

Good Practice Handbook and Guidance

Appendix A

Expected Practices



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NATIONAL GRID'S GOLDEN RULES



#1 Personal Protective Equipment

We always use the required Personal Protective Clothing and Equipment.



#4 Underground Services

We always determine and mark the location of underground services and take actions to prevent damage that could cause harm.



#5 Permits and Authorisations

We never carry out any work unless we have the necessary current safety documentation, authorisations, permits and licences.



#6 Safety Protection Systems and Devices

We never deliberately disarm, immobilise or remove any safety protection system or device unless properly authorised.



#7 Operation of Vehicles

We never endanger others or ourselves by operating a vehicle unsafely or without the appropriate licence and authority.



#3 Fall Prevention

We always use the required safety equipment to prevent a fall from height.



#2 Work Area Control

We always use the required barriers and safety equipment to define the work area and make it safe and secure. Safe distances are always established and maintained.



SAFETY LINE POLICY

Capital Delivery Safety and Environmental Assurance Alert

Update to National Grid Personal Protection Equipment (PPE) procedure NGUK/SHE/11

August 2017 | Alert number 008

A message from Paul de Jong, SHES Assurance & Sustainability Manager - Capital Delivery

The National Grid PPE procedure was recently updated. This has led to some confusion around minimum requirements for PPE on Electricity Transmission Operational sites and Capital Delivery Construction sites.

The minimum Safety Line Policy standards are detailed below. This covers operational sites, overhead line and cable routes. For electricity sites the PPE policy can be risk assessed by the Site Manager to allow different standards for specific non-operational areas. For Principal Contractor CDM areas these minimum requirements shall apply, however Principal Contractor PPE standards above the Safety Line Policy or via specific risk assessment shall be complied with by all those working in the CDM area.

Safety Line Policy

PPE Type	Electricity Transmission	Gas Transmission	Construction
Safety Helmet	Shall be worn	Shall be worn	Shall be worn
Safety Footwear	Shall be worn	Shall be worn	Shall be worn
Safety Eyewear	Shall be worn	Shall be worn	Shall be worn
Hearing Protection	To be in possession and shall be worn if determined by risk assessment	To be in possession and shall be worn if determined by risk assessment	To be in possession and shall be worn if determined by risk assessment
Gloves	To be in possession and shall be worn if determined by risk assessment	To be in possession and shall be worn if determined by risk assessment	To be in possession and shall be worn if determined by risk assessment
High Visibility Jackets	Shall be worn	Shall be worn	Shall be worn
Overalls	Shall be worn	National Grid specified flame retardant overalls shall be worn	Shall be worn

Overalls – To be worn for all work activities. This includes the use of two piece coveralls consisting of trousers and jacket made of an appropriate material. High-visibility overalls or high-visibility two piece coveralls of an appropriate material equivalent to that of one-piece overalls would be acceptable. Where a two piece overall is adopted both parts must be worn. Flame retardant overalls shall be worn on all gas operational sites as well as specified electricity transmission sites identified through risk assessment.

Additional PPE such as respiratory protection equipment, goggles, visors, or welding equipment shall also be required as per task risk assessments.

Action required

The National Grid minimum Safety Line Policy shall apply on all Capital Delivery projects, unless specifically changed through risk assessment by the site management or a contract with a third party. There is no requirement to wear orange hi-visibility PPE on National Grid projects. However as new PPE is ordered from the National Grid PPE catalogue the new PPE will only be supplied in Orange when all old stock has been issued.

Additional information and guidance on PPE

National Grid PPE requirements can be found in Procedure – Personal Protection Equipment NGUK/SHE/11
HSE Website <http://www.hse.gov.uk/toolbox/ppe.htm>

For further information please contact:

Paul de Jong - Capital Delivery SHES Assurance & Sustainability Manager
Nigel Cresswell - Capital Delivery Safety Strategy and Business Support Manager

It is the responsibility of National Grid and our contractors to ensure they comply with all National Grid minimum standards and legal requirements.

National Grid's PPE Procedure and Safety Line Policy have been updated. Please ensure you are compliant with these requirements.



Capital Delivery Construction Projects – Banned & Task Specific Risk Assessment Items

Note:- The Banned and Task Specific Risk Assessment items apply to all Capital Delivery Construction Projects. The poster and supporting document are available via this link:
<https://nationalgrid.huddle.net/workspace/23961969/files/#/folder/41101704/list>

New Poster
Coming Soon!



GUIDANCE DOCUMENTS

GUIDANCE: TEMPORARY WORKS DESIGN



‘Temporary Works’ is an ‘engineered solution’ used to:

- Support or protect either an existing structure or the permanent works during construction.
- Support an item of plant or equipment.
- Support the vertical sides or side slopes of an excavation during construction operations on site or to provide access.

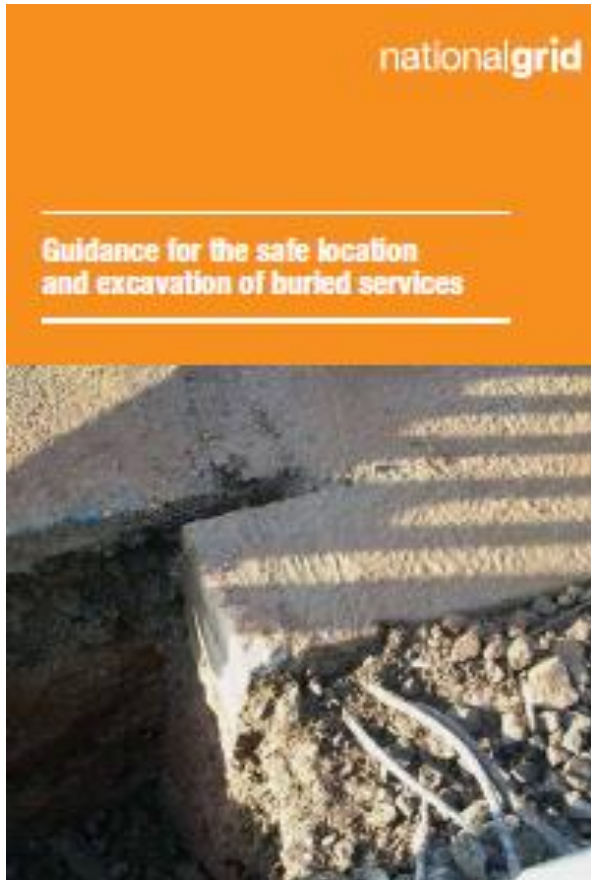
Failure to get this ‘engineered solution’ correct can have disastrous consequences. National Grid Construction recognise this and have produced a DVD and a guidance booklet ‘Guidance for Temporary Works’. If you require copies of the booklet or DVD, or if you have any queries or concerns, please discuss them with your line manager, supervisor or safety representative.



Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>

GUIDANCE DOCUMENTS

GUIDANCE: SAFE LOCATION AND EXCAVATION OF BURIED SERVICES



National Grid seeks to eliminate all unplanned contacts with buried services during construction activities with the intention of eradicating the risks associated with exposure to workers.

This booklet deals specifically with the underground hazards associated with the safe location and excavation of buried services.

The guidance addresses the end-to-end construction process from feasibility and design, through to safe delivery on site.

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



GUIDANCE DOCUMENTS

GUIDANCE: SAFE PLANNING & OPERATION OF LORRY LOADERS

nationalgrid

Guidance for safe planning
and operation of lorry loaders



This booklet has been produced by the SHES improvement group made up of representatives from National Grid Capital Delivery SHES Managers and Main Works contractor safety representatives.

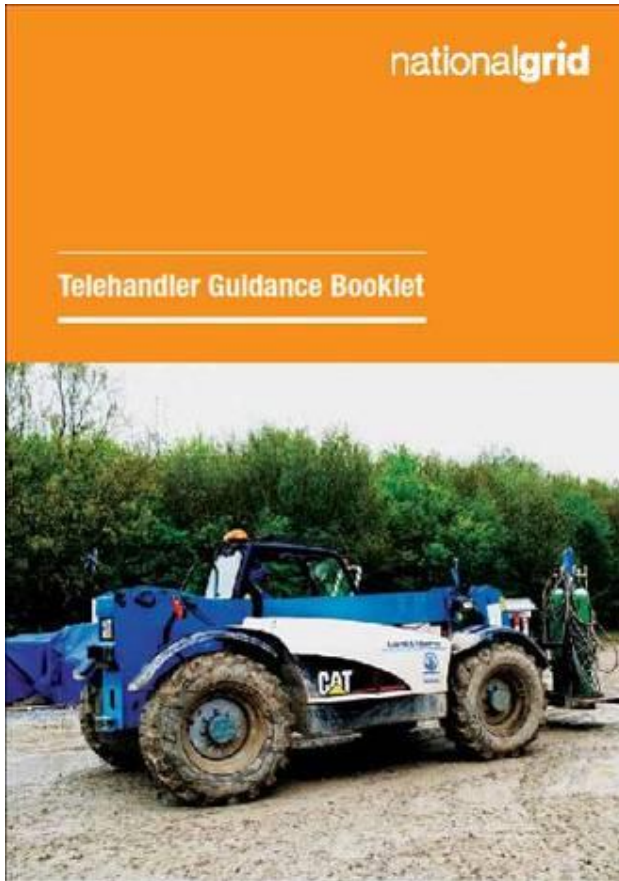
The booklet provides information gathered as part of a review to improve safety on construction sites when using lorry loaders and gives guidance and good practice on each aspect of the operation.

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



GUIDANCE DOCUMENTS

GUIDANCE: TELEHANDLERS



Because of the concerns over Telehandler safety, a guidance booklet has been produced by National Grid. These provide information gathered to improve safety in the planning and operation of Telehandlers on construction sites.

The booklet is intended to be guidance to support existing procedures; it is not a replacement for your existing procedures.

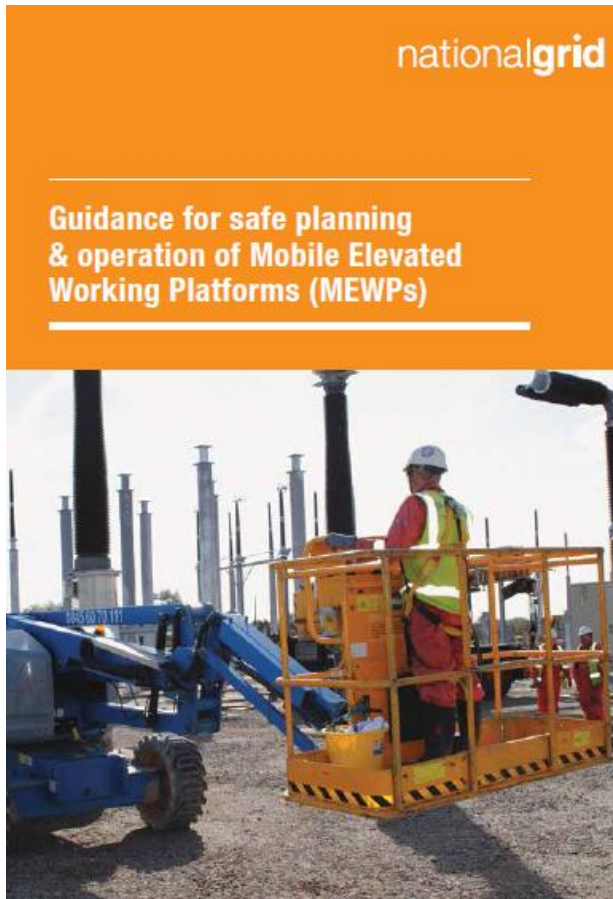
If you require copies of the booklet or if you have any queries or concerns, please discuss them with your line manager, supervisor or safety representative.

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



GUIDANCE DOCUMENTS

GUIDANCE: MOBILE ELEVATED WORKING PLATFORMS



Because of the concerns over MEWP safety a guidance booklet and DVD have been produced by National Grid. These provide information gathered to improve safety in the planning and operation of MEWPs on construction sites. The booklet is intended to be guidance to support existing procedures; it is not a replacement for your existing procedures.

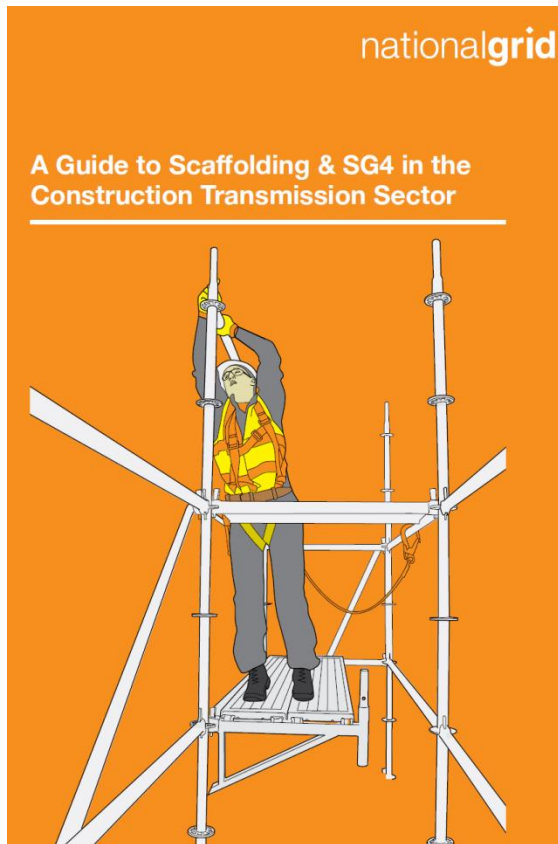
Where the term 'must' is used in this booklet it should be considered to be best practice, current procedures may not include such requirements. If you require copies of the booklet or DVD or if you have any queries or concerns, please discuss them with your line manager, supervisor or safety representative.

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



GUIDANCE DOCUMENTS

GUIDANCE: SCAFFOLDING & SG4 IN THE CONSTRUCTION TRANSMISSION SECTOR



Construction Transmission Delivery have recently published a Guide to Scaffolding & SG4. The guidance booklet is in the main application of the current industry standard SG4:10 to works on gas and electricity assets.

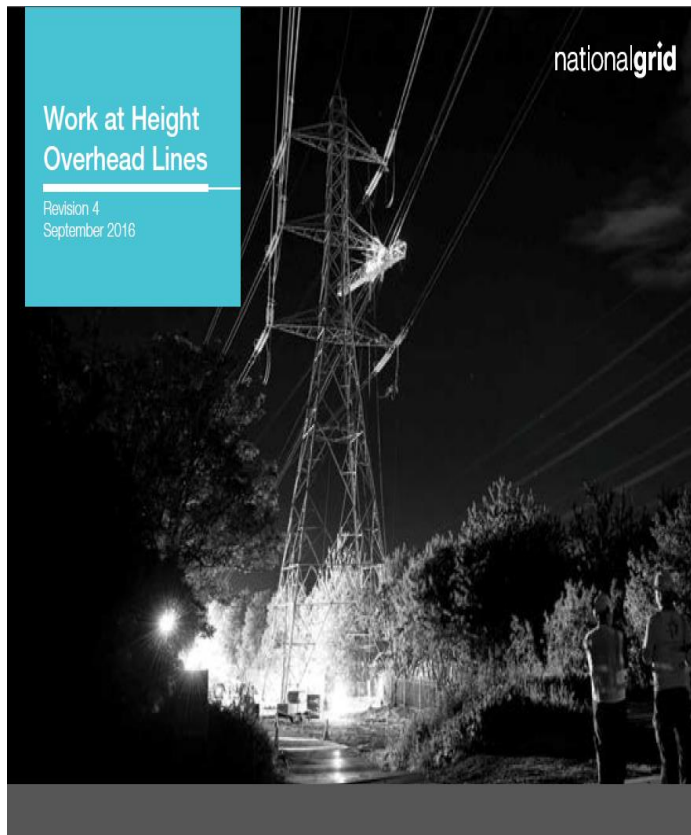
The booklet has been produced by JSEF (Construction – Joint Safety and Engineering Forum) SHES Improvement Group made up of representatives from National Grid Capital Delivery SHES Managers and National Grid's Contractors including Scaffold Contractor's Representatives.

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



GUIDANCE DOCUMENTS

GUIDANCE: WORKING AT HEIGHT



The Working at Height group have recently updated the Work at Height booklet.

The booklet is very specific to Overhead Lines work but there are several principles which can be utilised across the rest of Capital Delivery when faced with the same risks on site:-

- Danger Zones beneath work at height
- Tool tethering
- Fall restraint (not fall arrest) systems in MEWPS
- Fall prevention systems when working on vehicles

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



GUIDANCE DOCUMENTS

GUIDANCE: LIFTING OPERATIONS



Mechanical Lifting poses one of the greatest challenges to our projects. However, if managed correctly any problems can be solved without detriment to the safety of personnel or the environment. To this end National Grid have produced a guidance booklet. The booklet is intended to be guidance to support existing procedures; it is not a replacement for your existing procedures.

Where the term 'must' is used in this booklet it should be considered to be best practice, current procedures may not include such requirements. If you require copies of the booklet or if you have any queries or concerns, please discuss them with your line manager, supervisor or safety representative.

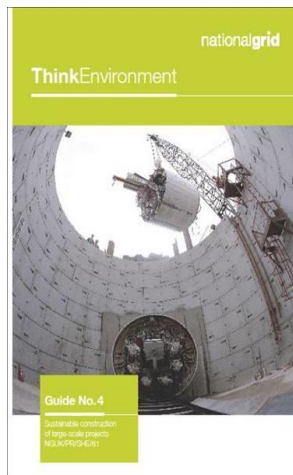
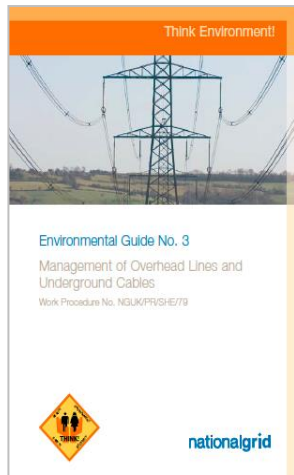
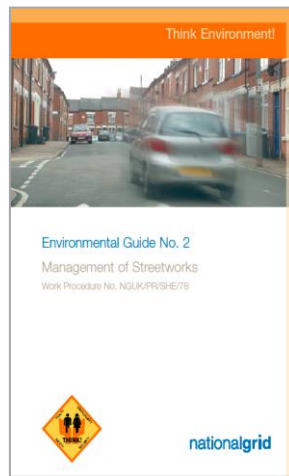
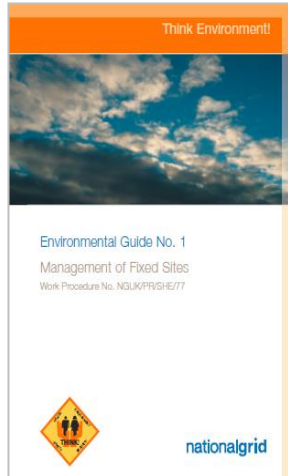
Also see HSE ACoP on LOLER:

<http://www.hse.gov.uk/pubns/books/l113.htm>

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



GUIDANCE DOCUMENTS



National Grid is committed to *“designing responsibly, building sustainably and delivering differently”* in all its construction activities. See:-

Environmental Guide No 1 - Management of Fixed Sites.
Environmental Guide No 2 - Management of Streetworks.
Environmental Guide No 3 - Management of Overhead Lines and Underground Cables.
Think Environment Guide No 4 - Large Scale Construction Projects.

All four environmental guidance handbooks provide information on the day to day management of sites and are available on Infonet and huddle.

Available on Huddle: <https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/35389378/list>



1. HEALTH AND WELLBEING

CONSTRUCTION DUST

Construction Dust is the general term used to describe different dusts that you may find on a construction site.

There are three main types:

- Silica dust – created when working on silica containing materials such as concrete, mortar and sandstone (also known as respirable crystalline silica or RCS).
- Wood dust – created when working on softwood, hardwood and wood based products like MDF and plywood.
- Lower toxicity dusts – created when working on materials containing very little or no silica. The most common include gypsum (e.g. in plasterboard) limestone, marble and dolomite.



The main dust - related diseases affecting construction workers are:-

- Lung cancer.
- Silicosis.
- Chronic obstructive pulmonary disease (COPD).
- Asthma.

ALWAYS – damp down the dust using water suppression when cutting concrete, mortar or stone. Stihl saws should be used in conjunction with either:

- A mains fed hose pipe (first choice for dust suppression).
- A pressurised water bottle (with a minimum flow rate of 0.5 litres per minute).

Always wear an approved dust mask, appropriate for the task being undertaken, and as detailed in the RAMS.

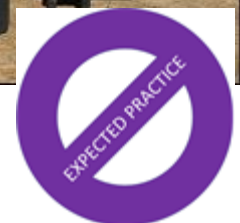


2. NOISE AND VIBRATION

NOISE - LABELLING PLANT & MACHINERY

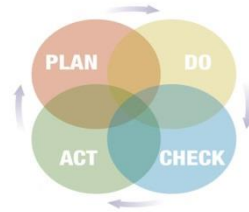
After the employer has reduced the noise by selection of machine and technique, there is still a requirement for noise control measures:

- Ensure you know the details of the noise assessment.
- Old or faulty equipment can deteriorate and noise levels increase. Regular checks on sound levels should always be carried out.
- Ensure that any areas that are identified as Hearing Protection zones are identified by the correct mandatory signage.
- Ensure that when working with any machines which produce noise requiring hearing protection for those working nearby that these are identified by the correct mandatory signage.
- Remember - for noise levels of above 85dB(A) hearing protection is a mandatory requirement.



3. SITE WORKS MONITORING

SITE WORKS MONITORING



In accordance with National Grid procedures (TP163 & BP136), Principal Contractors must undertake Site Works Monitoring that is planned, risk based and aligned with the works being undertaken.

Monitoring of works must include the setting to work process and supervision whilst the task is being completed. The findings from all site monitoring should be recorded and used to identify areas for improvement.

Lessons learnt must be reviewed and collated so that the findings are included in the organisation's Safety Management System, to enable them to be incorporated into future project designs.

Innovations and good practices that have been identified should be incorporated into future project designs. Identified innovations should be uploaded to the Good Practice Handbook Huddle site, to enable them to be included in the Good Practice Handbook via this link:
<https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/40125324/list>



4. PLANT AND EQUIPMENT

HAND HELD TOOLS

The activities which we undertake require us to use a variety of hand tools some of which are mechanical and electrical. When using such equipment you must:-

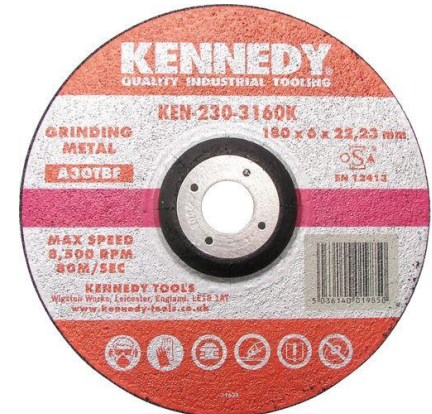
- Ensure the equipment being used is designed for its intended use.
- Ensure that the equipment has been maintained, is safe for use and is visually in good condition.
- Ensure that tools and equipment are only used by competent operators who have been trained in their use and who hold a valid certificate.
- Ensure all required safety measures are in place i.e. protective devices are fitted and that the correct markers and warning signs are clearly displayed.
- Ensure that the correct PPE is provided for the task, as detailed in the RAMS, and used in accordance with the manufacturer's safety instructions.
- Ensure that the control systems (detailed in the RAMS) for managing noise and vibration are implemented
- All equipment requiring inspection and testing should be tagged accordingly (i.e. PAT Testing)



4. PLANT AND EQUIPMENT

HAND-HELD GRINDERS / BENCH GRINDERS

- Only persons who have undertaken the specific training may fit use or change an abrasive wheel, disc or guard.
- Abrasive wheels / discs are designed for a specific task and must not be used for any other tasks, i.e. a cutting wheel must not be used for grinding and vice versa.
- The wheel / disc must be specifically designed for the material to be grinded or cut.
- The operating speed of the wheel / disc must not exceed the operating speed of the grinder.
- The guard and handle must always be fitted when in use – never use a grinder without the proprietary guard or handle.



Serious and often fatal accidents have occurred when guards have been removed and equipment operated incorrectly. For more information see HSE Guidance HSG17 Safety in the use of Abrasive Wheels <http://www.hse.gov.uk/pubns/priced/hsg17.pdf>



4. PLANT AND EQUIPMENT

HAND-HELD GRINDER GUARDS AND WHEEL CHANGING

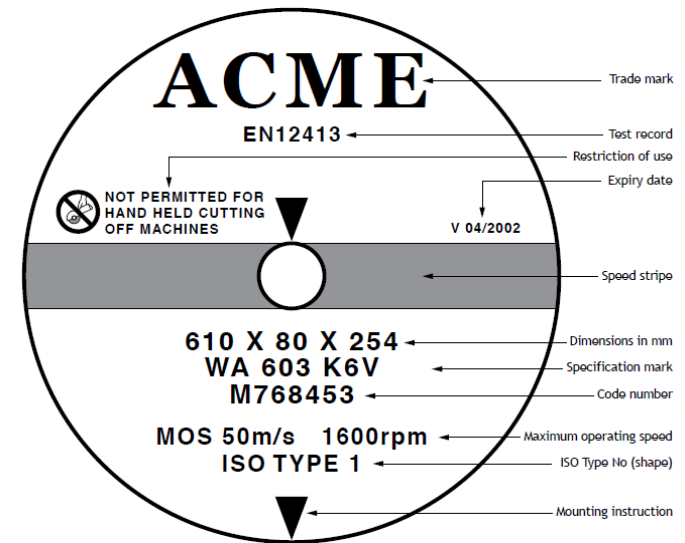
Only operatives who have undergone specific training should fit or change an abrasive wheel and ensure that the correct type of guard is fitted.

It should be noted that the wheels are designed for the specific task, i.e. a cutting wheel should not be used for grinding and vice versa. The guard and handle must always be fitted when in use.

Serious and often fatal accidents have occurred when guards have been removed and equipment operated incorrectly.

For more information see HSE Guidance HSG17
Safety in the use of Abrasive Wheels

<http://www.hse.gov.uk/pubns/priced/hsg17.pdf>



4. PLANT AND EQUIPMENT

HAND ARM VIBRATION SYNDROME (HAVS)

In order to prevent injuries such as Hand Arm Vibration Syndrome (HAVS), the use of low vibration alternatives should be sourced, wherever possible.

An example of where this can be achieved is in bolt tightening activities where hundreds of bolts may have to be tightened. Traditional methods, such as the use of an electric impact wrench, can have high levels of vibration and noise, when in use.

The site were able to reduce the exposure to operatives by sourcing an alternative tool which both reduced the HAVS and noise exposure significantly, as the table below shows.

	HAVS Level	Trigger Time	Noise Level
Makita Tool	11	12 Min	90 Db (A)
Hytorc Tool	2.5	6 Hrs	45 Db (A)



4. PLANT AND EQUIPMENT

SAFETY KNIVES

Several National Grid project teams have sourced safety knives with enclosed blades. These safety knives prevent the user from inadvertently making contact with the cutting blade.

Safety knives are ideal for tasks such as opening boxes, cutting plastic strapping and geotextile membrane. There are also a number of specialist safety knives available on the market to suit a variety of different tasks. Ensure the correct safety knife is selected for the task to be undertaken.

NB: These knives should still only be used in a controlled manner and only when the RAMS identifies that no safer cutting method is available.



4. PLANT AND EQUIPMENT

CABLE STRIPPING SOLUTIONS

On National Grid projects, to reduce the instances of personnel injuring themselves, cable stripping tools should be used rather than open bladed knives.

There are a variety of different cable stripping tools available to suit the various cable types and sizes found at National Grid sites.

Only where it can be demonstrated that there is not a safer method available, a Task Specific Risk Assessment must be completed and authorised by the Site Manager to allow the use of an open bladed knife for that specific task and instance.



4. PLANT AND EQUIPMENT

QUARANTINE AND INSPECTION

Any equipment which requires an inspection / calibration certificate that is out of date (or awaiting inspection) must be stored away in a lockable room or container.

This aspect is usually well managed for smaller items of equipment but it is important to remember that larger equipment must also be quarantined to prevent use.

One way of achieving this is to have an area of a yard cordoned off with prominent signage identifying that it is a secure quarantine area and that no items shall be used or removed without the permission of the responsible person.



4. PLANT AND EQUIPMENT

WINTER WEATHER STATIONS

The harsh winter weather can pose a significant risk on and around construction sites and in office locations, increasing the risk of slips trips and falls.

It is expected practice to have winter weather stations, which contain ice warning signs, gritting equipment as well as additional salt bins positioned around the site. It is also necessary to issue safety alerts to raise employee awareness of the changing conditions.

Traditional ice warning signs are mechanically operated and they can fade over time. An upgraded version is now available which flashes blue when the temperature approaches freezing (lit by 6 LEDs and powered by a long-life outdoor battery pack)

Suitable for use inside an electric substation or outside a gas site.

(Note - These are not intrinsically safe (Non I.S), so they can only be used on the outside perimeter of a gas site).



4. PLANT AND EQUIPMENT

ISSUING AND CONTROLLING OF PLANT

Equipment records and competency records are utilised to ensure that personnel are issued with equipment for which they are trained and authorised to use.

Only those identified and authorised to draw equipment are allowed to take the equipment from the stores.

This is a simple process and can be combined with on site competency assessments to reduce the likelihood of incidents occurring from incorrect use.



	Pilot Name	Company	Start Date	End Date	Equipment	Time In/Out
1	Paul Evans	SARL	15-01-17	12/12/17	1000 LB WINCH	12:00 - 12:15
2	Paul Evans	SARL	15-01-17	12/12/17	1000 LB WINCH	12:00 - 12:15
3	Paul Evans	SARL	15-01-17	12/12/17	1000 LB WINCH	12:00 - 12:15
4						
5						
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14						



4. PLANT AND EQUIPMENT

COMPETENCE OF PLANT OPERATORS

A valid card demonstrating the operator's competence, which has been issued by an accredited training organisation, must be held by all plant operators.

Check for:

- Proof of training on specific attachment or accessory e.g. quick hitch.
- Operator's log book is up to date.
- Valid minimum site safety awareness card.
- Induction to site appropriate to the task.

Non conformances recently identified:

- No or invalid card number for operator.
- Operator's personal details false (also a security issue).
- Only H&S test undertaken and card not applied for.
- Forged card or paperwork provided (usually quite obvious)
- Operator holds certification to a non recognised accredited body.
- Ensure competence checks are thorough – these should be via on-line systems.



4. PLANT AND EQUIPMENT

MEWP – PRE START AND WORKPLACE INSPECTION CARDS

MEWP pre-start inspection and workplace inspection cards can be sourced from IPAF. This card can be issued to persons who use MEWPs and those responsible for managing MEWP activities on a project.

This card can provide a reminder for pre-use inspections and workplace inspections.



Benefits:

- Ensures operatives are aware of the key hazards, risks and control measures to operate a MEWP safely.
- Helps the site team plan inspections.
- Should always be clipped to ID Lanyard or attached to MEWP Keys.



4. PLANT AND EQUIPMENT

THE BANKSPERSON



The Banksperson is responsible for ensuring:

- Segregation of machines and personnel
- Controlling work close to overhead services
- Controlling work close to underground services
- Act as a 2nd pair of eyes for the plant operator
- Stopping work when necessary

The Banksperson must be trained in this role and in the safety zones associated with all plant that they are required to control on site.



The Banksperson must be able to give clear and precise signals to the plant operator which will have been previously agreed prior to work commencing.



4. PLANT AND EQUIPMENT

PLANT EXCLUSION ZONE POSTERS AT THE POINT OF WORK

It is expected that Plant Exclusion Zone posters will be displayed at the point of work. Zone numbering can differ between poster designs, but the colour coding remains the same:

- **Green Zone** – This is the operator's line of sight zone. You may only enter this zone when the banksman advises it is safe to do so.
- **Orange Zone** - Only enter this zone if you cannot approach from the operator's line of sight (green zone). Always signal the banksman and receive a positive response before entering the orange zone.
- **Red Zone** – Do not enter unless instructed by the banksman. This should only occur where specific activities have been planned and a safe system of work is implemented and controlled.

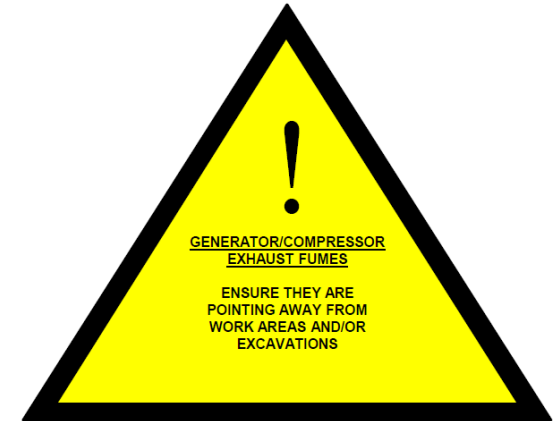
Before you enter any zone, wait for the operator to switch the engine off and give a clear indication that it is safe to enter an exclusion zone.



4. PLANT AND EQUIPMENT

STATIC PLANT EXHAUST WARNING SIGN

A warning sign, advising of nearby static plant exhaust fumes, should be placed next to the exhaust pipe of each individual piece of plant. This is to inform operatives that exhaust fumes are present and may effect those working in, or around, the plant.



Such information is especially important when static plant is positioned near to an excavation. Poorly sited plant can result in the below ground work area being filled with toxic fumes and gasses, which poses a very high risk to those working in the excavation.



4. PLANT AND EQUIPMENT

SITE ACCOMMODATION

All site accommodation units must be inspected and tested in situ by a competent electrician every 12 months and the in situ test certificate must be available for inspection.

Wall heaters must not be located over plastic strips as this is a potential fire hazard. Diesel generators must be integrally bundled and inspected for signs of leakage after installation. Diesel generators **MUST** also be earthed in accordance with the manufacturer's instructions.

Site accommodation must be fitted with smoke detectors which are checked in accordance with the emergency arrangements on site.

Eco-cabins are preferred as part of our environmental commitment. All portable electrical equipment must be tested in line with HSE guidance HSG107.



Version 16 - November 2017



4. PLANT AND EQUIPMENT

FOOT AND ANKLE INJURIES



On a number of occasions steel container doors have blown closed by strong gusts of wind. This resulted in the door banging against an operative standing in the doorway and caused significant injuries to the individuals.

There are various methods in which these doors can be secured to prevent this happening.



On National Grid sites, all container doors must be secured to prevent this from reoccurring.



4. PLANT AND EQUIPMENT

TEMPORARY FENCING AND BARRIERS



The use of highlighted feet for temporary fencing is expected practice in order to reduce the risk of slips, trips and falls.



Reduced trip hazard barriers, with a shorter foot on the pedestrian walkway side, also reduces the risk of tripping.



4. PLANT AND EQUIPMENT

REELFIX TYING WIRE FEED SPOOL

Proactive measures have been implemented on several projects to reduce risks associated with steel fixing. Measures have include the use of retractable wire feed devices.

THE BENEFITS:

- Marked decrease in waste
- Ties up to 66% more rebar per kilo than loose wire
- Elimination of tying wire trip hazards
- Improved work posture
- Reduced risk of wire 'springing' into face or eyes.



4. PLANT AND EQUIPMENT

INSTALLATION OF SHEET PILES

THE ISSUE:

Numerous construction industry accidents have occurred whilst installing sheet piles. A recent accident occurred when the rope from a quick release shackle snagged, causing it to release the sheet pile, which fell and caused injury to an operative.



Fallen trench sheet



Quick release shackle

THE SOLUTION:

- The installation of trench sheets or sheet piles is a skilled operation that must only be completed by qualified, trained and experienced operatives.
- All tasks should be planned and risk assessed.
- Use of the equipment must be in accordance with the manufacturer's instructions.
- Ensure all required inspection regimes are in place, undertaken and recorded.



4. PLANT AND EQUIPMENT

DEDICATED CHARGING POINTS

Installing a dedicated charging point for battery powered tools prevents adhoc charging of tools in undesirable locations, such as canteen areas.

Dedicated charging points also reduce the potential for trailing cables and associated tripping hazards.



4. PLANT AND EQUIPMENT

EMERGENCY RESPONSE STATIONS

Emergency response equipment should be strategically positioned around the site / close to the point of work, to ensure it is available in the event it is required.

The picture shown gives an example of an emergency response station.



4. PLANT AND EQUIPMENT

HAZARDOUS SUBSTANCES STORAGE POSTER

For all hazardous substances held on our construction sites, there must be a Control of Substances Hazardous to Health (COSHH) Assessment and the Manufacturers Safety Data Sheet (MSDS).

Quick guides may also be produced, such as the one shown here, to quickly show which substances are/are not compatible and to give brief guidance on storage requirements.

The quick guide can then be modified, to show a contents list of the COSHH cabinet, and displayed on the outside.

Note – A quick guide must not replace the COSHH Assessment or MSDS.

CLASS	1	2	3	4	5	6	7	8
COMPRESSED GASES								
2.1 Flammable	2	KEEP APART	SEGREGATE	SEGREGATE	SEGREGATE	SEGREGATE	SEGREGATE	ISOLATE
2.2 Non-flammable/Non-toxic	2	KEEP APART	KEEP APART	KEEP APART	SEGREGATE	SEGREGATE	SEGREGATE	SEGREGATE
2.3 Toxic	2	SEGREGATE	KEEP APART	SEGREGATE	KEEP APART	SEGREGATE	SEGREGATE	SEGREGATE
FLAMMABLE LIQUIDS								
3 Flammable Liquids	3	SEGREGATE	KEEP APART	SEGREGATE	KEEP APART	SEGREGATE	SEGREGATE	ISOLATE
FLAMMABLE SOLIDS								
4.1 Slowly combustible	4	SEGREGATE	SEGREGATE	KEEP APART	KEEP APART	SEGREGATE	SEGREGATE	SEGREGATE
4.2 Spontaneously combustible	4	SEGREGATE	SEGREGATE	SEGREGATE	KEEP APART	KEEP APART	SEGREGATE	SEGREGATE
4.3 Dangerous when wet	4	SEGREGATE	SEGREGATE	KEEP APART	KEEP APART	KEEP APART	SEGREGATE	SEGREGATE
OXIDISING SUBSTANCES								
5.1 Oxidising substances	5	SEGREGATE	SEGREGATE	SEGREGATE	SEGREGATE	KEEP APART	SEGREGATE	KEEP APART
5.2 Organic Peroxides	5	ISOLATE	SEGREGATE	ISOLATE	ISOLATE	SEGREGATE	SEGREGATE	KEEP APART
TOXIC SUBSTANCES								
6 Toxic Substances	6	KEEP APART	SEGREGATE	SEGREGATE	KEEP APART	KEEP APART	KEEP APART	SEGREGATE
CORROSIVE SUBSTANCES								
8 Corrosive Substances	8	KEEP APART	KEEP APART	KEEP APART	KEEP APART	KEEP APART	KEEP APART	SEGREGATE

KEY

KEEP APART
Keep substances at least 3 metres apart in storage

SEGREGATE
These substances shall NOT be stored in the same contained area/compartments

ISOLATE
Where a particular substance has more than one classification the segregation requirement shall be adhered to. For substances stored in outside storage areas, Where non-liquefied flammable gases are concerned, the 3 metre separation distance may be reduced to 1 metre.

ISOLATE
This term is for Organic Peroxides which must be stored only in contained fire resisting cabinets away from other buildings

ISOLATE
Separation may not be required but always refer to COSHH and MSDS before storage



5. AVOIDANCE OF THIRD PARTY SERVICES

OVERHEAD LINES (OHL)

THE ISSUE:

A number of incidents have occurred when the drivers of large vehicles have operated machinery whilst being underneath or close to a 3rd party OHL. These actions have resulted in serious injuries and fatalities, which could have easily been avoided.



THE SOLUTION:

A number of solutions are available to assist in the avoidance of 3rd party OHL services:-

- Use of height laser measuring devices.
- Ensuring that highly visible bunting and hazard warning signs are installed.
- Use of a banksperson.
- Ensuring compliance with HSE GS6 - Avoidance of Danger From Overhead Lines



6. EXCAVATIONS & CONFINED SPACES

EXCAVATION ACCESS

Consideration should be given to installing purpose built steps with hand rails, especially where operatives need to carry tools and equipment into an excavation.

The quickest and most convenient method of gaining safe access and egress to excavations is via a stair case.

There are a variety of proprietary staircase systems available on the market for instant access and egress on gradients. These come in a variety of sizes. For longer term projects a permanent solution could be considered.



6. EXCAVATIONS & CONFINED SPACES

SAFE MANAGEMENT OF EXCAVATIONS

To prevent excessive loading of the excavation sides, and to avoid loose material falling onto operatives, the following should be considered:

- For an excavation with a depth of 1.5m or less, the spoil is stored at least 1.5m away from the edge of the excavation.
- For an excavation with a depth of more than 1.5m, the spoil is stored at a distance that is at least equal to that of the excavation depth.

Key requirements include:

- Excavations are constructed in accordance with the Temporary Works Design
- The excavation work is supervised by competent personnel.
- The excavation is secured against unauthorised access.
- The excavation is signed and guarded.
- All excavations must be inspected by a competent person at the start of every shift and after any event that may affect the stability of the excavation. This will be managed by use of an excavation tag system, or similar.



6. EXCAVATIONS & CONFINED SPACES

CONFINED SPACE REQUIREMENTS

Any confined space working must be in accordance with the Confined Space Regulations. When planning confined space working you must consider the following:

- The emergency evacuation procedure is prepared, tested and understood by all.
- Anybody entering the confined space is competent to do so.
- All rescue personnel are competent in the safe evacuation of the confined space and have undergone evacuation plan testing.
- Installation, inspection and testing of support and safety critical equipment is carried out by competent persons and is accompanied by a valid test / calibration certificate.
- Provision of two safe access and egress points, if possible.
- Gas and oxygen depletion monitoring arrangements are in place and regularly inspected / calibrated.
- A method of preventing unauthorised access into the confined space must be in place at all times.



6. EXCAVATIONS & CONFINED SPACES

WORKING AT HEIGHT (WAH) CONTROLS

- During the planning and design stage, identify areas where work at height will be required
- Include in the design, the facilitation of safe access and egress, emergency procedure facilities and barriers to prevent access by unauthorised persons
- Ensure that the installation of any platforms etc. is carried out and inspected by competent persons

WAH Duty holders must:

- Avoid WAH where they can
- Use work equipment or other measures to prevent falls where working at height cannot be avoided
- Where working at height cannot be eliminated, use work equipment or other measures to minimise the distance and consequences of a fall should one occur.

The picture shows a 132kV transformer bund that had working at height identified as a hazard during installation work i.e. risk of stepping back off the plinth. This hazard was eliminated by the installation of a scaffold platform and barrier.



7. WORKING AT HEIGHT

WORKING AT HEIGHT ON VEHICLES / CABINS

When working from vehicles or cabins ensure:

- Working at height is eliminated wherever possible.
- There is a safe means of access and egress.
- Emergency procedure is in place.
- Vehicle fall from height protection is in place whenever possible.
- Where vehicle fall from height protection is not available, then mitigation measures should be employed, e.g:-
 - Bean bags
 - Air bags
 - Combi-safe
 - Inertia reels



7. WORKING AT HEIGHT

FALL PROTECTION

Sometimes the need to access the top of containers or cabins is unavoidable and it can be difficult to adequately provide fall protection in these instances.

In addition securing a “tie off” point for fall arrest equipment can be difficult or even impossible.

A good practice which is now being adopted by many contractors is the use of “Sky Line” which is attached to the jib of the crane and onto the operatives harness. The operative puts on his harness at ground level and the jib of the crane is lowered to ground level, then the “Sky Line” equipment is attached. As the operative climbs the ladder, the cable recoils, thus providing fall protection.



7. WORKING AT HEIGHT

INCREASING SCAFFOLDING PROTECTION

A standard work at height engineering solution is the use of scaffold handrail, complying with industry standards such as TG20, SG4 and BSEN 12811.

Standard scaffolding handrails are erected at 950mm (min) - 1000mm (max), which is deemed an effective barrier to control falls.

However, the standard 950mm handrail doesn't entirely prevent falls from height and there are some instances where enhancements should be considered to reduce risks even further.

For example, the introduction of a third handrail (450mm above the top handrail) provides a total barrier of 1.5M, which significantly reduces the risk of falling. This enhanced barrier is particularly suited to environments experiencing windy / wet conditions.



7. WORKING AT HEIGHT

MOBILE ACCESS TOWERS (MAT)

Following a number of fatalities due to the incorrect assembly and use of mobile access towers, the following guidance is provided:

- A MAT should only be used when absolutely necessary.
- A MAT may only be erected, inspected, used and dismantled by a competent person (i.e. PASMA accreditation).
- Assembly and dismantling instructions should be available for reference purposes at all times whilst the MAT is in use.
- An inspection procedure for the MAT must be in place.
- An inspection 'Tag' must be displayed to identify that the MAT is safe for use.



7. WORKING AT HEIGHT

OHL WORKING – USE OF TAPES

There has been a number of incidents when tapes have been dropped, resulting in them becoming unrolled, causing a potential risk of entanglement to adjacent live circuits.

To prevent reoccurrence the following controls are required:-

- Rolls of adhesive filament tape shall not exceed 5 metres in length.
- Measuring tapes shall be non-metallic and shall not exceed 10 metres in length.
- All tapes shall be returned to ground level after use.
- All tools shall be tethered to the user when working at height on overhead line projects.



8. LIFTING OPERATIONS

MANAGEMENT OF LIFTING OPERATIONS

Expected requirements:

- Ensure that all personnel engaged in lifting operations are competent.
- Ensure the lifting plan is in alignment with the Temporary Works Design.
- A lifting plan shall be fully developed, verified and implemented.
- Ensure that all lifting equipment has a 'Valid Certificate of Thorough Examination or Inspection'.
- Ensure that all lifting equipment is marked with its SWL (Safe Working Load) and that the load does not exceed these limits.
- Ensure that those who are not directly involved in the lifting operation are excluded from the area.



8. LIFTING OPERATIONS

LOADING / UNLOADING OPERATIONS

A risk management approach is required to establish control measures based on the risk severity of the loading / unloading operation. During the planning of site deliveries / collections, the Principal Contractor should contact their suppliers to establish delivery loading / unloading requirements.

There may be a need to produce a safe system of work / lifting plan for review.

Access to and from site must be fully controlled. The vehicles must be under the control of a banksman / vehicle marshal during all operations.

Delivery drivers are required to wear full PPE before entering the work area. It is the responsibility of the Principal Contractor to ensure all deliveries are managed correctly.



9. TRAFFIC MANAGEMENT

HIGHWAYS AND INFRASTRUCTURE

Ensure that:

- Engage with the highways authorities and emergency services.
- There is a traffic management plan in place which includes emergency procedures.
 - Identify high risk areas like villages, schools etc.
 - Define haul routes for construction traffic.
 - Limit road usage and/or times, as applicable.
 - Use competent persons for the implementation of traffic management measures.
- Ensure that all personnel are aware of and comply with the plan.



9. TRAFFIC MANAGEMENT

TRAFFIC MANAGEMENT ON SITE

- Consult the CDM Health and Safety File for site hazards and traffic management plans.
- Consider traffic management issues when developing emergency procedures.
- Consider over-sailing conductors when defining site vehicle routes (see HSE guidance GS6).
- Where possible implement one way traffic management systems.
- Segregate vehicles and pedestrians.
- Display information and/or warning signs
- Communicate and implement the plan.
- Regularly review the traffic management plan to ensure it remains valid.
- All vehicles must reverse park on NG sites.



9. TRAFFIC MANAGEMENT

PEDESTRIAN AND VEHICLE INTERFACE

The majority of construction transport accidents are due to inadequate pedestrian and vehicle segregation. This can usually be avoided by careful planning, particularly at the design stage, and by controlling all vehicular operations during the construction work. Consider the following actions to keep pedestrians and vehicles separated:

- Entrances and exits - provide separate access and egress points for pedestrians and vehicles.
- Walkways - provide barriered, level, well-drained and well lit pedestrian walkways that take a direct route to the work area, wherever possible.
- Obstructions – ensure obstructions do not block walkways; so that pedestrians have to step onto/into a vehicle's route in order to avoid them.
- Crossings - where walkways cross roadways, provide a clearly signed and well lit crossing point where drivers and pedestrians can see each other clearly.
- One way vehicular system – install a one way traffic system to eliminate the requirement to reverse.
- Vehicle control - Ensure that Traffic/Vehicle Marshalls (Banksmen) control all vehicular activities – See Good Practice 4.2.
- Deliveries – ensure all deliveries are planned in advance and are controlled by appointed site operatives.



9. TRAFFIC MANAGEMENT

UNDERGROUND SERVICES PROTECTION



It is necessary to protect known underground services over cable trenches, drainage systems and water supplies etc. These should be protected via the use of non-metal road plates with an anti-slip surface.



Metal road plates can be used on NG sites where a safer alternative solution is not available (ie. The non-metal solution detail above). In this instance, a task specific risk assessment must be completed and authorised for that instance.



Road plates positioned on either a pedestrian walkway or in a non-barriered area must have a non-slip coating.



10. PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) is provided to us by our employers to protect us from hazards which are encountered whilst we are undertaking our tasks. It is essential that we understand the minimum requirements for PPE on NG sites as well as any additional requirements for PPE identified in the Risk Assessments. It is mandatory to comply with both NG's **Safety Line Policy** and any additional requirements detailed in the RA.

Safety Helmet

Hi Vis Jacket or Vest

Coverall (one or two piece)

Safety Boots with ankle support and mid-sole protection

Hearing Protection (carried and worn when necessary)

Light Eye Protection (to be upgraded when detailed in the task risk assessment)

Safety gloves to complete the task



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10. PERSONAL PROTECTIVE EQUIPMENT

THE RIGHT GLOVES FOR THE RIGHT JOB

GENERAL
GLOVE



OPERATIVES
GLOVES



FINGERLESS
GLOVES



HIGH CUT
RESISTANT
GLOVE



ONE-THIRD of all REPORTED ACCIDENTS involve injuries to the HANDS or FINGERS.

The Risk Assessment should identify what type of glove is required for each type of activity to be undertaken. Aspects that should be considered are:

- The task to be undertaken.
- The substances/materials to be handled
- Any other hazards
- The duration of contact
- Size and comfort

Note - You must wear the glove that is detailed in the Risk Assessment.



10. PERSONAL PROTECTIVE EQUIPMENT

EASY STORAGE AND SELECTION OF GLOVES

The Challenge:

To ensure the correct glove is issued as identified for the requirements of the task on site.

Expected Practice:

A labelled storage system was introduced which ensures easy identification of the gloves and aids stock control. The system utilises labelled plastic boxes to hold the gloves which allows good visual and physical access as well as protecting them from damp conditions.



10. PERSONAL PROTECTIVE EQUIPMENT

MAINTAINANCE OF SAFETY HELMETS

All PPE needs to be regularly inspected and replaced when damaged. In addition to this there are requirements to replace items of PPE at defined periods, as detailed in the PPE Regulations 1992.

Safety helmets should correctly fit the individual and be in good condition. If the safety helmets is identified as being damaged it should be replaced immediately .

Damage to safety helmets can occur from an impact to the plastic shell, incorrect storage, extensive exposure to sunlight , excessive heat and by using adhesive stickers that are not approved for use by the manufacturer.

Refer to the safety helmet manufacturers guidance for information on the “Life span” of the safety helmet .

The date of manufacture can be found printed/stamped on the inside of the safety helmet. (refer to the safety helmet manufacturers guidance)



Example –
September 2004



10. PERSONAL PROTECTIVE EQUIPMENT

THERMAL HELMET LINERS

Safety helmets are not designed for use with non integral PPE.

Non integral PPE such as hoodies and woollen type headwear may interfere with how the safety helmet fits the wearer and the impede the capability of the safety helmet suspension system (cradle) to function correctly in the event of an impact.

Integral thermal helmet liners have been designed for use in cold weather, without interfering with the fit and functionality of safety helmets as they fit between the safety helmet cradle and outer shell.

By fitting an integral thermal helmet liner, the effectiveness of the cradle within the helmet is maintained in line with the safety helmet manufacturers guidance



10. PERSONAL PROTECTIVE EQUIPMENT

BI-FOCAL SAFETY GLASSES

It is common place for people to use glasses without a prescription for certain tasks such as reading and detailed work i.e. wiring. This in turn has led to a small number of operatives who can use normal safety glasses for the majority of their work but then need to change glasses when on site to carry out detailed work or when reading.

Bi-Focal safety glasses are a cost effective alternative to prescription safety glasses for people with minor sight problems. This allows the user to wear one pair of glasses and removes the need for the changing of glasses and wearing none approved glasses when on site in potentially hazardous areas.



10. PERSONAL PROTECTIVE EQUIPMENT

FOOT PUNCTURE INJURIES

A common theme in the investigation of accidents involving puncture wounds to feet is the discovery that the safety boots being worn by the individual at the time of the accident did not have mid-sole plate protection.

Check the label inside the safety boot for to ensure that the correct safety boots with mid sole protection are being issued and worn; “SB” represents “Safety Boot” “P” represents “Penetration Resistance” or mid-sole protection.

The minimum accepted standard of Safety boots is SB-P in compliance with EN ISO 20345:2011. Please note that S1-P and S3 are also acceptable - S5 (Safety wellingtons) require a specific risk assessment - see table below.

Footwear rating	Features	Key	Description
SB	✗	A	Antistatic footwear
SB-P	P ✓	E	Energy absorption of heel region
S1	A + FO + E ✗	FO	Resistance to fuel oil of outsole
S1-P	A + FO + E + P ✓	P	Penetration resistance
S2	A + FO + E + WRU ✗	WRU	Water penetration and absorption
S3	A + FO + E + WRU + P ✓	WR	Waterproof
S4	A + FO + E + WR ✗	CS	Cleated Sole
S5	A + FO + E + WR + P + CS ✓	Version 16 - November 2017	



11. OUR ENVIRONMENT

GUIDANCE – NESTING BIRDS

Wild Birds are protected under UK Legislation. It is an offence to take, injure, disturb or kill any wild bird or to remove eggs from a nest. There many proactive measures which can be considered to deter birds from roosting or nesting. Active roosting / nesting sites must not be disturbed (for further information see TP228).

Be aware that construction activities may have an impact on wild birds, such as:

- Work, access or storage areas close to potential nesting sites.
- Any activities resulting in significant noise or vibration.
- Use of plant and equipment.



To identify which rare or protected bird species may be on or near NG assets, you are requested to record any sightings via the 'Spotted' database.



11. OUR ENVIRONMENT

REFUELLING OF PLANT AND MACHINERY

Design:-

- Review site drainage plans to determine a suitable refuelling point.
- Risk assess all proposed fuel storage locations.

Construction:-

- Refuelling points must be:-
 - A minimum of 30m from any watercourses.
 - Sited away from all drains / sewage systems.
 - On level ground.
 - On hard standing wherever possible.



Inspection:-

- All fuel bowzers and containers must be inspected on delivery to ensure there is no corrosion, leakage or defects.
- Any identified leaks, corrosion or defects must be reported to the Site Manager.

Use:-

- Any refuelling operations must be monitored at all times.
- A drip tray must be used when dispensing fuel from bowzers or containers.
- Spill kits and fire extinguishers must be readily available.
- Ensure all fuel bowzers are locked when not receiving/dispensing fuel.



11. OUR ENVIRONMENT

CONCRETE WASH-OUT AND MANAGEMENT OF SURPLUS CONCRETE

A good practice is to source suppliers that utilise a concrete sock and return to their batching plant for cleaning. (See good practices guide). Where this cannot be achieved, it is important that the use of concrete in construction is managed in a responsible manner to minimise the impact on the environment

- Concrete wash-out should take place in designated areas only, where clearly signed, lined skips are provided to prevent pollution of the surrounding environment. A minimum amount of water should be utilised with a long handled brush to clean any concrete from the chute of the wagon only into the lined skip.
- Surplus concrete from a load or solid concrete **MUST NOT** be disposed of into the concrete wash-out skip.
- Ensure that correct size batches are ordered for the pours required. Failing this surplus concrete can be used in other areas.
- The next best option is to pour the surplus concrete onto a designated area of ground away from drains and watercourses and allow it to go off; it can then be broken out and removed from site for recycling.



Concrete wash-out skip



Use of surplus concrete



11. OUR ENVIRONMENT

NEUTRALISATION OF CONCRETE WASH WATER

Traditionally, a skip is used to wash out the residue from concrete delivery lorries. The waste then separates, creating solid waste and liquid waste, both of which must be removed from site by a licensed waste carrier.

In stead of disposing of the liquid waste at significant cost, it can be treated and neutralised on site, using products such as pH/Blue, which reduce alkalinity to safe levels.

Following treatment, the liquid waste can then be reused on site for activities such as dust suppression or the watering of plants.



11. OUR ENVIRONMENT

REUSE OF RAINWATER FOR BALLAST

As part of a temporary flood defence, water is required to provide ballast to the system. The below is an example where harvested rainwater was used to provide ballast.



11. OUR ENVIRONMENT

CONSTRUCTION SILT MANAGEMENT

Various techniques can be used to remove the silt from water during construction activities.

These can include silt fencing and physical particulate filtration or the use of electro-flocculation systems of which the benefits are:

- Prevents silt pollution of local watercourses
- No need for chemicals or biomass
- Reduction in waste e.g. straw bales and bulk bags



Silt fencing



Particulate filtration



Electro-flocculation



Before



After



11. OUR ENVIRONMENT

ENVIRONMENTAL SPILL MANAGEMENT

Contractors must ensure that drains are properly marked up and that they are protected from silt / site spillages.

These images show a sample of those available.



11. OUR ENVIRONMENT

RECYCLED ECO FRIENDLY MATERIALS AND DISPOSAL

Although it may seem obvious, materials such as bio-degradable refuse sacks, eco-friendly cleaning products, recycled paper for offices etc., should be promoted as it is not normal practice. i.e. The sacks (pictured right) are 100% degradable, breaking down in less than 18 months. In addition, the bags themselves are made from 93% recycled material further reducing the impact on the environment.

Recycling of office materials such as printer cartridges, waste electrical items and also furniture is also important. Printer consumables are often difficult to dispose of but there are now organisations such as 'eReco EMEA corporation Ltd' who take these items and dispose of them in an environmentally friendly manner helping us to ensure that our duty of care is complied with.



11. OUR ENVIRONMENT

'RESOURCE NOT 'WASTE'

In the past few year's, the waste on our construction sites has been sorted into different waste streams, such as metal or wood waste, so that it can be more easily recycled.

Whilst we should continue to recycle, we need to do a lot more in the first place to avoid generating waste by doing the job right first time.

If we cannot avoid generating waste, we should try and re-use it where possible, for example using excess concrete as blinding or re-using wood for shuttering.

In the chart on the left, we should always start at the top and work our way down, disposal of waste to landfill is always the last resort



Various community based recycling schemes are in operation for more information contact : National Community Wood Recycling Project-
info@communitywoodrecycling.org.uk



12. SUSTAINABLE CONSTRUCTION

CONSERVATION STRIP FOR WILDLIFE CONTROL



NG expects its contractors to consider the environment when undertaking both design and construction works.

In order to minimise our impact on the environment, it is expected practice to maintain a strip of meadow vegetation, as a buffer between the working area and the local community. Trees and bushes should also be protected where possible.

Working with conservation groups in the area can help to maintain good relationships with the local community.

This is also a good opportunity to minimise risks and improve the local environment.



12. SUSTAINABLE CONSTRUCTION

USE OF GENERATORS

Wherever possible a mains electrical connection should be used to power cabins instead of a generator, as this is more cost effective and is more environmentally friendly.

However, where a mains connection cannot be established, the contractor should:-

- Consider the use of eco-generators that use battery power for light load requirements (i.e. overnight)
- Carry out a cost benefit analysis to ascertain whether it is more efficient and cost effective to hire one generator or two (one larger one for daytime use and a second smaller generator for night time use).

What are the benefits?

- Reduces the consumption of diesel (a finite natural resource)
- Reduces emissions and pollution
- Reduces our impact on climate change
- Reduces costs



12. SUSTAINABLE CONSTRUCTION

WATER SAVING PRODUCTS

It's our responsibility to preserve our natural environment for future generations. The local water supplier will provide free 'fix and forget' products to help save water (and energy). When setting up your sites and during the project consider:

- Finding, fixing and preventing leaks as soon as they occur
- Shower save flow regulator
- Shower timers
- Tap regulators
- Save a flush bags
- Waterless urinals
- Turn the taps off when they are not in use
- Report and repair dripping taps and other water leaks



Good Practice Handbook and Guidance

Appendix B

Safety and Environmental Alerts / Bad Practices

Use the following link:

<https://nationalgrid.huddle.net/workspace/23931969/files/#/folder/41101707/list>

