

Our emergency numbers are:

South Wales

EMERGENCY

0800 052 0400

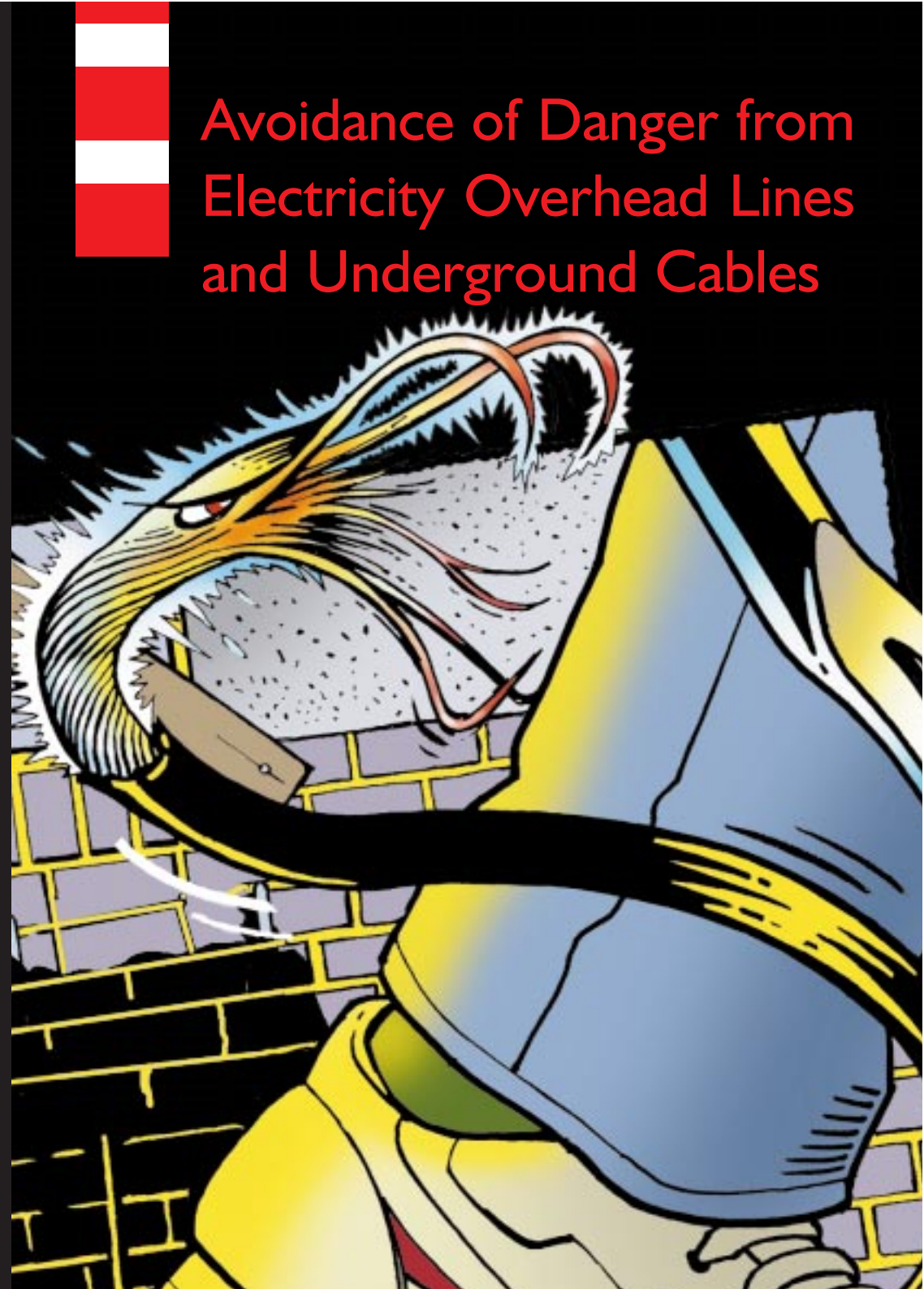
South West

EMERGENCY

0800 365 900

WESTERN POWER
DISTRIBUTION
Serving the South West and Wales

Avoidance of Danger from
Electricity Overhead Lines
and Underground Cables



Avoidance of Danger from Electricity Overhead Lines and Underground Cables

Introduction

In the UK on average, 20 people are killed and 400 people are injured as a result of coming into contact (or close proximity) with electricity overhead lines and underground cables.

Although electric shock is the first thing that people associate with coming into contact with our network, those who have witnessed the effects of damage to our system are shocked by the amounts of heat, light and noise that are the result of an electrical flashover.

In the South West and South Wales, Western Power Distribution (WPD) have also had to attend to incidents where people have accidentally made contact with one of our live electricity overhead lines or damaged an underground cable.

A significant number of these accidents occurred whilst people were working in the vicinity of overhead and underground electrical apparatus and this booklet has been produced to provide general guidance on how you and your employees can avoid becoming one of these statistics.

PLANNING YOUR WORK.

It makes sense to consider your safety while in the vicinity of our equipment as early in your planning process as possible.

One of the first things you should do whenever you are planning your work is to check whether there is any of our equipment in the immediate vicinity. You should do this whether your work is taking place on public (e.g. highways and footpaths) or on private land.

For instance, take a good look around your site to see if there are any visible overhead lines. You should also bear in mind that we have a very extensive network of underground cables, and we are always happy to supply a set of our record plans free of charge from our Mapping Centres.

Our Mapping Centres can be contacted on the following numbers;

South Wales: Tel: 029 20 535379

Mapping Centre

Fax: 029 20 535390

South West: Tel: 01392 352652

Mapping Centre

Fax: 01392 352629

It is always safer to assume that there are underground cables present in the ground until you have proven otherwise.

WORKING IN THE VICINITY OF UNDERGROUND CABLES

Having obtained copies of our network maps, it is important to recognise that in most cases there will be no surface indication of the presence of our underground cables. We therefore advise that you take the following actions;

- Make sure that you have up-to-date copies of our cable record plans ON SITE - not back in the office.
- Don't assume that these plans are to scale if they have been faxed or copied.
- Make sure that a competent person using a Cable Avoidance Tool (CAT) locates all of the cables shown on these plans.
- Mark the locations of cables on the ground surface with waterproof road paint or other permanent marker.
- Always assume that our cables are live unless we have informed you, in writing, otherwise.
- By hand, dig trial holes to locate the exact position of all cables. Always use a spade or shovel – never use a pick, fork or power tool – push the spade or shovel into the ground applying foot pressure.
- Look out for ducts, marker tape or tiles but do not rely on these. Even if a cable was originally laid in a duct or with a marker tape, these may have been removed during other excavations at a later date along all or part of the route.
- Brief all people working in the vicinity of the presence and location of all underground cables.

UNDER NO CIRCUMSTANCES SHOULD YOU ATTEMPT TO WORK ON, OR INTERFERE WITH, ANY OF OUR UNDERGROUND CABLES. The only people qualified to work on our cables are our operatives who have each been specifically authorised, in writing, to do so.

Please also be aware that;

- Cable record plans are not guaranteed to be completely accurate. Kerb Lines, roads and buildings may have been moved or altered since the cables were laid.
- Cables should ordinarily be at least 450mm deep but don't assume this to be the case where you are working – ground levels could have changed.
- Not all service cables are shown on record plans, so look for cables running down poles and bear in mind that all buildings, street lights and road furniture are likely to have cables running to them. Cables feeding street furniture may be relatively shallow near to the furniture.
- Cables do not run in straight lines. They often “snake” through the ground avoiding surface and buried obstacles that may not be visible to you.
- Cables are flexible and can change direction and depth abruptly – for this reason never use mechanical excavators within 0.5m of any underground electricity cable even if you have located it with trial holes.
- No attempt should be made to break out concrete surrounding a cable. Please contact us immediately on our general enquiries number and we will discuss the options for safe working which may include making the cable dead or you moving your work site if possible. If we need to make the cable dead we may need to provide our customers with two weeks notice of the power interruption.
- Our cables and joints are not designed to act as steps or to be left unsupported. If you remove support from any cable, you will need to support it using temporary hangers at not more than 0.5m intervals.
- When backfilling, please consolidate the ground under the cables, cover the cable with soil free of stones or with stone dust and replace any cable marker tiles, ducts and tape.

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IF YOU DAMAGE AN UNDERGROUND CABLE, you must immediately clear the area of personnel, because the cable could still be live, or become live again.

If a machine is still in contact with the cable, instruct the driver to JUMP clear. Do not touch any part of the machine.

Please contact us on our emergency numbers immediately and tell us what has happened. Please be ready to provide us with a contact telephone number and an accurate location or set of directions – this will help us in getting our staff to site quickly to minimise any danger and lessen the disruption to your work.

Our emergency numbers are:

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Please report any damage to a cable, however superficial it might seem. The cable may not fail at the time of damage, but it could fail later, causing danger to our staff and other contractors, disruption to our customers' supplies, and also – if we trace the damage back to you – a very much larger repair bill.

WORKING IN THE VICINITY OF OVERHEAD LINES

UNDER NO CIRCUMSTANCES SHOULD YOU ATTEMPT TO WORK ON, OR INTERFERE WITH ANY OF OUR OVERHEAD LINE EQUIPMENT OR SERVICE WIRES. The only people qualified to work on this equipment are our operatives who have each been specifically trained and authorised in writing, to do so.

Overhead lines have the advantage that, unlike underground cables, they can easily be seen.

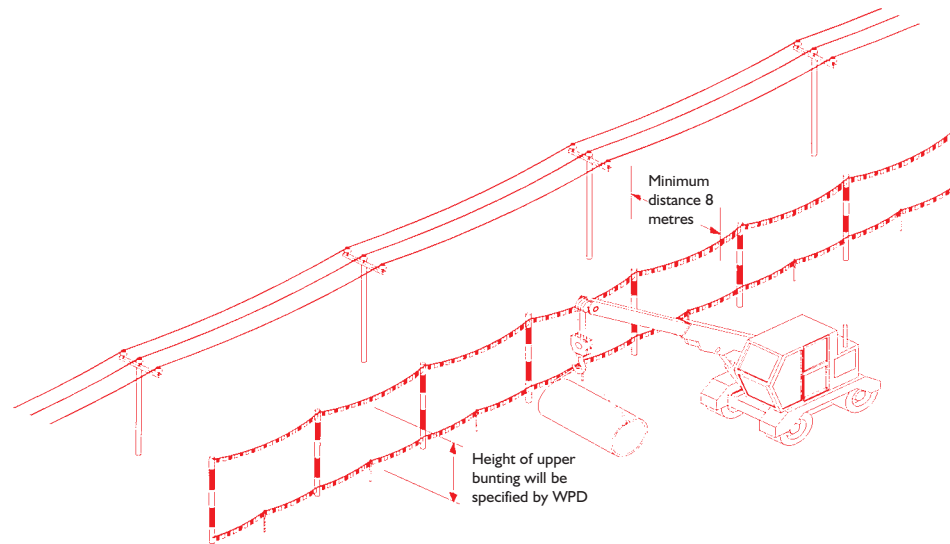
- Always assume that our lines are live unless we have informed you otherwise in writing.
- We will be able to advise you about the type and voltage of the lines in question and provide you with information about the clearances that you must adhere to during your work.
- If you are in any doubt about whether the lines in question are power or telephone (this is a very common mistake) – please ask us.
- In some circumstances, we may be able to temporarily shroud low voltage overhead lines and services running to buildings if you need to work in the vicinity e.g. for scaffolding erection, fascia repairs and painting work on domestic properties. We don't normally charge for the shrouding of overhead lines, but please give us as much notice as possible.
- If you think that you will be working close to our overhead lines and they need shrouding – please don't start work until we have agreed what needs to be done and all safety precautions are in place.
- Please note that it is not technically possible to shroud high voltage lines, so if you cannot avoid working near to our high voltage lines, contact us and we will be happy to meet you to discuss safe alternatives.

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■ If it is decided that work can go ahead in the vicinity of our lines, and there is a risk of you infringing the safety clearances from the lines, you have a responsibility to erect safety barriers to segregate your works from the area around the lines. The detailed requirements for these barriers are provided in the HSE document GS6 'Avoidance of Danger from Overhead Lines' and as a summary they should consist of;

■ Red and white painted posts erected at 6m intervals, with coloured bunting stretched between their tops, supplemented by low level bunting erected at 1m above ground level, supported at 3m intervals on red and white painted posts. This is shown below.



- We are able to advise you on the height of the barriers and any additional clearances necessary if you are using large plant on your site.
- Any bunting, ropes and lanyards used should be made from an insulating material.
- These barriers should be erected parallel to the line at a minimum distance of 8m horizontally from the outermost conductor of the line.

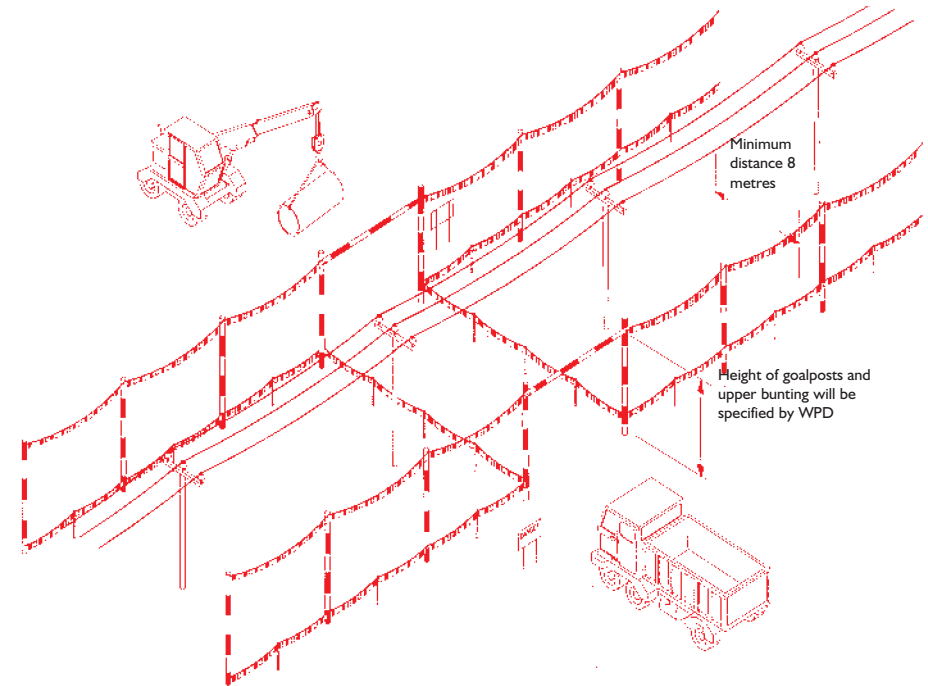
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■ The supports may be supported by rubble or concrete filled barrels or buried directly in the ground.

■ Danger Notices should be fixed to all of your high level supports.

■ The ground enclosed within these barriers is best regarded as "dead ground" in which all foot and vehicular traffic is forbidden, in all circumstances, for the duration of your work.

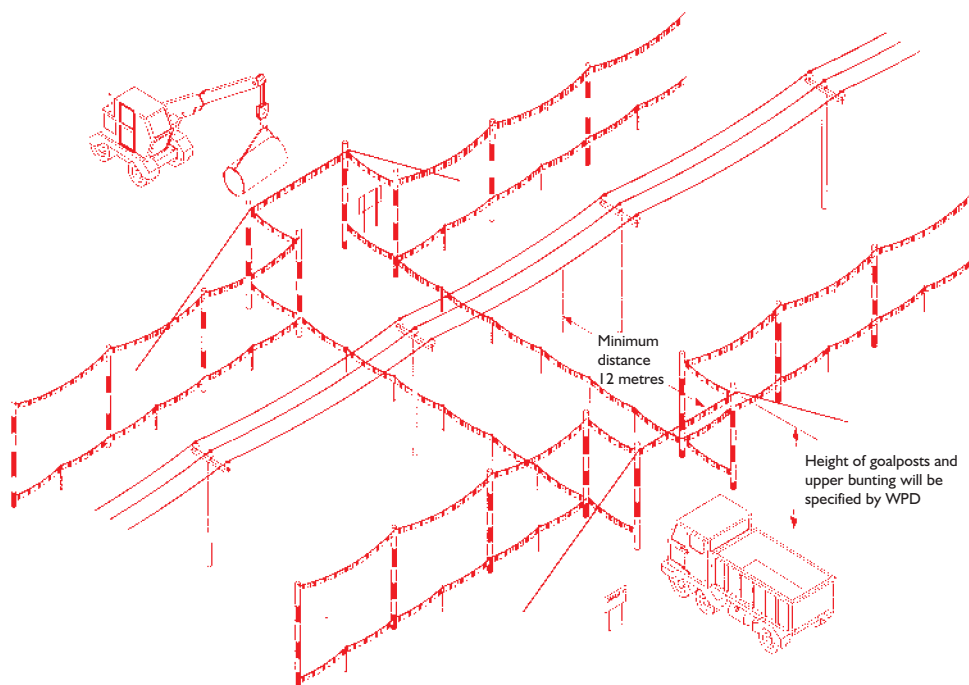
■ Where it is necessary for foot and vehicular traffic to pass under the line, you will need to form a marked access way between the barriers as shown below.



■ This access way should comprise of bunting erected 1m above ground, supplemented by high level "goal-posts" erected at either end.

■ The goal post cross bars should be rigid, made of insulating material and positioned in a location and at a height specified by us.

- The access route should be as narrow as possible and should not normally exceed 10m in width.
- If it is necessary to make the access route wider than this, you may find it impractical to use rigid cross bars, so you may use a tensioned rope and bunting instead. If you use rope and bunting as a cross bar, you should move the entrance to the access route out to a minimum distance of 12m from the outermost conductor of the line. This is to allow for any stretching of the rope if pulled by your plant.



- If you decide to use steel wire rope to support the barrier, this must be effectively connected to earth at both ends.
- You should also install Danger Notices at all probable directions of approach and clearly display the cross bar height.
- If you are working at night, or in conditions of poor visibility, you should ensure the area is well lit and that the lines are clearly visible.
- Whatever measures you take, you should ensure that everyone working in the vicinity of lines is briefed about the risks and what safety measures are in place. Do not permit anyone to carry long objects, especially scaffold poles, ladders and irrigation pipes in the vicinity of lines.
- You should ensure that all shrouding, barriers and signs are regularly inspected and maintained so that they remain effective.
- Overhead power lines are not normally insulated and electricity at High Voltages may jump, so a dangerous situation can arise just from a close approach.
- Cranes and Excavators working near overhead lines are at increased risk because of the possibility of the jib/arm slewing or being raised into the line, or the load swinging into the line. You may therefore also need to fit plant and vehicles with restricting chains etc. to physically restrain their operation – we can advise on this if you wish.
- If you are planning to carry out tree cutting or arboriculture work in the vicinity of our overhead lines, you need to be aware that this is a complex, high risk activity and we recommend that you employ a competent tree surgeon, who complies with all of the requirements of HSE leaflet AFAG804: 'Electricity at Work: Forestry and Arboriculture'.

If contact is made with an overhead line, you must immediately clear the area and suspend all work within 50m of the damage because the line could still be live, or become live again.

The operator of a machine that is in contact with an overhead line should:

if the machine is still operable and the operator is still in the cab:

lower any raised parts that are controlled from the driving position and/or drive the vehicle clear of the line, as long as neither of these actions risk breaking the line or dragging it to the ground.

contact us immediately on our emergency number so that we can check the lines.

if the machine is not operable or cannot be driven clear of the line:

stay in the cab.

contact your site manager or us immediately on our emergency number by radio or mobile phone or as soon as possible by any other method.

instruct everyone outside the vehicle not to approach it.

do not exit the cab until given confirmation BY WPD PERSONNEL that it is safe to do so.

if the machine is inoperable or cannot be driven free and there is risk of fire or other immediate hazard:

JUMP clear of the vehicle, avoiding simultaneous contact with any part of the machine and the ground.

try to land with your feet as close together as possible.

where possible, continue to move away from the vehicle using “bunny hops” with your feet together until at least 15m from the vehicle.

instruct other people in the vicinity not to approach the vehicle.

contact us immediately on our emergency number.

do not return to the vehicle until given confirmation BY WPD PERSONNEL that it is safe to do so.

Whatever the circumstances please contact us on our emergency numbers immediately and tell us what has happened. Please be ready to provide us with a contact telephone number and an accurate location or set of directions – this will help us in getting our staff to site quickly to minimise any danger and lessen any disruption to your work.

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Please report any damage or contact no matter how minor they may seem to you at the time. The damage may not cause a serious problem at the time of damage, but it could fail later, causing danger to our staff and members of the public, disruption to our customer’s supplies, and – if we trace the damage back to you – a large repair bill.

MORE INFORMATION

For your information, we are legally obliged to report all contact with our system to the Department of Trade and Industry, and, if you are an employer, you may be obliged to report incidents involving your staff or contractors to the Health & Safety Executive. Even if no one is hurt, you could be prosecuted for failing to report such an incident.

More detailed general information on this subject is available in the following publications from the Health and Safety Executive (HSE);

HSG(47) – Avoiding Danger from Underground Services

GS6 – Avoidance of Danger from Overhead Lines

AFAG804 - Electricity at Work: Forestry and Arboriculture

If you require more site-specific information relating to our equipment at your location please contact us on our general enquiries numbers.

Our general enquiries numbers are;

South Wales 0845 601 3341

General Enquiries

South West 0845 601 2989

General Enquiries

FINALLY...

Please, always remember that electricity cables and lines can be very dangerous – the general rule is **STAY AWAY** and stay safe.

NOTES



Avoidance of Danger from Electricity Overhead Lines and Underground Cables

I acknowledge receipt of a copy of the above guidance

Name of Company

Site Address

Name

Signature.....Date.....