



## Case Study: How Not To Support An Electricity Cable



**The above image demonstrates how NOT to support electricity cables.**

The above image highlights a situation which could easily be avoided if the correct planning processes had been implemented at the pre-construction phase of the project. The task for the contractor was to expose the utilities and excavate a further 3m past the electrical network, leaving the low voltage (PILC) cable supported with rope at two locations. The inadequate level of support of the electrical network at this location is not acceptable to ScottishPower; the contractor was advised to backfill the exposed cable with caution. Given the ongoing mechanical excavations, lack of cable support and that contact with the electricity network was a possibility the contractor was advised to contact SP Energy Networks Customer Connections department to progress a cable deviation to remove the hazard.

**No ScottishPower Cables To Be Supported At  
Any Time Without ScottishPower Authorisation**

**All Cable Record enquiries  
should be addressed to:**

**SP Energy Networks (North)**  
Data Management  
(Correspondence)  
55 Fullerton Drive  
Cambuslang  
Glasgow G32 8FD  
t: 0141 567 4155 or 0141 567 4455  
e: Requestforplansscotland  
@scottishpower.com

**SP Energy Networks (South)**  
Data Management  
(Correspondence)  
North Cheshire Trading Estate  
Prenton Way  
Prenton  
Birkenhead CH43 3ET  
t: 0151 609 2373  
e: Requestforplansmanweb  
@manweb.co.uk

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**SP Energy Networks (South)**  
Customer Connections  
PO Box 290  
Lister Drive  
Liverpool L13 7HJ  
t: 0151 221 2110

## Emergency contact

In an emergency, or if there is any damage to SP Energy Networks cables or plant, call the appropriate number:



**SP Energy Networks  
North**

*Central & Southern  
Scotland*

**0845 272 7999**

**SP Energy  
Networks  
South**

*Cheshire,  
Merseyside  
& North Wales*

**0845 272 2424**



**SP ENERGY NETWORKS**

## Case Study: How NOT to support an electricity cable



The above image demonstrates how NOT to support an electricity cable.

The contractor has gone some way to supporting the Low Voltage cable in the correct way by using sturdy batons and ratchet straps, however the weakest part of the electrical network are the cable joints. ScottishPower would recommend that exposed cables with joints should not be supported in this situation at any time due to the probability of the weight of the joints pulling the cables out of the joint connections. To carry out support of electrical cables a method statement and a safe system of work will be required by ScottishPower prior to works being undertaken.

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How Not To Support An  
Electricity Cable**



**The above image demonstrates how NOT to support electricity cables.**

The contractor has gone some way to supporting the underground network cables by using ratchet straps, however in this situation the cables are all bunched together and have sagged. The weakest part of the electrical network in this situation are the cable joints with the added weight of the exposed cables. ScottishPower would recommend that exposed cables with joints should not be supported in this manner due to the probability of the weight of the joints/sag on the cables pulling the cables out of the joint connections. Every excavation has different dimensions to consider prior to carrying out work to support the electrical cables. A method statement and a safe system of work will be required by ScottishPower prior to support works being required on the electrical network.

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## Case Study How NOT To Support An Electricity Cable



The above image highlights a situation which clearly highlights the incorrect method of supporting a live underground electrical cable.

The inadequate level of support of the electrical network at this location was not acceptable to ScottishPower; the contractor was advised to support the exposed cable with caution to the correct ScottishPower requirements. Given the ongoing mechanical excavations and the lack of adequate support, contact with the electricity network was a possibility the contractor was advised to contact ScottishPower EnergyNetworks Customer Connections department to progress a cable deviation to resolve the situation.

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## How not to support an Electricity Cable



**The above image demonstrates how not to support electricity cables.**

The above image highlights a near miss situation which could have been easily avoided if the correct processes were implemented at the planning stage of the project, as opposed to attempting to rectify the avoidable situation at the construction phase.

On this occasion the project to construct an extension to an existing building had started, SP Energy Networks were contacted and advised the main contractor that the existing low voltage underground cable traversing through the foot print of the proposed extension would require to be deviated. Further advice was delivered, highlighting that the existing cable should not be constructed over.

The advice given was not adhered to and the contractors proceeded to excavate and install concrete foundations around the existing underground electrical network.

This course of action left the cable unprotected and open to the elements, the cable being concreted over at various locations and being supported in an unprofessional manner. During operations to excavate the foundations of the extension the electrical cable was damaged, fortunately on this occasion no injuries occurred to the operatives.

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The above image highlights a near miss situation which could easily have been avoided if the correct processes had been implemented at the planning stage of the project, as opposed to attempting to rectify the avoidable situation at the construction phase.

On this occasion the contractor progressed with the project despite being advised that a cable deviation would be required, and that the underground electrical network was not to be constructed over.

The contractor's decision to progress construction placed operatives in danger which resulted in the low voltage cable being damaged.

Despite the cable being damaged, excavations continued with the cable being exposed, covered in concrete and supported at various locations.

**NO SCOTTISHPOWER CABLE TO BE  
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SCOTTISHPOWER AUTHORISATION**

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**RAMS Generic Guidance For Supporting/Exposing/Operating Around SP  
EnergyNetworks Underground Distribution Electrical Cables:**

**33KV - High Voltage – Low Voltage Cables:**

1. Ensure all machine operators/site traffic drivers/operatives/visitors are made aware of all cable routes on construction site at initial site induction.
2. Prior to works commencing, works area should be marked/highlighted (install signage at excavation location) to ensure all operatives are aware of the presence of the underground electrical network in the works area, this information also to be promoted continually throughout the remainder of the onsite works. (Task specific tool box talk also required prior to works commencing to ensure everybody understands the scope of works to be undertaken around the underground electrical network, their collective/individual roles to be clearly defined ensuring the required task is completed in a safe environment)
3. Procure SP EnergyNetworks cable records (UMV System: Utility Map Viewer)
4. Excavations as per HSG47 hand excavate to uncover all electrical cables/utilities in vicinity of proposed works.
5. Supporting cables: If excavation length on electrical cables exceeds 1.2m cables **will** require to be supported.
6. Install split ducting (150mm) around all exposed cables (for protection purposes only)
7. No sudden movement of cables to take place. (minimum movement when placing split ducting around all cables)
8. Provide substantial support beam above the cables, spanning across the exposed cable excavation, caution when placing/removing support beam. Ratchet straps are to be utilised to support the split ducted cables from the beam above.
9. Ratchet straps to be of sufficient size/quality to support the weight of the split ducted cable, and are to be tensioned until they hold the ducted cables weight only, prevent any over strain on the ducted cables. Ratchet straps to be placed at 1m intervals. (Please note: no rope/string to be used to support underground cables)
10. Once the ducted cables are sufficiently supported with the ratchet straps/supporting beam the hand excavation shall continue to clear 500mm beneath the existing cables. (Ensure the ducted cables will not sag at any exposed length of the cable)
11. Cable records indicate no joints on cables at locus of proposed excavations, however if cable joints are located, excavation works to cease immediately and SP EnergyNetworks to be contacted for further guidance.
12. Great care to be taken when installing the drainage pipe/other, that contact with the electrical network is avoided.
13. Great care to be taken when installing/removing shoring/drag boxes etc that contact with the electrical network is avoided
14. Caution to be taken when backfilling excavation around the existing cables, backfill to underside of cable, remove split ducting, sand cables with 150mm of sand, install marker tape.
15. Continue to backfill with caution.

No SP EnergyNetworks cables to be supported at any time without SP EnergyNetworks authorisation. Contractors proposing to support the underground electrical network are to produce a risk assessment - method statement to formalise the advice described above to demonstrate to SP EnergyNetworks that risk assessments/method statements/safe systems of work will be implemented to ensure a successful conclusion to this stage of the project. (Exposing/Operating Around/Supporting SP EnergyNetworks 33KV - High Voltage – Low Voltage Cables) The risk assessment/method statement shall be passed to SP EnergyNetworks for review/approval prior to excavation/supporting cable works commencing on site.