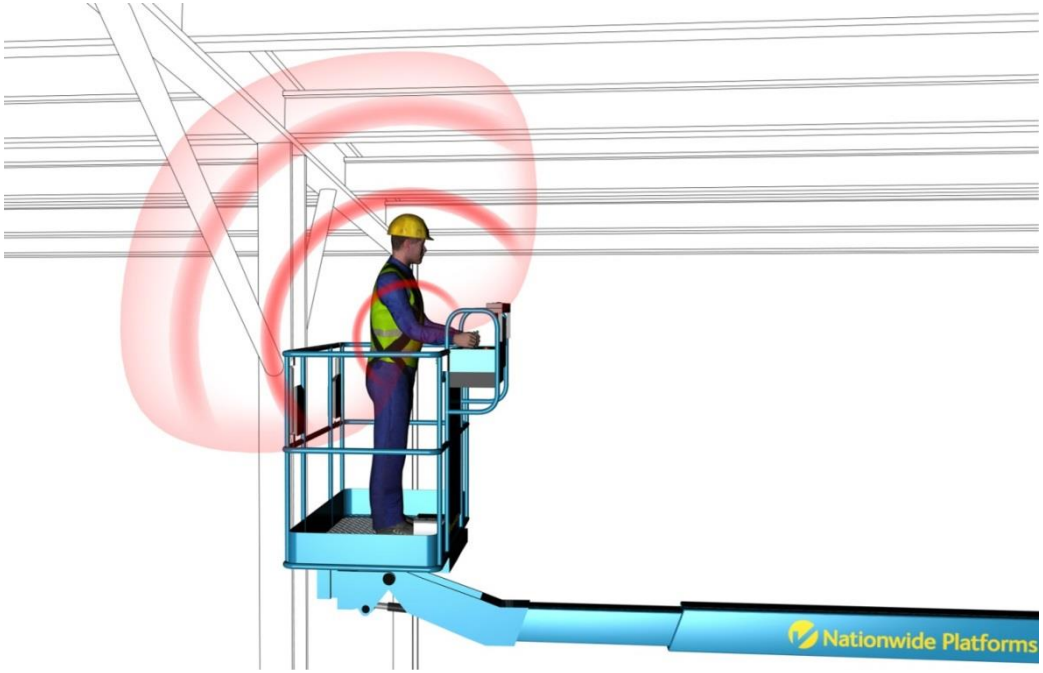
A lightweight material handling attachment allows the safe storage of materials up to 90kg in weight. Designed to work with a wide range of materials on boom type MEWPs.
(SkyRakBoom)

Plant and Equipment Minimum Standards

Appendix 3 – Secondary Guarding Device

The pioneering secondary guarding solution is designed to reduce the risk of injury or fatality from crushing on boom type MEWPs. Not only does it stop the MEWP when an entrapment situation is detected, to prevent further crushing, it also has a flashing light and emergency klaxon to attract the attention of colleagues on the ground to enact the emergency lowering procedure without delay.
(SkySiren)





Intelligent secondary guarding is advancement in secondary guarding solutions. Giving double protection for operators and designed to prevent entrapment, raise operator alertness and improve safety by detecting potential trap and crush hazards before they can occur – and automatically stops the platform.
(SkySirenPCS)

Plant and Equipment Minimum Standards

Appendix 4 – Effective Fleet Management

A simple and effective fleet management system designed to help you reduce costs, drive efficiency and improve safety. A full service system designed to improve the management of your powered access fleet and safeguard against unauthorised use.

Plant and Equipment Minimum Standards

Appendix 5 – A listing of competence cards / evidence of demonstrable training (by PET STD 01 plant machine / equipment listing number order)

Plant Category	Competency cards / evidence of demonstrable training, as applicable
Plant Generator <10kVA	Evidence of demonstrable training and experience in operation of diesel generators (<10kVA)
Diesel Generator <20kVA	Evidence of demonstrable training and experience in operation of diesel generators (<20kVA)
Diesel Generator >20kVA	Evidence of demonstrable training and experience in operation of diesel generators (>20kVA)
Towable equipment	Must be suitably trained in the use of towing equipment and for the host vehicle / item of plant
180° Excavator / Loader (JCB3CX etc.)	CPCS – A10 (<5 tonnes); A12 (>5 tonnes) NPORS – N201 (180° Excavator); N100 (Excavator as a crane)
Mini Excavator	CPCS – A58A (<10 tonnes); A58C (Lifting with excavator) NPORS – N016 (Micro Excavator 360º up to 1 tonne); N202 (Excavator 360º); N100 (Excavator as a crane)
Tracked 360° Excavator	CPCS – A58A (<10 tonnes); A59A (>10 tonnes) CPCS – Lifting with excavator A58c (<10 tonne) or A59c (>10 tonne) NPORS – N202 (Excavator 360°); N100 (Excavator as a crane)
Wheeled 360° Excavator	CPCS – A58B (<10 tonnes); A59B (>10 tonnes) CPCS – Lifting with excavator A58c (<10 tonne) or A59c (>10 tonne) NPORS – N202 (Excavator 360°); N100 (Excavator as a crane)
Dual View Dumper 6T and above / Forward & Side Tipping Dumper 3T	CPCS – A09 > endorsements A – Forward tipping wheeled; B – Forward tipping tracked NPORS – N204 (Forward tipping dumper)
Articulated Dump Truck	CPCS – A56 – articulated chassis – A – Up to 15 tonnes; B – All sizes (senior) NPORS – N205 – Rear dump truck
Tracked Dumper (3T to 15T)	CPCS – A09 – Forward tipping tracked dumper NPORS – N205 (Rear Tipping Dumper)
Crawler Crane	CPCS – A02 (Crawler crane over 10 tonnes); A66D (Compact Crane 360° Pick and carry) NPORS – N103 (Crawler crane)
Mobile Crane	CPCS – A60 > endorsements A – blocked duty only; B – pick and carry duties only; C – all duties NPORS – N101 (Mobile crane)
Telehandler	CPCS – A17 (Endorsements A-E) that includes – A – Industrial Telescopic; B – Up to 9 metres; C – All sizes ex. 360° slew; D – Superseded by A77; E – Suspended load (non-rough terrain) CPCS – A77 – Telescopic handler 360° slew NPORS – N010 (Telescopic handler); N138 (Telescopic handler suspended loads)
Rotary Telehandler	CPCS – A17 Cat D including 360° slew (forks only) CPCS – A17 Cat E suspended loads (if using with hooks or winches) CPCS – A77 (new licence which includes all the above) NPORS – N010 (Telescopic Handler) IPAF – 1b (if using integrated man platform two – four metres extendable)

MORGAN SINDALL INFRASTRUCTURE

Plant and Equipment Minimum Standards

Plant Category	Competency cards / evidence of demonstrable training, as applicable
Lorry Loader Crane	ALLMI (Lorry loader operator certification) CPCS – A36 > endorsements A – hook; B – clamshell C – hydraulic clamp NPORS – N107 (Lorry loader)
Mobile Elevating Work Platform (MEWP)	CPCS – A25 – scissor; A26 – boom; A27 – mast climber, or IPAF – (1a – static vertical; 1b – static boom; 3a – mobile vertical; 3b – mobile boom) NPORS – N108 (Boom); N109 (Scissor lift)
MEWP – Spider Lift only	IPAF certification (1b – static boom)
Road Sweeper / Collector	CSCS – Road Sweeper and Gully sucker Operator, NVQ L2 NPORS – N217 (Road Sweeper)
Compressor / air systems	Evidence of demonstrable training and experience in operation of compressor/air system
Ride on Compaction Roller	CPCS – A31 – Ride on roller NPORS – N214 – Road roller
Tracked Dozer	CPCS – A34 – Crawler tractor / dozer NPORS – N215 – Dozer
Wheeled Loading Shovel	CPCS – A21 – Wheeled loading shovel – together with appropriate endorsement NPORS – N209 – Loading shovel
Agricultural Tractor	CPCS – A33 – Agricultural tractor NPORS – N601 – Agricultural Tractor
Concrete Mixer Truck	Evidence of demonstrable training and experience in operation of mixer truck
Vacuum / Suction Excavator	CPCS – A78 – Vacuum excavator (Driver / operator) • A78E: Non-KVV, Semi-powered arm • A78F: Non-KGV, Fully-powered arm (Senior) CPCS – A78 – Vacuum excavator (Second operator) • A78G: LGV semi-powered arm, Second operator (Non-LGV driver) • A78H: LGV Fully-powered arm, Second operator (Non-LGV driver) CSCS / EUSR skill card (TT-UK Suction Excavation category) or equivalent NPORS – N021 – Suction excavator
Concrete Pump	CPCS – A06 (Truck mounted boom – LGV required); A44 (Concrete pump trailer mounted) NPORS – N211 (Concrete pump mobile)
Concrete Extrusion Machine	Evidence of: (1) Appropriate training for extrusion machines; (2) Familiarisation training for the type of machine to operated; (3) Pressure washer training
Mobile Crushing Plant	CPCS – A42 – for all persons operating the crusher NPORS – N207 – Crusher
Volumetric Mixer	Evidence of appropriate training and competence assessment for machine (either by the manufacturer or in-house by an operator previously trained by the manufacturer)
Side-by-side All-Terrain Vehicle (ATV)	All operators for ATV's must complete full product familiarisation training and/or show proof that this has been completed within the last 24 months before operating the ATV's on site NPORS – N608 (ATV)
Site Tow Bowser	Evidence of briefing in operation and safe use the equipment in accordance with manufacturer's instructions / recommendations

MORGAN SINDALL INFRASTRUCTURE

Plant and Equipment Minimum Standards

Plant Category	Competency cards / evidence of demonstrable training, as applicable
Highway Tow Bowser	Evidence of briefing in operation and safe use the equipment in accordance with manufacturer's instructions / recommendations
LDP Piling Rig	CPCS – A47 – Piling Rig [Bored below 20 tonnes]; CPCS – A48 – Piling Rig [Bored above 20 tonnes] NPORS – N221 (Piling Rig)
Mini Rotary Piling Rig	CPCS – A47 – Piling Rig [Bored below 20 tonnes]; CPCS – A48 – Piling Rig [Bored above 20 tonnes] NPORS – N221 (Piling Rig)
CFA Piling Rig	CPCS – A47 – Piling Rig [Bored below 20 tonnes]; CPCS – A48 – Piling Rig [Bored above 20 tonnes] NPORS – N221 (Piling Rig)
Driven Piling Rig	CPCS – A45 – Piling Rig [Driven below 20 tonnes]; CPCS – A46 – Piling Rig [Driven above 20 tonnes] NPORS – N221 (Piling Rig)
Piling Rigs Vibro	CPCS – A47 – Piling Rig [Bored below 20 tonnes]; CPCS – A48 – Piling Rig [Bored above 20 tonnes] NPORS – N221 (Piling Rig)

Plant and Equipment Minimum Standards

Appendix 6 – Plant and Equipment Minimum Standards – Poster (PET STD 01a)