



# Avoiding Underground Services

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- **WHY?**
- Potential for fatal or serious injury!
- Annual average of 12 deaths and over 600 serious injuries that relate to contact with electricity network

# Avoiding Underground Services

- Probably thousands of utilities being damaged every year?
- Number of injuries caused by service strikes is relatively low - injury does not occur commonly when services are struck
- Consequence is that operatives/ machine operators do not perceive the potential high risk associated with this work
- Potential for fatal or serious injury is a real one!

# Avoiding Underground Services

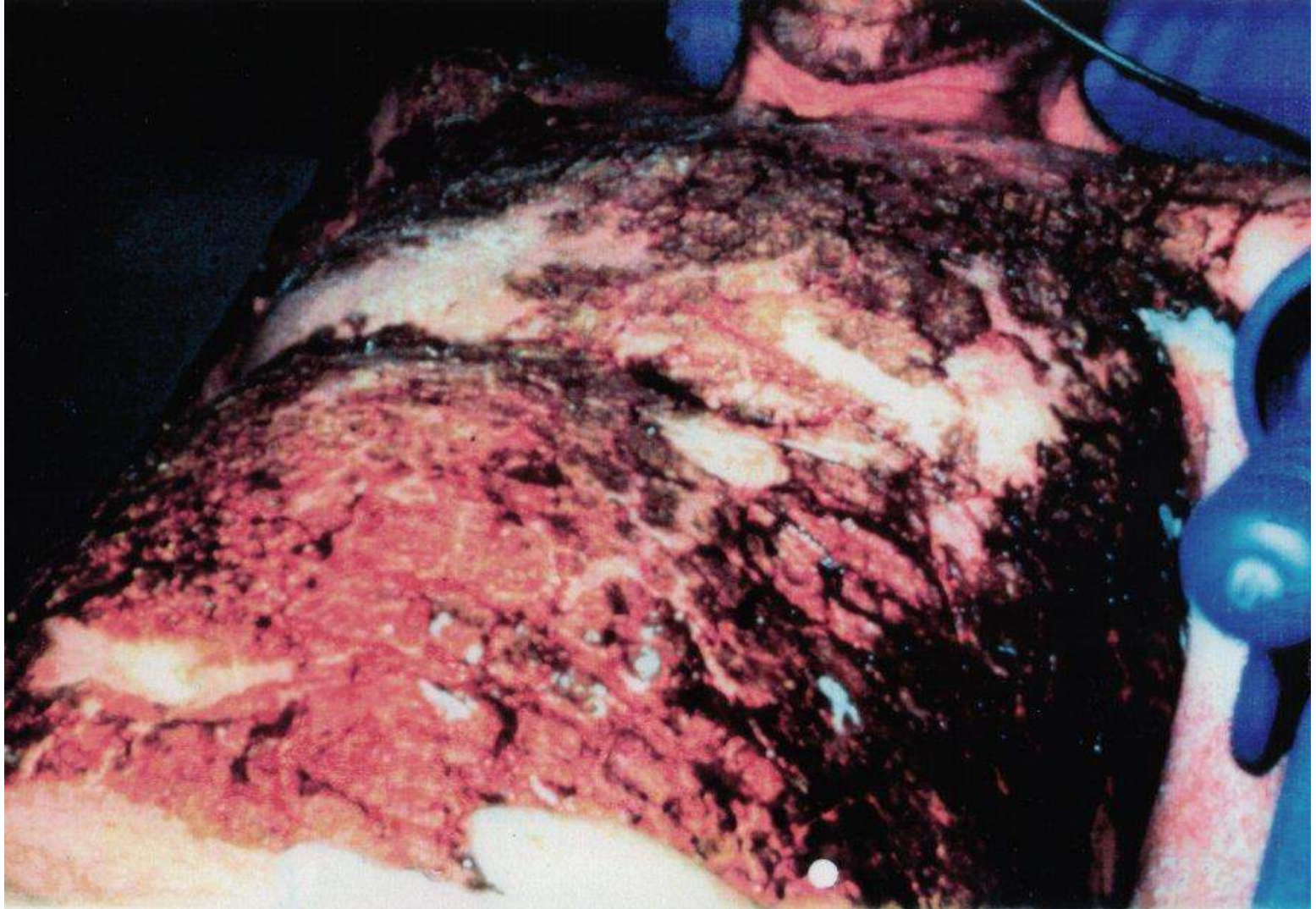


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- Injury to other persons who are relying on power for their activities
- Clients Perspective/Repeat Business
- Disruption to community/Public Relations
- Repair Bills/ Downtime/ Project Delays
- HSE prosecution(Companies & Individuals)



# Avoiding Underground Services

## Risk Assessment / Method Statement / Control Measures – HSG 47

- Statutory Service Drawings
- CAT Scans
- Hand Dig / Cat Scans
- Mark positions of cables / pipes
- Safe System of Work/ Safe Digging Practices



# Avoiding Underground Services

National One Call  
Dial Before You Dig

Tel: 0844 800 9957

# Avoiding Underground Services



## PowerSystems

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**Plant Protection Officer – Operations**

Part of the ScottishPower group

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## **DIAL BEFORE YOU DIG**

**FOR FREE ON SITE ASSISTANCE PRIOR TO  
COMMENCEMENT OF WORKS**

SEVEN WORKING DAYS NOTICE REQUESTED  
(Office hours: Monday - Friday 08:00 to 17:00)

***Tel: 0800 9173993***

***Fax: 01332 578650***

***E-mail: [dbyd@bt.com](mailto:dbyd@bt.com)***

***Website: [www.dialbeforeyoudig.com](http://www.dialbeforeyoudig.com)***



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Scottish Gas Networks

96 Kilbirnie Street

Tradeston,

Glasgow G5 8JD

Tel: 0141 418 4093

Emergency Response No: 0800 111 999

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**PAS 128** - National Specification for Detection, Verification and Location of Underground Services (Four set levels)

QL-D: Desktop Utility Record Search

QL-C: Site Reconnaissance/ Visual Evidence

QL-B: Detection/ Ground Probing Radars etc.

QL-A: Verification



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## ***11,000 volt cables***

11kV PILC  
(paper insulated  
lead covered)



185(3)coral.hv



95(3)coral.hv



11kV single  
core



11kV wire  
armour



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## *Low Voltage cables*

185(4)  
waveform



185(3)  
waveform



95(4)  
waveform



95(3)  
waveform



35(3)  
service







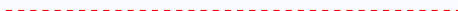








25(1)  
service



16(1)  
street  
lighting

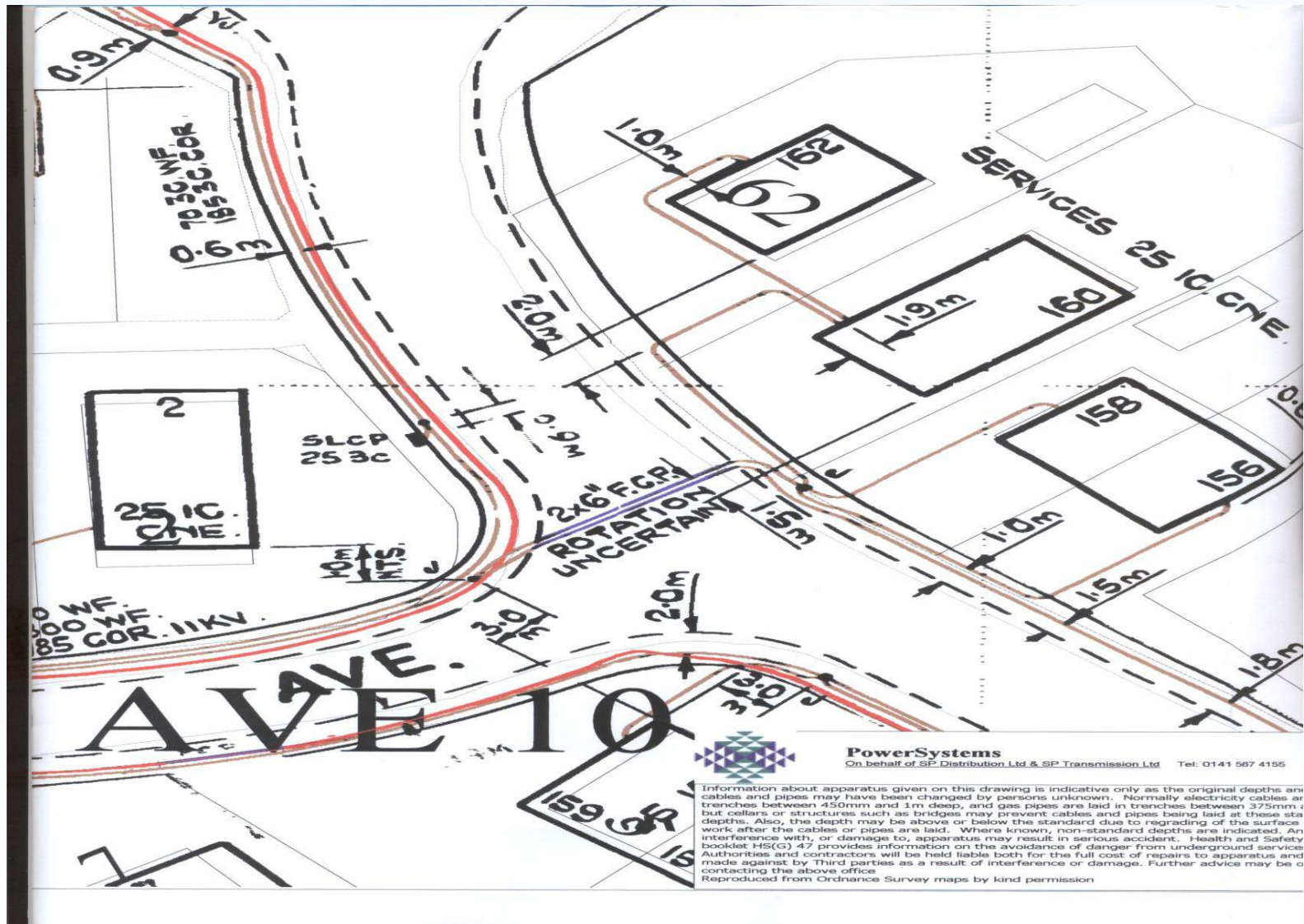


## **Key to common vector symbols used within GIS / MapAccess:**

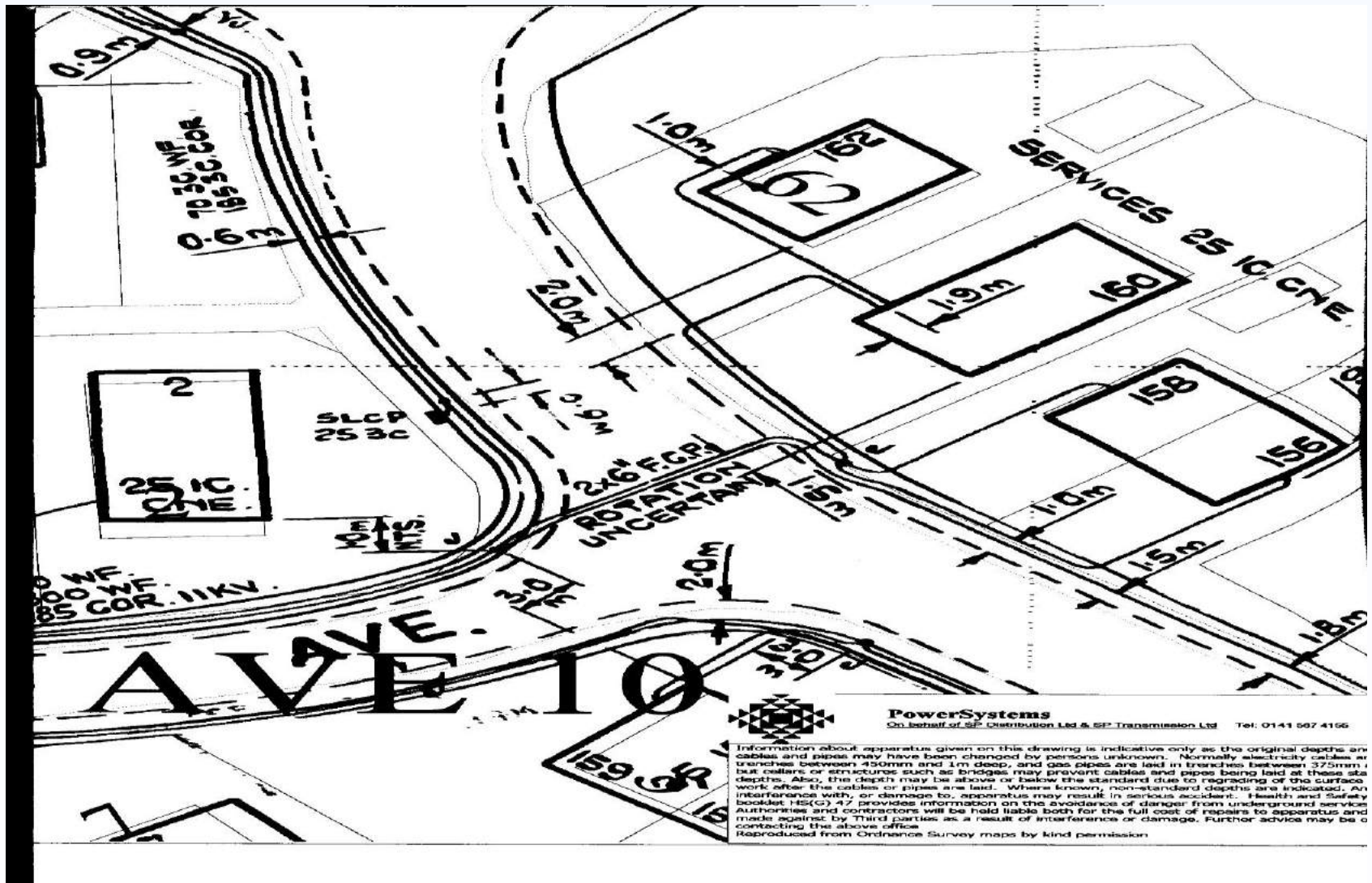
LV Cable	
LV Cable Disconnected	
LV Overhead Line	
HV (11kV) Cable	
HV (11kV) Cable Disconnected	
HV Overhead Line	
HV (6.6kV) Cable	
HV (6.6kV) Cable Disconnected	
EHV Cable	
EHV Cable Disconnected	
EHV Overhead Line	
132/275kv	
132/275kv Disconnected	



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## CAT Scanning

- **Training in correct use of CAT / Pipe locator**
- **Use the Genny and CAT together**
- **Manufacturer`s Instructions/ Maintained**
- **Know how to interpret the results**
- **Know its limitations**
  - **Several Cables**
  - **Time switches**
- **Common Sense**



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## Digging Practices

- Service locations physically marked/ signs
- Avoid picks/ forks etc.
- Use CAT scan progressively
- No Power Tools/ Machine digging within 500mm of indicated line of service – “this 500mm safety margin may be reduced only if the line of the cable has been positively identified by plans, confirmed by locator and additional precautions used to prevent damage”

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## Safe System of Work

- Permit to Dig/ Disturb Ground
- Briefing to all persons involved
- Maintaining warning signs / markings
- Adoption of the agreed system of work
- Safe Digging practices/ Monitoring
- If conditions change – STOP – Report it

# PERMIT TO DIG/ DISTURB GROUND

<b>ogilvie</b>		OCL/H&S/15
<b>PERMIT TO DIG</b>		
Project: <b>SCHOOLS</b>		Permit No: 001
Nature of Work: <b>STREET LIGHT INSTALLATION</b>		
Location: (Sketch attached Yes/ <del>No</del> ) OUTSIDE AREA 1 AT NORTH/WEST CORNER		
<u>Items to be checked</u>	<u>Comments</u>	
1 Have Statutory Authorities been contacted.	Yes/ <del>No</del>	See Mapinfo information in file
2 Drawings indicating location of services available.	Yes/ <del>No</del>	Drawings displayed on office wall
3 Are service routes clearly marked.	Yes/ <del>No</del>	Timber pegs and signs
4 Has area been CAT scanned.	Yes/ <del>No</del>	Initially by J Smith
5 Is hand digging necessary to locate services.	Yes/ <del>No</del>	Slit trenches every 2 metres
The following services have been located within the area:- 2 No. existing street lighting cables and 1 No. 11kv electric cable		
Other control measures required:-  HAND DIG ONLY		
Confirmation by Operative Supervisor. I have read this permit and understand the location of the service and the precautions to be taken during excavation work.		
Signed:- <i>...S Morrison.....</i> Print:- <i>..S MORRISON....</i> Date:- <i>..22 July 2008</i>		
Confirmation by Ogilvie Representative. The works detailed above may take place.		
Signed:- <i>.....E McGarrell</i> Print:- <i>....E McGARRELL.....</i> Date:- <i>....22 July 2008</i>		
Duration of Permit:- From:- <i>..08.30 hrs 22 July 2008</i> To:- <i>...16.30 hrs 22 July 2008</i>		
Cancellation:- This permit is hereby cancelled.		
Signed:- <i>..E McGarrell</i> (Ogilvie Representative)		Signed:- <i>..S Morrison</i> (Operative Supervisor)

■ THIS FORM MUST  
NOT BE ACCEPTED  
UNLESS IT IS FULLY  
COMPLETED/  
UNDERSTOOD

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## ■ CECA Report into Service Strikes and Utility Damages during Construction Activities

### Survey Results

- Genny not used at all or used properly
- Service location needs to be a separate exercise/ item on programme
- Lack of formal training on safe digging practices/ techniques



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Questions?

