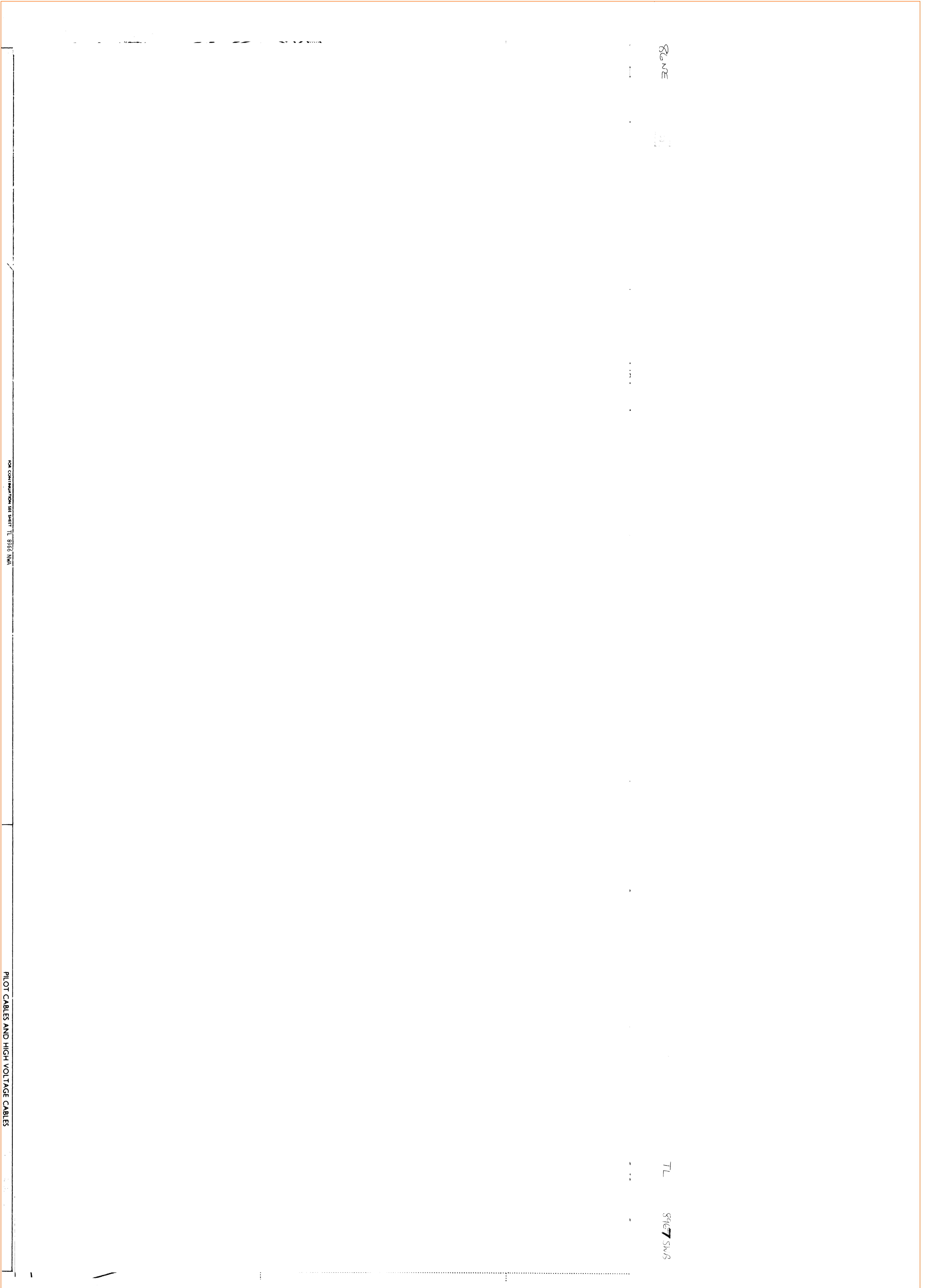




# TL8967SWB 1:500 LV



SO

FOR CONSULTATION SEE SHEET TL 8968 N/A

PILOT CABLES AND HIGH VOLTAGE CABLES

80 NE

TL

TL

8967 SWB



# Network Records NetMAP Symbols Booklet - East of England

This symbol booklet is intended as a general guide only - some local variations of these symbols may be found.

**Version 1.2**

Released October 2010

Always check with your local Network Records office or the UK Power Networks server to ensure that you are using the most up to date copy of this booklet - Tel: 08000 565866.

## Index:-

Page no:	Contents:
1	Guidance notes.
2	The area covered by this guide.
3	<u>1:500 view</u>
4	Scenery.
7	Scenery ( <b>UK Power Networks use only</b> ).
8	Primary distribution cables (EHV).
9	Secondary distribution cables (HV/LV).
10	Service cables/terminations.
11	Cable ducts.
13	EHV/HV/LV sites.
14	Mains joints.
15	Service joints.
17	Cross sections.
19	Common abbreviations/terminology ( <b>all views</b> ).
	<u>1:2500 (LV) &amp; 1:10000 (HV) network views (<b>UK Power Networks use only</b>).</u>
20	General.
22	1:2500 scale LV network.
23	1:10000 scale HV network.
24	<u>LV network diagram view (<b>UK Power Networks use only</b>).</u>
25	Overhead lines.
26	Underground cables.
	Joints.
	Substations/pole transformers.

## Guidance notes.

### **Important notice:**

If you do not understand the NetMAP record that you are using, please contact the UK Power Networks Network Records team for guidance

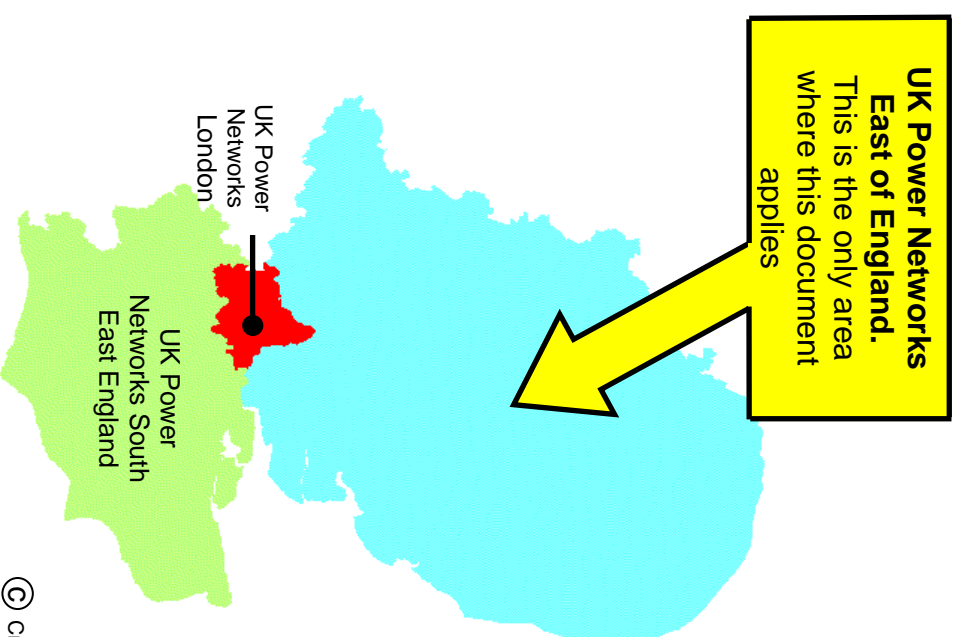
Tel: 08000 565866.

- The position of apparatus shown on NetMAP is believed to be correct, but the original landmarks may have altered since the apparatus was installed.
- It must be assumed that there is at least one service to each property, lamp column, street sign etc.
- All cables must be treated as live, unless proven otherwise by an authorised UK Power Networks representative.
- Third party cables are not usually shown. In cases of doubt, please telephone 08000 565866.
- When two or more maps are supplied for the same area, the maps must be read in conjunction with each other and with this symbol document.
- All LV cables are assumed to be 4 core, and all HV cables assumed to be 3 core unless otherwise stated.



**Plan Provision Team**  
Fore Hamlet  
Ipswich  
Suffolk IP3 8AA  
Tel: 08000 565866






## The area covered by this guide:










© Crown Copyright

# 1:500 view - underground network

## Scenery

NetMAP system	Scanned image	Description
	.....	100 metre Ordnance Survey grid line (on O/S based maps only)
	————	Property fence line
	————	Building line
	- - - - -	Kerb line
	————	Electrical Boundary

# Scenery - for UK Power Networks use only - boxed in red

NetMAP system	Scanned image	Description
	Not applicable	Area of inset network - not the asset of UK Power Networks (only visible to UK Power Networks and their immediate contractors)
	Not applicable	Proposed Cross Rail route (only visible to UK Power Networks and their immediate contractors)
	Not applicable	High pressure pipelines in the general vicinity (only visible to UK Power Networks and their immediate contractors)
	Not applicable	Water - surface water (only visible to UK Power Networks and their immediate contractors)
	Not applicable	Water - Source Protection Zone 1 (only visible to UK Power Networks and their immediate contractors)
	Not applicable	Water - Source Protection Zone 2 (only visible to UK Power Networks and their immediate contractors)
	Not applicable	Water - Source Protection Zone 3 (only visible to UK Power Networks and their immediate contractors)

section continued on next page

## Scenery for UK Power Networks use only - boxed in red





NetMAP system	Scanned image	Description
		Historical - Scheduled Monuments (only visible to UK Power Networks and their immediate contractors)
		Historical - Parks and Gardens (only visible to UK Power Networks and their immediate contractors)
		Historical - Areas of Archaeological Potential (AAP) (only visible to E UK Power Networks and their immediate contractors)
		Nature - Ramsar Wetlands of International Importance (only visible to UK Power Networks and their immediate contractors)
		Nature - Special Area of Conservation (SAC) (only visible to UK Power Networks and their immediate contractors)
		Nature - Special Protected Area (SPA) (only visible to UK Power Networks and their immediate contractors)
		Nature - Site of Special and Scientific Interest (SSSI) (only visible to UK Power Networks and their immediate contractors)

section continued on next page







## Scenery for UK Power Networks use only - boxed in red

NetMAP system	Scanned image	Description
		Nature - Local Nature Reserve (only visible to UK Power Networks and their immediate contractors)
		Nature - National Nature Reserve (only visible to UK Power Networks and their immediate contractors)
		Nature - Area of Outstanding Natural Beauty (AONB) (only visible to UK Power Networks and their immediate contractors)
		Nature - National Park (only visible to UK Power Networks and their immediate contractors)
		Fluid filled cables - very high sensitivity (only visible to UK Power Networks and their immediate contractors)
		Fluid filled cables - high sensitivity (only visible to UK Power Networks and their immediate contractors)
		Fluid filled cables - medium sensitivity (only visible to UK Power Networks and their immediate contractors)
		Fluid filled cables - low sensitivity (only visible to UK Power Networks and their immediate contractors)

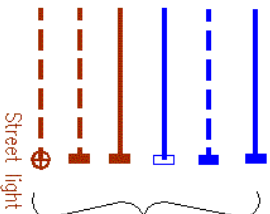
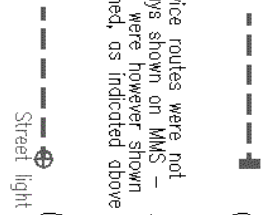
### Primary distribution cables (1:500 view)

NetMAP system	Scanned image	Description
		Over 33kV and up to 132kV
		Over 11kV and up to 33kV

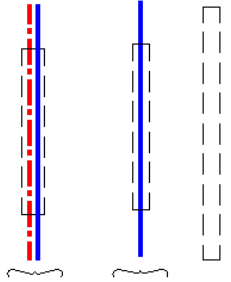
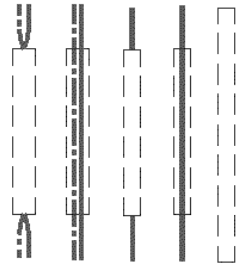
### Secondary distribution cables (1:500 view)

NetMAP system	Scanned image	Description
		Over 230/400V and up to 11kV (HV) cable route
		230/400V (LV) cable route
		Pilot cable route
Abandoned cables are shown and labelled as such when applicable		

### Service cables and terminations (1:500 view)

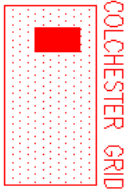
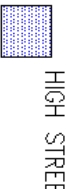

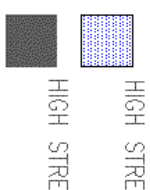




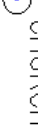



NetMAP system	Scanned image	Description
	 <p>Service routes were not always shown on MMS – they were however shown dashed, as indicated above</p>	<p>3 phase service with termination</p> <p>3 phase service with termination (unknown route)</p> <p>3 phase service with multi-head termination</p> <p>Single phase service with termination</p> <p>Single phase service with termination (route unknown)</p> <p>Street lighting cable and termination</p>

### Cable ducts (1:500 view)

NetMAP system	Scanned image	Description
		<p>Empty duct</p> <p>Cable(s) in duct(s)</p> <p>Cable(s) in duct(s) (on some raster maps)</p> <p>Multiple cables in ducts</p> <p>Multiple cables in ducts (on some raster maps)</p>






### EHV, HV and LV sites (1:500 view)

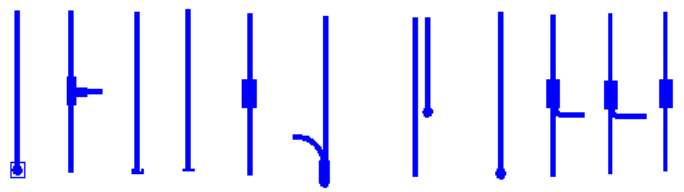
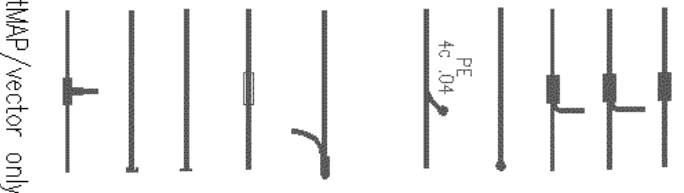
NetMAP system	Scanned image	Description
 COLCHESTER GRID  HIGH STREET	 COLCHESTER GRID  HIGH STREET  Pad mounted substation  Link box – 2 way  Link box – 4 way (6 way etc shown similarly)  Feeder pillar – 4 way (6 way etc shown similarly)  Pole transformer  Poles on underground records  H pole, any voltage  Service turret (solid type)	Primary substation  Secondary substation  Pad mounted substation  Link box – 2 way  Link box – 4 way (6 way etc shown similarly)  Feeder pillar – 4 way (6 way etc shown similarly)  Pole transformer  Poles on underground records  H pole, any voltage  Service turret (solid type)

section continued on next page

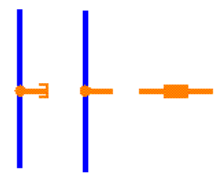
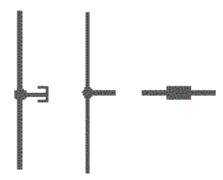
### EHV, HV and LV sites continued (1:500 view)

NetMAP system	Scanned image	Description
No NetMAP equivalent  CAUTION Missing Information  Contaminated Land refer to SHE 01 016	 No equivalent Not applicable	Service turret (with link facility on LV main) Missing data in or near this location  Contaminated land reference

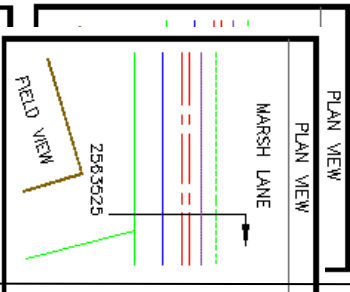
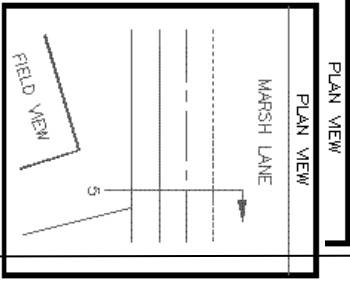
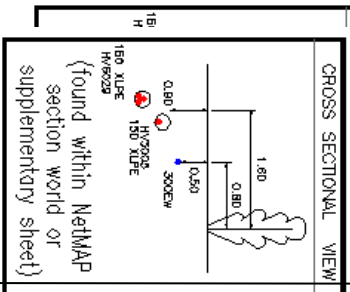
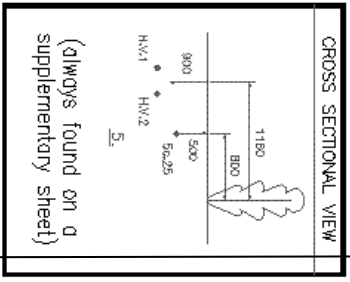
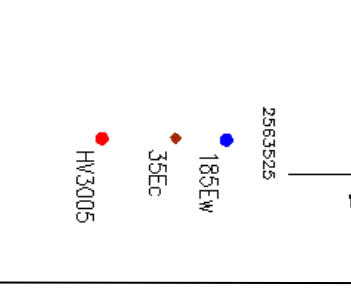
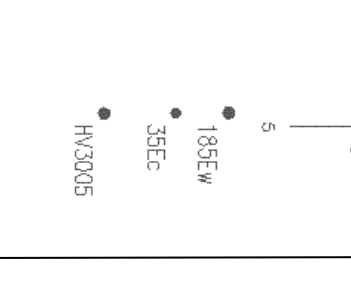
### Mains joints (1:500 view)

NetMAP system	Scanned image	Description
(voltage indicated by colour/line-style)		
		<p>Straight joint</p> <p>Crutch joint</p> <p>Straight crutch joint</p> <p>Pot end</p> <p>Pot end – on one of several cables – single line representation</p> <p>Branch joint/pot end – (humpty back joint, back to back joint, bull nose joint or stub joint</p> <p>Sleeve repair or repair joint</p> <p>Cut end</p> <p>Capped end</p> <p>Tee joint</p> <p>Sicame joint box</p>
	NetMAP/vector only	

### Service joints (1:500 view)





NetMAP system	Scanned image	Description
Please note that 3 phase services are shown blue, and single phase services are shown brown		
		<p>Straight joint</p> <p>Service joint to main</p> <p>Pot end</p>

### Cross sections (1:500 view)

NetMAP system	Scanned image	Description
		<p>Single line representational plan view with NetMAP equivalent (please note the use of separate line for each voltage on the raster/MMS data)</p>
		<p>Cross sectional view of above</p>
		<p>Section arrow with old/new numbering system – points in direction section is viewed</p> <p>LV/3 phase service cable Single phase service cable with size annotation HV cable – 3 core with route number annotation</p>

section continued on next page

### Cross sections continued (1:500 view)

NetMAP system	Scanned image	Description
		<p>HV cable – modern EPR, Plam and Triplex with route number annotation</p> <p>Pilot cable</p> <p>33kV cable</p> <p>132kV cable</p> <p>Single duct</p>
		<p>6 way duct formation – irrespective of duct type and material, all are displayed similarly</p> <p>Protective slab</p> <p>Tiles</p> <p>Concrete slabs</p> <p>33kV fibre warning board</p> <p>Steel plate</p> <p>Plastic tile tape</p> <p>Timber</p>

## Common abbreviations and terminology (all views)

Abbrev.	Description	Abbrev.	Description
1c	Single core	Out out or C/0	Meter/main fuse position
1ph	Single phase	cx	Triplex (copper)
2c	Two core	DE	Direct earth
3c	Three core	DSTA	Double steel tape armoured
3ph	Three phase	Ea	Alplex cable
ABC	Aerial bunched (bundled) conductor (modern LV overhead line)	EFI	Earth fault passage indicator
ABI	Air break isolator (no fuses)	EHV	Extra high voltage (11,001 Volts and over)
ABSD	Air break switch disconnecter	ELCB	Earth leakage circuit breaker
ACCS	Aluminium concentric copper sheathed	ELI	Earth leakage trip
Al	Aluminium	EPR	Ethylene propylene rubber
AR	Auto recloser	Ew	Waveform cable
ASL	Automatic sectionalising links	E/W	Earthenware duct or earth wire
ax	Triplex (aluminium)	Fdr or Feeder	LV or HV cable fed by or feeding a substation
	2 x 22mm AL PVC (example) Duplex	F/G	Fuse gear
	3 x 22mm AL PVC (example) Triplex	F/P	Feeder pillar
CB	Circuit breaker (example) Triplex	GRP	Fibreglass substation
c/c	Concentric cores	GWR	Gas vacuum recloser or pole mounted circuit breaker
ccc	Compact covered conductor	HV	High voltage (1,001 – 11,000 Volts incl)
OCT	Circuit	HYBRID	Modern plastic cable with mixed conductor material
CNE	Combined neutral and earth		Electrically protective material surrounding a conductor (Al/Cu)
Gross phased	The core colour may be different to originating transformer phasing	Insulation	Porcelain or glass over – head line support (on poles)
CS	Consac	Insulator	Instrument traced cable or TTC
CSE	Cable sheath earth		- cable traced electronically using Cable Avoidance Tool (CAT) or similar
Cu	Copper	<b>TTC</b>	

section continued on next page

## Common abbreviations and terminology continued (all views)

Abbrev.	Description	Abbrev.	Description
Jumper	Connecting lead between open points, section points and overhead plant	PICAS	Paper insulated corrugated aluminium sheath armoured
kV	Kilovolt (or 1,000 Volts) – unit of electrical pressure	PLC	Paper insulated lead covered
kW	Kilowatt (1,000 Watts) – unit of electrical power	PILSTA	Paper insulated lead covered steel tape armoured cable
kVA	Kilovolt Amps or power	PL	Plain lead or public lighting
Link box or LB	Means of connecting LV feeders together using links or fuses	PME	Protected multiple earth or CNE
LSF	Low smoke & fume	PMT	Pole mounted transformer
LV	Low voltage (up to 1,000 Volts incl)	PMR	Pole mounted recloser {generic term for OYT/GWR}
LV Pillar	Low voltage fuse distribution board	PT	Pole transformer
Neutral	Return path of live cable	PVC	Polyvinyl chloride
O/H or OHL	Overhead line	RNU	Ring main unit
OVS	Oil filled pole mounted sectionaliser	RN	Reduced neutral
OYT	Oil filled pole mounted recloser	s/c	Split concentric or single core
PC400	Pole mounted LV fuse unit	S/L	Street light
PE	Pot end or potential end – joint on cable end	S/S	Substation
Phase	Usually the core colour of a cable (caution – may be cross phased) – Red, Yellow, Blue on old cables, or L1, L2, L3 on new cables, for example	STA	Steel tape armoured
		SWA	Steel wire armoured
		T1 or T2 etc	Substation TX setup where more than one TX exists
		T/F or TX	Transformer
		Volts	Unit of electrical pressure
		Watts	Unit of electrical power
		XLPE	Cross linked polyethylene

# 1:2500 & 1:10000 view - overhead networks - for UK Power Networks use only - boxed in red

## General

NetMAP system	Scanned image	Description
		H pole Pole

## 1:2500 scale LV network

NetMAP system	Scanned image	Description
No NetMAP equivalent		132kV cable route
No NetMAP equivalent		33/22kV cable route
No NetMAP equivalent		11kV underground cable
		132kV overhead line
		33kV overhead line dots mark pole position
		11kV overhead line – dots mark pole position
		Dual construction – dots mark pole position
		LV overhead line – dots mark pole position
No NetMAP equivalent		LV underground cable
		Pole and stay
		Pole and strut
		Voltage regulator
		Static balancer
		Example of struts and stays
		Flying stay Earthed pole in PME system
261		Pole number
S.P.		Ground type substation
S.L.		Section pole
		Street light

section continued on next page

### 1:2500 scale LV network continued

NetMAP system	Scanned image	Description
O.R. Stay Ext. Brkt P. Box N.E. O.R. Brkt	O.R. Stay Ext. Brkt P. Box N.E. O.R. Brkt	Outrigger stay Extension bracket Pole box Neutral and earth Outrigger bracket






### 1:10000 scale HV network

NetMAP system	Scanned image	Description
		132kV overhead line
		33kV overhead line dots mark pole position
		11kV overhead line – dots mark pole position
		11kV overhead line – dual circuit – dots mark pole position
		11kV underground cable and EHV
		Pylon HV or EHV
		Grid line tower
		Stay
		Ground type substation
		Pole type transformer
		Live line taps
		Switchgear – all types
		Fuse gear
		Auto recloser – live line connected












The above circular substation/switchgear symbols may be found that contain different combinations of apparatus (see last example)

## LV network diagram view-for UK Power Networks use only-boxed in red

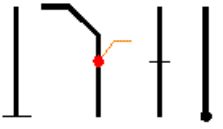
### Overhead lines

NetMAP system	Description
	Unknown
	Al
	Cu
	ABC
	Pole link

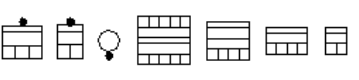
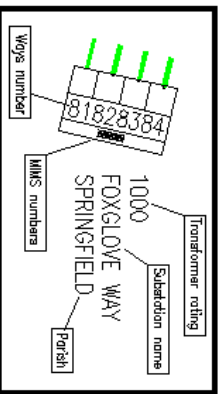
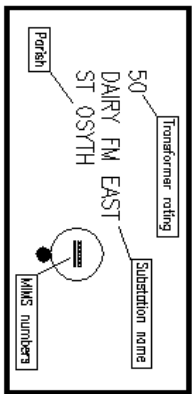



## Underground cables (LV network diagram view)

NetMAP system	Description
	Unknown
	Al
	Cu
	CC
	TCC
	Eg
	Ec
	Ecx
	Ew
	LSF
	Other

## Joints (LV network diagram view)

NetMAP system	Description
	<p>Pot end or Sicame Box</p> <p>Straight joint</p> <p>Crutch joint</p> <p>3 phase termination</p>

## Substations/pole transformers (LV network diagram view)

NetMAP system	Description
<p>There are many substation combinations – these are merely a sample of configurations that can be found.</p> 	<p>2 way substation</p> <p>4 way substation</p> <p>4 way twin busbar substation</p> <p>10 way back to back substation</p> <p>Pole transformer (normal)</p> <p>Pole transformer 2 way</p> <p>Pole transformer 3 way</p>
	<p>Substation with rating, name, Parish and MIMS identifying number</p>
	<p>Pole transformer with rating, name, Parish and MIMS identifying number</p>
	<p>Intermediate pole</p>
	<p>Section pole</p>
	<p>Overhead fuse</p>

section continued on next page



