



Code of Practice 615

Issue 9

October 2020

Substation, Circuit and Plant Identification

Contents

1. Scope
 2. General
 3. Definitions
 4. Substations
 5. Plant Within Substations
 6. Plant Outside of Substations
 7. Pole-Mounted Equipment
 8. HV Circuits
 9. LV Circuits
 10. Woodpoles
 11. Steel Towers
 12. Documents Referenced
 13. Keywords
- Appendices A to L

**Authorised for issue by the
Technical Policy Panel**

© 2020 Electricity North West Limited

All rights reserved

The copyright of this document, which contains information of a proprietary nature, is vested in Electricity North West Limited. The contents of this document may not be used for purposes other than that for which it has been supplied and may not be reproduced, either wholly or in part, in any way whatsoever. It may not be used by, or its contents divulged to, any other person whatsoever without the prior written permission of Electricity North West Limited.

0	<p>Issue 4</p> <p>Clarification for naming substations associated with generating sites added in section 4.11. New template applied.</p> <p>Prepared by Peter Twomey</p> <p>Approved by the Technical Policy Panel and signed on its behalf by Paul Whittaker.</p>
0 25/06/18	<p>Issue 5</p> <p>Comprehensive restructure of the document to include the policy for Substation, Circuit and Plant structured plant numbering and to include local and structured plant numbering for woodpoles and steel towers.</p> <p>The naming convention for instances when there are multiple voltage transforms on a common site in Section 4.1 has been changed.</p> <p>Due to the extent of the changes, individual changes are not marked.</p> <p>Prepared by Dan Wilson</p>
0 08/06/18	<p>Issue 6</p> <p>Formatting error corrected in Appendix D. The content in part of the table (33/25kV / Low Voltage side of transformer) had become invisible during a previous revision. The formatting has been corrected and all the table contents are now visible. No change to document content.</p> <p>Prepared by Peter Twomey</p> <p>Approved by the Technical Policy Panel and signed on its behalf by Steve Cox</p>
0 25/06/2018	<p>Issue 7</p> <p>Numbering system defined for pole-mounted equipment outside of substations</p> <p>Switch and LV way numbering clarified in situations where there are multiple boards</p> <p>Section 10 updated to reflect some differences in district numbering between substations and woodpoles in the Lakeland and South Lancashire areas</p> <p>Circuit numbering conventions added as Section 8.3</p> <p>Appendix L added to show the geographical extent of numbering districts.</p> <p>Prepared by Dan Wilson</p> <p>Approved by the Technical Policy Panel and signed on its behalf by Steve Cox</p>

<p>0</p> <p>12/04/2019</p>	<p>Issue 8</p> <p>Local numbering of linkboxes modified in Section 6 to policy align with current practice.</p> <p>Prepared by Dan Wilson</p> <p>Approved by the Technical Policy Panel and signed on its behalf by Steve Cox</p>
<p>0</p> <p>30/10/20</p>	<p>Issue 9</p> <p>Naming conventions for overhead line equipment clarified by addition of example network diagrams in Appendix M.</p>

SUBSTATION, CIRCUIT AND PLANT IDENTIFICATION

1. SCOPE

This Code of Practice (CP) describes the method of numbering, naming and labelling substations, circuits and plant that form part of the distribution network operated by Electricity North West Limited, hereinafter referred to as Electricity North West, and covers all voltages.

2. GENERAL

Clear and unambiguous naming and labelling is a major factor in reducing human error switching incidents on the Electricity North West distribution Network (Network). Unambiguous identification is also essential to enable assets to be referenced between data systems, particularly in the context of the Network Management System (NMS) which builds a network model for control from a combination of data obtained from several systems.

This CP applies to all substations, plant and apparatus comprising the Network. This CP is not intended to be retrospective but, where work is being done on the network, the opportunity shall be taken to make modifications that will apply this policy to existing substations, plant and apparatus.

It is recognised that there may be technical or operational reasons that make non-compliance with this CP desirable in some circumstances or that some unusual circuit arrangements are not adequately covered. In these cases the proposed arrangements shall be agreed, in writing, with the Network Planning Policy Manager, Network Strategy.

All substations, circuits and plant installed by third parties for adoption by Electricity North West shall be labelled in accordance with specific written instructions from Electricity North West in accordance with this CP.

Diagrams are provided in the appendices for illustrative purposes only and are relevant as follows

Area	Relevant Appendices
GSP, BSP and Primary Substations, and associated networks (132kV & 33kV)	Appendices E, F, G and H
Distribution Substations and associated network (11kV, 6.6kV & LV)	Appendices I and J
Pole mounted Equipment	Appendices J & M
HV Circuits	Appendices I, J & M are associated with this section.

3. DEFINITIONS

GSP	Grid Supply Point (a substation shared with NGET, at which the Network is connected to that of NGET)
BSP	Bulk Supply Point (a substation, with 132kV to lower voltage transformers)
NGET	National Grid Electricity Transmission
CEGB	Central Electricity Generating Board
Primary Substation	33kV to lower voltage substation
Distribution Substation	11 or 6.6kV to 400/230V substation or 11kV to 6.6kV substation
Network	The electricity distribution network, owned and operated by Electricity North West.
Switching Station	Substation, as defined by the Electricity Safety, Quality and Continuity Regulations 2002, containing switchgear, but no power transformer
MAMS	Master Asset Management System
PMT	Pole-Mounted Transformer (not a substation within the definition of the Electricity Safety, Quality and Continuity Regulations 2002).

4. SUBSTATIONS

4.1 General

For the purposes of identification, the definition ‘substation’ departs from that within the Electricity Safety, Quality and Continuity Regulations 2002 in that it includes any group of equipment involved in transforming electricity between voltages or switching for the purposes of network management, including both ground mounted and pole-mounted equipment and switching stations, including air break switches. Linkboxes, capacitor banks without associated switching (except for local isolation) and monitoring cabinets shall not be considered to be substations for the purposes of identification.

Where multiple voltage changes occur on a single site or on adjacent sites, each stage shall be considered to be a separate substation and numbered and named accordingly. For example, if in Anytown, there are on one site, or on a number of adjacent sites, 132kV sealing ends and disconnectors, 132/33kV transformers, 33kV switchgear, 33/11kV transformers, 11kV switchgear, an 11kV/LV transformer and a LV distribution fuseboard. In this case:

- The 132kV equipment, 132/33kV transformer and 33kV switchgear shall be considered to form Anytown BSP;
- the 33/11kV transformer and 11kV switchgear shall be considered to form part of Anytown Primary (generally named ‘Anytown’)
- the 11kV/LV transformer and LV equipment shall be considered to form part of Anytown Local.

Substations shall be allocated an identifying number and name as soon as the site is fixed and these shall be used through all stages of development.

Where a substation is replaced at the same site, the existing site references shall continue to be used throughout. No new site record shall be created in such cases. However, an exception might arise in the case of a GSP and, in such circumstances, agreement shall be obtained from the Regional Control Manager, NGET as to how the transition will be managed. It might also be appropriate to inform and consult the System Development and Planning Manager, the Operations and Maintenance Strategy Manager and the Network Operations Centre Manager, NGET.

4.2 Substation Numbering

All substations shall be allocated a six-figure number in the format [aa][bbbb]. For GSP, BSP and primary substations (132kV & 33kV), [aa] denotes the area as shown below whilst for distribution substations, [aa] denotes the District. [bbbb] is a sequential index number within the given Area or District.

Area	District	Description
10	16	Manchester – North
	17	Manchester – South
20	21	South Lancashire – Wigan
	23	South Lancashire – Bolton/Bury
30	31	Peak – Penndale
	32	Peak - Ashton
	33	Peak – Stockport
40	41	Mid Lancashire – Preston
	42	Mid Lancashire – Blackpool
	45	Mid Lancashire – Pennine
5x		Pole-mounted equipment outside of substations
	51	Manchester Area
	52	South Lancashire
	54	Mid-Lancashire
	56	Cumbria
60	61	Lakeland – Kendal
	62	Lakeland – Workington
	63	Lakeland – Carlisle
	64	Lakeland – Lancaster
	65	Lakeland – Barrow
	66	Lakeland – Penrith
7x		Linkboxes and Feeder Pillars
	71	Manchester Area
	72	South Lancashire
	74	Mid-Lancashire
	76	Cumbria
80	80	Out of area substations (maintained Customer Network Solutions)

	82	Template Assets
--	----	-----------------

A geographical map of these districts is provided at Appendix L

Substation Numbers allocated to decommissioned substations should not be re-used.

4.3 Substation Naming

One name shall be selected and used through all stages of development. It should not be easily confused with others on the same network and should preferably assist in the location of the substation.

The use of company names for substations shall be avoided, wherever there is a practicable alternative, which, nevertheless, provides sufficient indication of the location.

Substation names should include the following suffixes:

- Grid Supply Points are suffixed 'GP'
- Bulk Supply Points are suffixed 'BSP'
- Distribution Substations which share a site with a Primary substations are suffixed 'Local'.

A switching station or distribution substation that is dedicated to the connection of a generator shall have the relevant suffix from the table below to indicate the type of generation.

Generation	Suffix
Biomass & energy crops (not CHP), Landfill* gas, sewage gas, biogas (not CHP)	BIO GEN
Hydro	Hydro
Large CHP (≥ 50 MW)	CHP
Medium CHP (≥ 5 MW, < 50 MW)	CHP
Mini CHP (< 1 MW)	CHP
Offshore wind	OSWF
Onshore wind	WF
Other generation	GEN
Photovoltaic	PV
Small CHP (≥ 1 MW, < 5 MW)	CHP
Tidal stream & wave power	Tidal

*Landfill not required if already in substation name

4.4 Physical Labelling

Substation nameplates shall be in accordance with ES356 and shall contain the following information:

- Substation name with suffix GSP, BSP, Primary or Switching Station. No suffix is required for sites with HV/LV power transformers and no voltage above 11kV.
- Substation number.

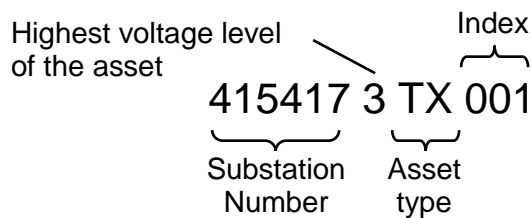
5. PLANT WITHIN SUBSTATIONS

5.1 General

Plant within substations shall be allocated a local designation which is marked on the equipment and a Structured Plant Number for use within corporate systems.

5.2 Structured Plant Numbers

Structured Plant Numbers (SPN) are a structured number made up from four elements as shown below.



The substation number is the number of the parent substation. The voltage number is one of the options defined in Appendix A and equates to the highest voltage level of the asset and the asset type code is one of those defined in Appendix B.

The index number is a sequential number indicating differentiating multiple assets of the same type and voltage in the same substation. Where possible the asset SPN should be numbered in the same order as the local designation. For example transformer GT1 would have an index of 001 and GT2 would have an index of 002.

Structured Plant Numbers should not be confused with CRMS Plant File References which share a similar format.

Where assets are replaced, the replacement asset shall be allocated the name and number of the asset being removed. When the decommissioned asset requires an SPN within asset data systems, it shall be allocated an SPN as defined above with an index number of '99', or the next available index counting downwards.

5.3 Switch Numbering

Switches shall be numbered sequentially from left to right within a substation across all switchboards at each voltage, including the interconnectors. Interconnectors shall be numbered between the switchboards they connect. For example, for a substation with two 3-switch HV switchboards would be numbered such that the switches on Unit A are 1 to 3, the inter connector is switch 4 and the switches of Unit B are 5 to 7.

5.4 Local Designations

5.4.1 Switchgear

5.4.1.1 132/33kV Open Type Switchgear

In the case of open type 132/33kV switchgear the principles of CEGB Operation Memorandum No. 5, a copy of which is available in the electronic library, shall generally be followed. In this system each item of switchgear is allocated a code which must be displayed at the equipment and at each operating handle or control switch. Examples are described in the Table in Appendix D and are shown schematically in Appendices E & F.

5.4.1.2 132kV Indoor Gas Insulated Switchgear (GIS)

The numbering convention for 132kV indoor gas insulated switchgear shall be based on CEGB Operation Memorandum No 5 and is shown in Appendix D.

A combined three-position disconnecter and earthing switch shall be denoted by the suffix "ED".

5.4.1.3 Distribution Switchgear

The 11/6.6kV switch controlling a local network transformer shall be labelled 'T1', 'T2' etc. If the 11/6.6kV switch controls a consumer's transformer it shall be labelled 'Consumer T1', 'Consumer T2' etc.

5.4.1.4 Single Panel Switchboards

A single panel switchboard shall be labelled with the name of the substation or equipment connected to the cable box of the switch unit.

If the single panel switchboard includes an incoming earth switch then the switch shall be designated by the name of the feeding substation followed by a suffix 'Earth Switch' or 'ES'. If a teed configuration exists the designation shall be as described in sub-sections 5.6 and 5.8 followed by the suffix 'Earth Switch' or 'ES'.

5.4.1.5 Multi-Switchgear Sites

On sites containing more than one non-extensible ring main unit or switchboard each unit or switchboard shall carry the substation name and be lettered in order from left to right when facing the front of the switchgear e.g. Unit A, Unit B. This is shown diagrammatically in Appendix I.

The number selected for any local transformer shall reflect the unit to which the transformer is connected, i.e:

- Network T1 on Unit A;
- Network T2 on Unit B;
- Network T3 on Unit C.

Where additional transformer(s) are connected the principles of section 5.7 shall be followed.

5.4.1.6 Interconnectors

Switchgear interconnectors shall be designated by the unit they are connected to, i.e.:

At Unit A 'Interconnector A - B';

At Unit B 'Interconnector B - A';

 'Interconnector B - C';

At Unit C 'Interconnector C - B'.

5.4.1.7 Spare Units

Spare switch units shall be uniquely numbered within each substation and detail their designation, e.g. Spare No 1 to capped end.

5.4.2 Busbars

5.4.2.1 132kV Open Type Busbars

132kV busbar numbering and nomenclature shall be based on CEGB Operation Memorandum No 5 and shall include the following:

- Nominal busbar voltage e.g. 132kV;
- Busbar designation (Main Busbar, Reserve Busbar, etc.);
- Busbar section number (1, 2, 3, etc.), e.g. 132 kV Main Busbar 2;

Sections of busbars of the same nominal voltage and busbar designation shall be numbered consecutively from one end of the substation to the other. Main and reserve busbars shall have corresponding numbering.

In the case of substations where one section of one busbar is common to two sections of an associated busbar, the former shall bear the numbers of both corresponding sections of the latter, e.g.:

- 132kV Main Busbar 1;
- 132kV Main Busbar 2;
- 132kV Reserve Busbar 1/2.

The busbar section number shall be omitted in those cases where the busbar is a single busbar having no sectioning facilities, e.g. 132 kV Main Busbar.

In the case of a closed mesh type substation the corners of the mesh shall be numbered consecutively, anti-clockwise when viewed from above.

5.4.2.2 33/11/6.6kV Metalclad Busbar Designation

The 33kV busbar shall be taken as the reference point and sections of busbars lettered in order from left to right when facing the front of the switchgear. Provision shall be made in the lettering, for a further section to the left, only when this is a firm future requirement.

Bus-couplers shall be designated by the busbar identification, e.g. 'Bus-coupler A'

Bus-sections shall be designated by the two busbars connected e.g. 'Bus-section A-B'.

Busbar interconnectors shall be designated by the two busbars interconnected e.g. 'Interconnector A-B' and are defined as a connection other than by busbar.

Double busbars shall be designated 'Main' and 'Reserve' these terms being added where appropriate to the names of bus sections or interconnectors.

5.4.2.3 *Busbar Cable-boxes*

A busbar cable box shall be designated by and labelled with the name of the remote substation or equipment connected to it.

5.4.3 *Transformer Designation*

5.4.3.1 *Grid and Primary Substations*

Transformer identification shall be by number using 'GT1', 'GT2' etc for transformers from 132kV to a lower voltage, 'T11', 'T12' etc for transformers from 33kV to a lower voltage and 'Network T1', 'T11 Auxiliary' etc. for transformers supplying 400/230V in primary substations.

Linking transformers, between 11kV and 6.6kV in the HV network, shall be numbered T21, T22 etc.

The number selected shall as far as possible reflect the section of busbar to which the transformer is connected, i.e.:

- GT1 on Section 1 or T11 on Section A;
- GT2 on Section 2 or T12 on Section B;
- GT3 on Section 3 or T13 on Section C.

Where it is not possible to apply the principles described in 5.5.3 then every effort shall be made to make the lower voltage side conform.

Where an additional transformer is connected to a section of busbar it is preferred that an odd-numbered transformer is connected to Section 1/A or Section 3/C busbars and an even-numbered transformer to Section 2/B or Section 4/D busbars etc.

Equipment directly associated with a transformer shall be given the transformer designation e.g.:

- T11 auxiliary transformer T11 Auxiliary;
- T11 fault throwing switch T11 Fault Thrower;
- GT1 neutral resistor GT1 NER.

Transformer cables shall not be crossed solely to maintain switchgear layouts. To avoid crossing cables it is preferable to maintain standard busbar nomenclature with non-standard transformer designations.

5.4.3.2 *Distribution Transformer*

Each transformer on a single site shall have a unique number, e.g. where a substation contains a network and consumer transformer they shall be uniquely identified, e.g.:

- Network T1;
- Consumer T2.

Where a transformer is feeding the network **and** a consumer it shall be labelled as a network transformer.

5.4.4 Series Reactor Designation

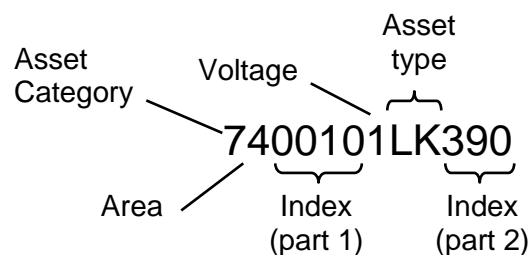
A reactor connected as a busbar interconnector shall be labelled 'Reactor A-B' etc. Where a reactor is connected in series with a feeder or transformer the associated switchgear shall be labelled with the feeder or the transformer designation, the reactor itself being labelled 'Reactor' with the feeder or transformer designation added.

5.4.5 Relay/Control Panels Designation

Relay/Control panels shall be in the same order and preferably the same orientation as the associated switchgear.

6. GROUND-MOUNTED PLANT OUTSIDE OF SUBSTATIONS

Plant situated outside of substations shall be allocated a Structured Plant Number of the form:



The asset category character is one of the following:

Category Character	Description
7	Linkboxes and Feeder Pillars
V	Capacitor Bank
M	Monitoring Cabinet

The area designation is as per the substation numbering system defined in Section 4.2 and the voltage character and asset type codes are as defined in Appendix B. The two parts of the index combined are a unique sequential number within the area, such that linkbox in the example above is number 0010390 within area 4 (mid Lancashire).

Each link box and free standing pillar (i.e. a pillar not comprising part of a substation) shall be given a local number. Each link box number shall be indelibly and clearly marked on the bell-cover and each feeder pillar number on the inside and outside of the door. In addition, each newly installed link-box shall have its number indelibly and clearly marked on the fixed surround of the link-box, such that it may be easily read, with the bell-cover in position. This is particularly important, where link-boxes are in close proximity. Where a new local number is required, this shall be allocated by Data Management generated as a simple company-wide sequential number, and should be prefixed with an 'X', for example 'X3629'.

7. POLE-MOUNTED EQUIPMENT

7.1 Pole-Mounted Substations

Poles with equipment such as transformers, GVRs, ABSs or Sectionalisers mounted on them shall be allocated a substation number and name as defined in Section 4. The substation name should include one of the suffixes within Appendix C to denote the primary purpose of the substation, such as PMT, ABS or GVR.

All pole mounted equipment situated in one locality shall carry the same name and a suffix to identify the equipment type as defined in Appendix C. The name should not be easily confused with other names on the system and should preferably assist in the location and identification of the equipment.

If more than one unit of the same switchgear is situated in the same locality then a suffix number shall be added.

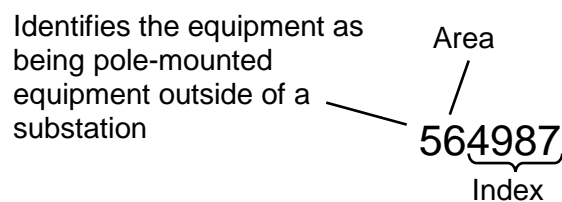
Where equipment identification numbers are used in addition to the name this system can be continued in addition to the above standard.

Pole mounted equipment shall be identified by a suitable label, in accordance with ES400N1, fixed to the pole.

Types of pole-mounted switchgear shall be identified by the use of the appropriate abbreviations listed in Appendix C.

7.2 Pole-Mounted Fuses, Links and Telemetry Equipment

Where a pole has only a set of links or HV fuses, or telemetry equipment (such as Fault Passage Indicators) mounted on it, it should be allocated a substation number of the form:



The equipment itself should then be allocated a Structured Plant Number as described within Section 5.2, such as 5649874SW001. For the purposes of numbering, fuses and links shall be considered to be a type of switch.

Where possible, HV Fuses and Links should be named in line with the part of the network they are used to isolate, such as 'SPUR TO HAMBLEDON HOUSE'. Where this is not possible, they may be named in accordance with the guidance in Section 7.1, using the suffix 'FUSE' or 'LINKS' as appropriate. The abbreviations for fuses and links within Annex C should not be used within a substation name.

Telemetry equipment sites should be named in accordance with the guidance in Section 7.1 using a suffix defined in Annex C where appropriate.

8. HV CIRCUITS

8.1 Circuit Naming

8.1.1 Feeder Transformers

At the feeding end (or higher voltage end) the designation shall be by the remote substation name and the transformer designation.

For a teed circuit, the designation at the feeding end shall be the remote substation names, each, where applicable with its transformer designation, separated by '/'. Where both downstream sites have feeder transformers the transformers shall, where practical, have the same number.

At the transformer end, the transformer number and designation only are required (even if the circuit is teed). I.e. if the transformer feeds the network then it shall be labelled 'Network T1', or if the transformer feeds a consumer it shall be labelled 'Consumer T1'.

The use of circuit numbers in addition to names is permitted, as in the former Manchester Area, B567 etc,. The circuit number shall precede the name.

8.1.2 Two-ended Circuits

A simple circuit shall be designated by the name of the remote substation. Where parallel circuits exist, they shall be distinguished by "No 1", "No 2" etc added to the name, preferably following the rules for transformer number selection at the receiving end, i.e. circuit No 1 connected to Main Busbar 1 or Section A busbars, circuit No 2 connected to Main Busbar 2 or Section B busbars etc, where separate busbars exist.

The use of circuit numbers in addition to names, as in the former Manchester Area, B567 etc, is permitted. The circuit number shall precede the name.

8.1.3 Teed Circuits

Teed circuits shall be labelled to identify the remote ends. Therefore for a three-ended circuit with substations A, B and C the labelling will be as follows:

At end A B/C;

At end B A/C;

At end C A/B.

Substations shall be in alphabetic order.

8.1.4 Overhead Circuits

Where the overhead line goes to a ground mounted substation this shall be used to identify the circuit, whether or not there are any PMTs connected to the line. **See Appendix M Example 1.**

Where the overhead line does not go to a ground mounted substation the first pole mounted transformer on the line shall be used to identify the circuit. **See Appendix M Example 2.**

Where the first pole mounted transformer is at or beyond the position of the first spur the overhead line shall be identified as a teed circuit, e.g., where A is the first PMT on the main line and B is the first PMT on the spur line, the circuit would be identified as:

- A/B.

See Appendix M Example 3.

Where pole mounted switchgear is situated close to a substation it shall be named with the name of the substation, followed by the switchgear type abbreviation as listed in Appendix C

8.2 Circuit labelling

Circuit labels shall state in full the circuit name. The size of the lettering shall be sufficient to enable the label to be clearly legible.

The circuit designations in asset data systems shall be character for character the same as the circuit designation.

Circuit labels shall be attached to the plant prior to the commissioning of the circuits.

The labels shall generally be in accordance with ES356 and ES400N1, shall be easily legible, durable and securely fixed to the equipment. Self-adhesive labels, such as “Dymo” tape, shall not be used in place of permanent labels.

Where there is a passageway or working space at the rear of extensible switchgear, labels shall be fitted on the rear as well as on the front of the equipment.

Similarly, where rear access to a ring-main unit is required for cable jointing or circuit testing, labels shall be fitted on the rear as well as on the front of the equipment. Where the manufacturer provides a facility for additional circuit labels, e.g. on cable boxes, this shall be used.

Where a circuit number is used in addition to the circuit name the name shall follow the number.

8.3 Circuit Numbering

Circuits shall be numbered using the Structured Plant Number of the feeding switch, which is taken as the switch at the substation with the highest in-feed voltage. Where a circuit joins two substations operating at the same in-feed voltage, the circuit shall be numbered using the switch at the substation with the lowest numerical substation number.

9. LV CIRCUITS

9.1 LV Distributors (Ways)

All 400/230V distributors, terminated at substation fuseboards, feeder pillars, including street pillars, and fuse-cabinets, shall be labelled with the following details:

- a) way number (minimum character height 10mm);
- b) circuit size, e.g. 3c 185 XC, 4w 0.1;
- c) fuse rating (as determined from CP331); and

} { minimum character height 6mm }

d) description, as sub-section 6.8.2 or 6.8.3, as appropriate.

Ways shall be numbered 1, 2, 3, etc. from left to right. The numbering shall include incoming transformer units (Where a transformer unit is mounted above the outgoing fuseways, it shall be way number 1.), any bus section ways and any separate way provided for the connection of a mobile generating set.

Where more than one LV board exists within a substation, the ways shall be numbered continuously across boards with the way linking the boards numbered between the two boards. For example, if a substation were fitted with two 6-way LV boards, board ways 1 would be numbered 1 through to 6, the interconnector between boards would be numbered way 7 and the board 2 ways would be numbered 7 through to 13.

Board 1 shall be fed from Transformer T1, and the numbers shall be reversed (i.e. numbered right to left) if necessary to enable continuous numbering across boards.

Where a short length with increased conductor section is used immediately from a substation (and no significant amount of load is connected to it along its length), the circuit size shall be taken as that of the principal cross-section of the distributor. In accordance with CP331, sub-section 2.6, this is the size to be used in determining the fuse rating.

LV ways shall be named as follows:

- Interconnected Distributor - An interconnected distributor shall be designated by the main route of the distributor (i.e. road name etc) and equipment at the point of interconnection, e.g. link box, feeder pillar or substation. (See Appendix K.) Where an equipment identification number is used, this number shall be included in the description.
- Radial Distributor - A radial distributor shall be designated by the route that the distributor takes and shall indicate, e.g. where practicable the side of the road the feeder takes - "Globe St (Odd Numbers)" - and, where appropriate, specific customer exit points - "Supermarket, East Mall, via Ground Floor".
- Spare Ways - Spare ways shall be clearly identified within each substation and include detail of their designation, e.g. Spare No.1 - Caution - Shorted capped end. (See EPD283, sub-section 4.2.2.)

9.2 Link Boxes and Street Pillars Ways

Each circuit of a link box shall be designated by a letter - A, B, C etc in a clockwise direction (when viewed from the top of the link box). Each circuit shall be lettered on the bell cover. The bell cover shall also be marked with (an) arrow(s) pointing to the kerb(s), or with a yellow triangle which corresponds to a yellow triangle on the side of the chamber.

Way labels may also be marked with the way letters.

Examples of marking for different street arrangements is shown in Figure 1 below.

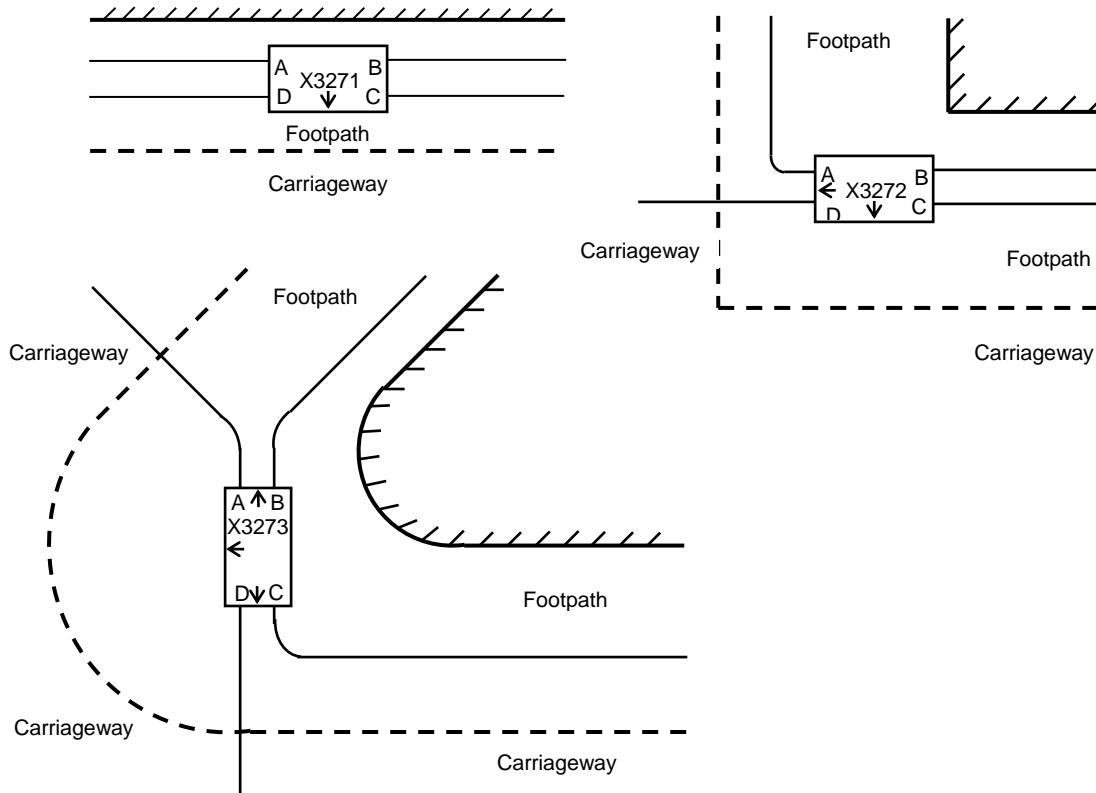


Figure 1 Examples of Link-box Markings

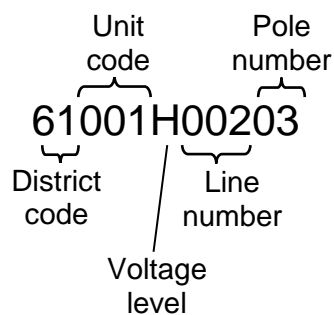
10. WOODPOLES

Woodpoles shall be allocated a local number in the form [aa] [bb] [cc] where:

- [aa] is the Woodpole Unit
- [bb] is the line numbers
- [cc] is the pole number.

This numbering and the arrangements for physical marking are defined within CP 420 Part 1 Chapter 09 Section 3.2.

Within corporate data systems, woodpoles shall be allocated an SPN of the form:

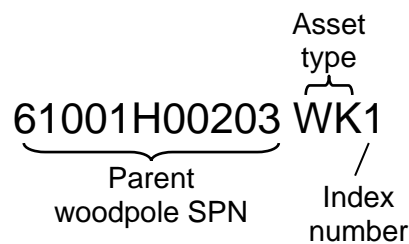


Where:

- The district code is one of the codes defined within Section 4.2 with the exception that:

- For woodpole numbering, district 61 and 65 are reversed from those used for substations such that district 61 is Barrow and district 65 is Kendal;
- District 28 is used to cover South Lancashire outside of the Bolton, Bury and Wigan areas.
- The unit code, line number and pole number are as per the local numbering described above. The unit code and line number feature a leading zero to pad the code to three characters;
- The voltage level is 'L' for low voltage (230V or 415V) and 'H' for voltages of 3.3kV and above.

Where additional support assets are installed on the woodpole, such as cross-arms or stays, these shall be allocated an SPN of the following form.



The asset type is one of the codes listed in Appendix B, and the index number is used to distinguish multiple assets of the same type on the same woodpole.

11. STEEL TOWERS

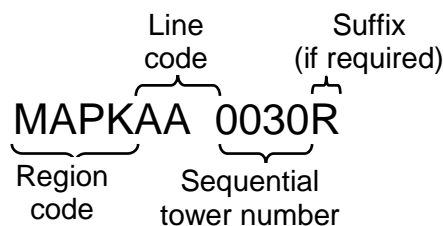
11.1 Tower Referencing

Steel Towers shall be allocated a local tower identifier of the form AA1, where 'AA' is the CEGB code for the line and '1' is the sequential tower along the line. Where possible, tower number '1' shall be at the feeder end of the circuits carried.

The policy for the use of suffixes on tower numbers is defined within CP420 Part 2 Chapter 9 Section 3.2.2

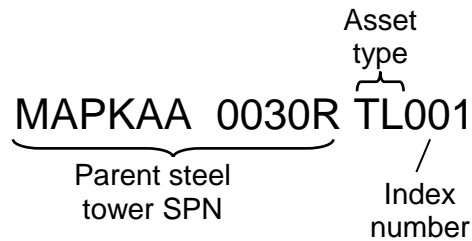
Where a new tower line is established, a new letter code shall be selected that does not duplicate that of any other line on the Electricity North West network. Where two lines merge, it is permissible to denote the merged section with both line codes, separated by a forward slash, for example, FJ/FH. The line codes shall be combined in alphabetical order.

Within corporate data systems, towers carrying 132kV circuits shall be referenced using a SPN of the form:



The region code is one of:

Tower circuits spans shall be allocated an SPN of the form:



The parent steel tower is the lower numbered tower to which the span is attached. For example a span between tower AA02 and AA03 would be allocated to AA02. The asset type is one of the codes listed in Appendix B (such as TL, PQ or TE), and the index number is the circuit number or '001' where only one such span is associated with the parent tower.

11.3 Tower Leg Referencing

Tower legs shall be referenced A through to D as shown below.

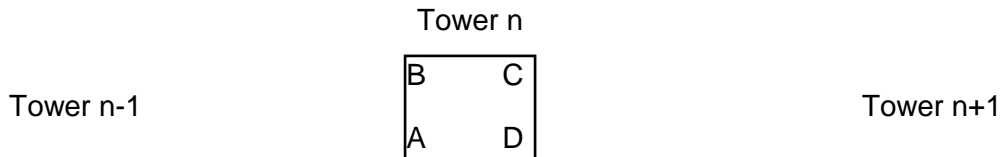


Figure 3 Tower Leg Numbering

12. DOCUMENTS REFERENCED

CEGB Operation Memorandum No.5

ES356 Notices & Nameplates

ES400N1 Notices & Nameplates – Overhead Lines

CP331 Protection of LV Underground and Overhead Distributors and HV Protection of Distribution Transformers

CP420 Part 1 Policy and Practice for Woodpole Overhead Lines

CP420 Part 2 Policy and Practice for Steel Tower Overhead Lines

CP625 Network Diagrams

13. KEYWORDS

Name; Designation; Transformer; Feeder; Substation; Circuit; Plant; Distributor; Structured Plant Number, Woodpole, Tower

APPENDIX A

Voltage Index	Voltage
1	230V/400V
2	3.3kV
3	6.6kV
4	11kV
5	33 kV
6	132 kV
7	25kV

APPENDIX B

Asset Type Code	Description
AB	Auxiliary Supply Board
AP	(Electrical) Protection Scheme
AR	Air Receiver
AU	Actuator
BA	Battery
BB	Busbar
BI	Building
BX	GVR Control Box
CC	Capacitor Bank
CB	Cable Trench
CE	Cable Bridge
CH	Charger
CI	Compressor Installation
CU	Compressor Unit
FE	Circular Main Earth
FP	Feeder Pillar
FT	Fault Thrower
GR	Grounds
HF	HV Fuse
HS	Hydraulic Section
LA	Ladder
LC	LV Way
LD	LV Board
LK	Linkbox
LR	LV Air Circuit Breaker
LS	LV (Overhead) Service

Asset Type Code	Description
MC	Monitoring Cabinet
MU	Mural
PH	Woodpole
PP	Pumping Point
RB	Rising Lateral Main Board
RC	Remote Control
RE	Reactor
RM	Ring-main Unit
RP	Rising Lateral Main Property
RS	Rising Lateral Main Service
SS	Substation
ST	Site
SW	Switch
TC	Tapchanger
TE	Tower Earthwire Span
TL	Tower Phase Conductor Span
TO	Transformer Cooler
TT	Tower
TX	Transformer
WK	Woodpole Cross-arm
WS	Woodpole Stay

APPENDIX C

The only permissible abbreviations are:

For equipment

Air Break Switch	ABS	Gas Auto Recloser	GAR
Auto Recloser	AR	Gas Sectionaliser	GSect
Auto Sectionalising Links	ASL	Gas Vacuum Auto	GVR
Auxiliary	Aux	Grid Supply Point	GSP
Bottle End	BE	kilovolt	kV
Bulk Supply Point	BSP	Links	L
Capped End	CE	Link Box	LB
Earthing Disconnecter	ED	Overhead	O/H
Earth Switch	ES	Pole-Mounted	PMT
Fault Passage Indicator	FPI	Sectionaliser	Sect
Feeder Pillar	FP	Substation	S/S
Fuses	F	Switching Station	Sw Stn

For locational

Avenue	Ave	Landlord	L/Lord
Buildings	Bldg	Lane	Ln
Close	Cl	Lower	Lr
Cottage	Cott	North	N
Cottages	Cotts	Number(s)	No(s)
Court	Ct	Park	Pk
Crescent	Cres	Place	Pl
Drive	Dr	Reservoir	Res
East	E	Road	Rd
Estate	Est	Saint	St
Farm	Fm	South	S
Garden(s)	Gdn(s)	Square	Sq
Generator	Gen	Street	St
Green	Grn	Station	Stn
Headquarters	HQ	Terrace	Terr
Higher	Hr	Village	Vill
Hospital	Hosp	Walk	Wa
House	Hs	West	W
Industrial	Ind		

APPENDIX D

Open Type Switchgear Numbering & Nomenclature (excluding Metalclad)

Class	Title	132kV	33/25 kV
Lines	Switch Disconnecter	*00	*L0
	Line Earthing Switch	*01	*L1
	By-Pass Disconnecter	*02	*L2
	Line Disconnecter	*03	*L3
	Main Busbar Selector Disconnecter	*04	*L4
	Circuit Breaker	*05	*L5
	Reserve Busbar Selector Disconnecter	*06	*L6
	Circuit Breaker Disconnecter (Busbar Side)	*07	*L7
Transformer High Voltage Side	Transformer Circuit Breaker	*10	*H0
	Transformer Earthing Switch	*11	*H1
	Transformer By-Pass Disconnecter	*12	*H2
	Transformer Disconnecter	*13	*H3
	Main Busbar Selector Disconnecter	*14	*H4
	Switch Disconnecter	*15	*H5
	Reserve Busbar Selector Disconnecter	*16	*H6
Main Bus Section	Main Bus Section Circuit Breaker	*20	*S0
	Main Bus Section Earthing Switch	*21	*S1
	Main Bus Section Disconnecter (No. 1 side)	*24	*S4
	Switching Disconnecter.	*25	*S5
	Mesh Opening Corner Disconnecter	*26	*S6
	Main Bus Section Disconnecter (No. 2 side)	*28	*S8
Reserve Bus Section	Reserve Bus Section Circuit Breaker	*60	*P0
	Reserve Bus Section Earthing Switch	*61	*P1
	Reserve Bus Section Disconnecter (No. 1 side)	*66	*P6
	Reserve Bus Section Disconnecter (No. 2 side)	*69	*P9
Bus Coupler	Bus Coupler Circuit Breaker	*30	*W0
	Bus Coupler Earthing Switch	*31	*W1
	Bus Coupler Main Busbar Disconnecter	*34	*W4
	Bus Coupler Reserve Busbar Disconnecter	*36	*W6
Static Series Compensator or Series Reactor	Reactor Circuit Breaker	*40	*R0
	Reactor Earthing Switch	*41	*R1
	Main Busbar Selector Disconnecter (1st Choice)	*44	*R4
	2nd Reactor Circuit Breaker where 2 per Reactor	*45	*R5
	Reserve Busbar Selector Disconnecter (1st Choice)	*46	*R6
	Circuit Breaker Disconnecter (Busbar side)	*47	*R7
	Main Busbar Selector Disconnecter (2nd Choice)	*48	*R8
	Reactor Tie Busbar Disconnecter or Reserve Busbar Selector Disconnecter (2nd Choice)	*49	*R9
Static Shunt Compensator	Reactor/Capacitor Circuit Breaker	*50	*K0
	Reactor/Capacitor Earthing Switch	*51	*K1
	Reactor/Capacitor Disconnecter	*53	*K3
	Reactor/Capacitor Switch Disconnecter	*55	*K5
Transformer Low Voltage Side	Transformer Circuit Breaker	*80	GT* +
	Transformer Earthing Switch	*81	*T1
	Transformer Disconnecter	*83	*T3
	Main Busbar Selector Disconnecter	*84	*T4
	Switch Disconnecter	*85	*T5
	Busbar Selector Disconnecter	*86	*T6

Generators	Generator Circuit Breaker (where 2 per generator, main busbar)	*90	*M0
	Generator Transformer Earthing Switch	*91	*M1
	By-Pass Disconnecter	*92	*M2
	Generator Transformer Disconnecter	*93	*M3
	Main Busbar Selector Disconnecter	*94	*M4
	Generator Circuit Breaker where 2 per generator (reserve Busbar) or Switch Disconnecter	*95	*M5
	Reserve Busbar Selector Disconnecter	*96	*M6
	Circuit Breaker Disconnecter (Busbar Side)	*97	*M7

*** Denotes a sequence number.**

+ This is a departure from CEGB Operation Memorandum No.5

See appendices E, F & G for illustrations of both numbering & nomenclature.

For further information see CEGB Operation Memorandum No.5.

APPENDIX E

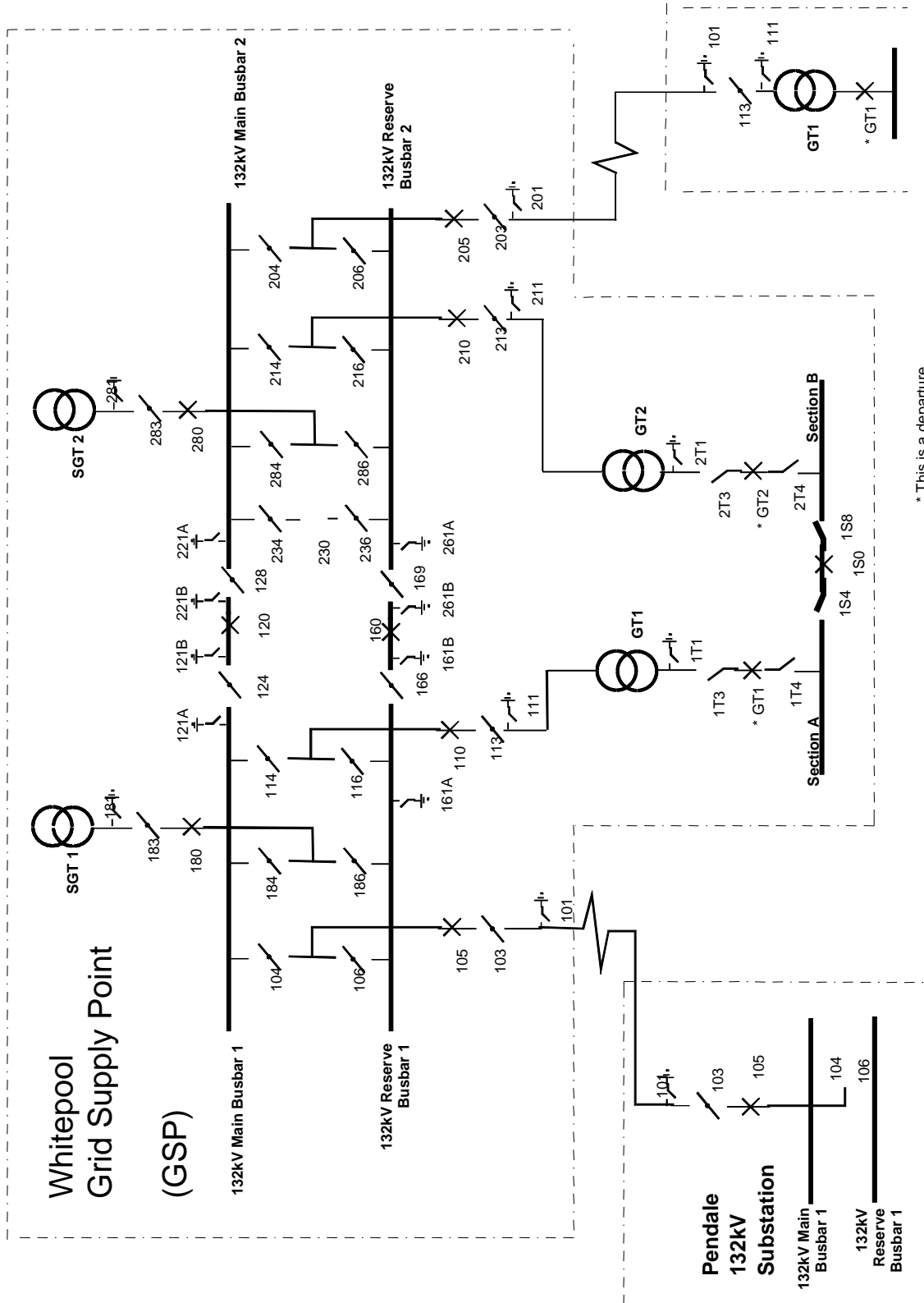


Figure 4 Examples of Switchgear Designations - Open-Type 132kV Switchgear

APPENDIX F

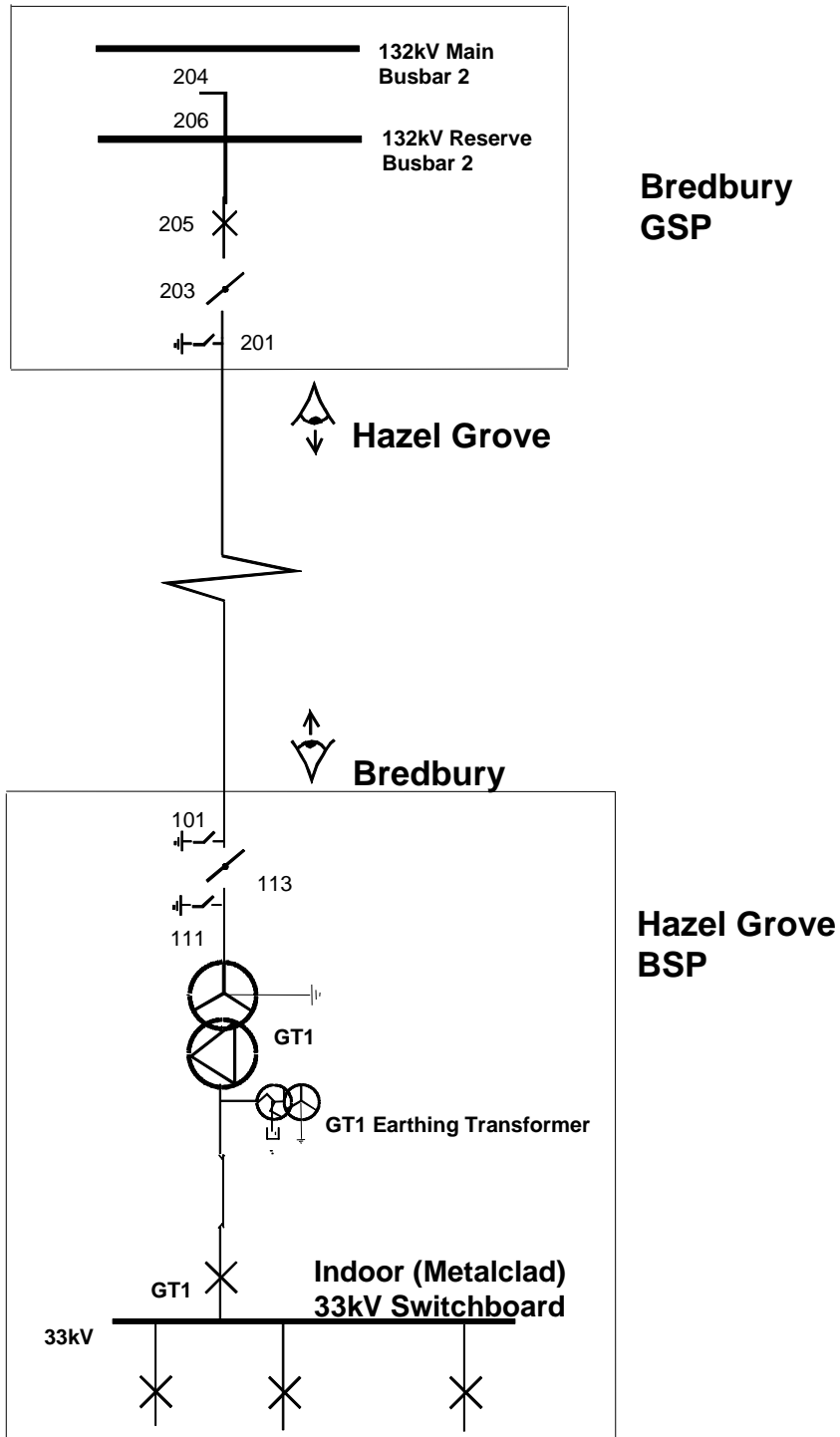


Figure 5 Examples of Switchgear Designations - 132/33kV Transformer-Feeder

APPENDIX G

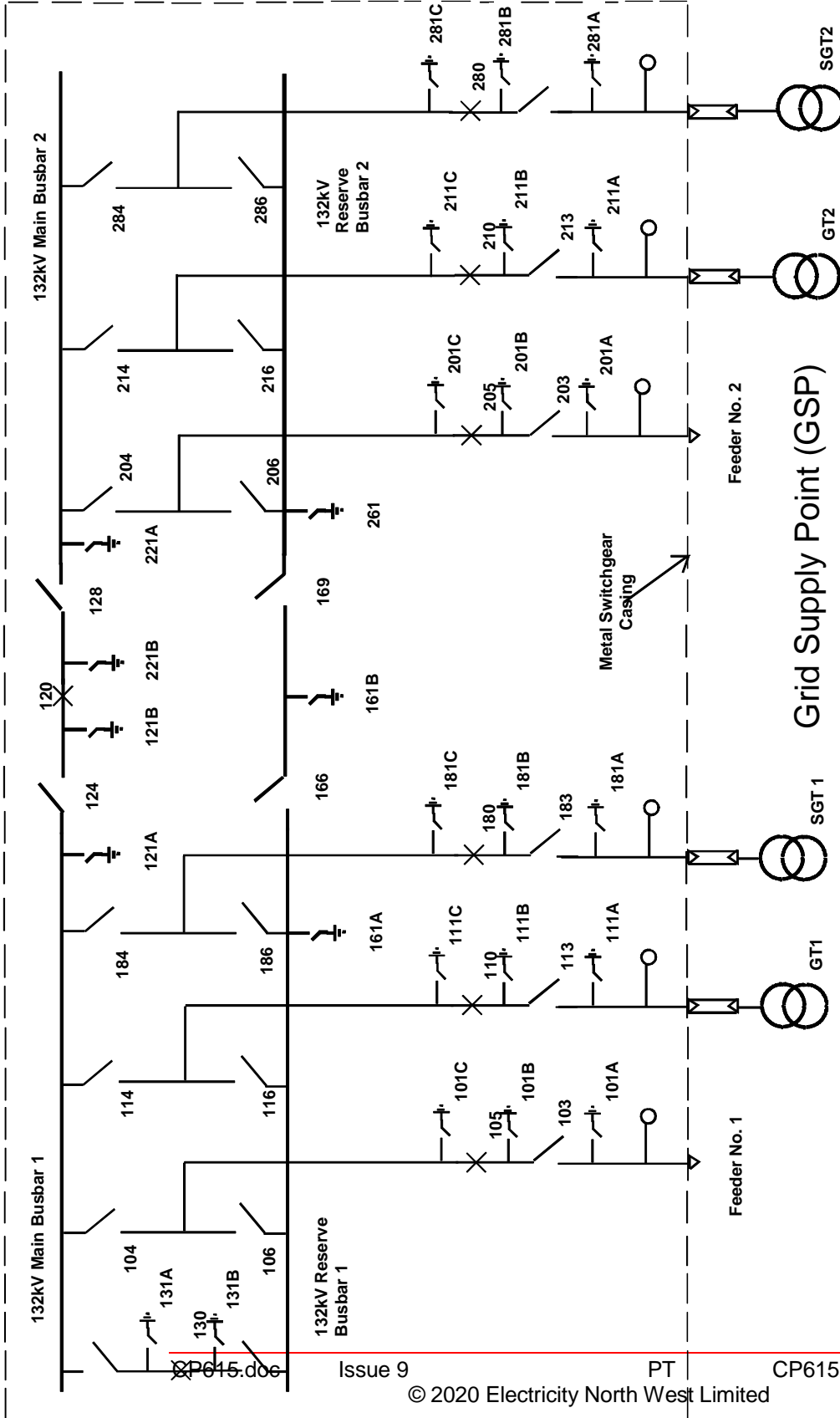


Figure 6 Examples of Switchgear Designations - 132kV GIS

APPENDIX H

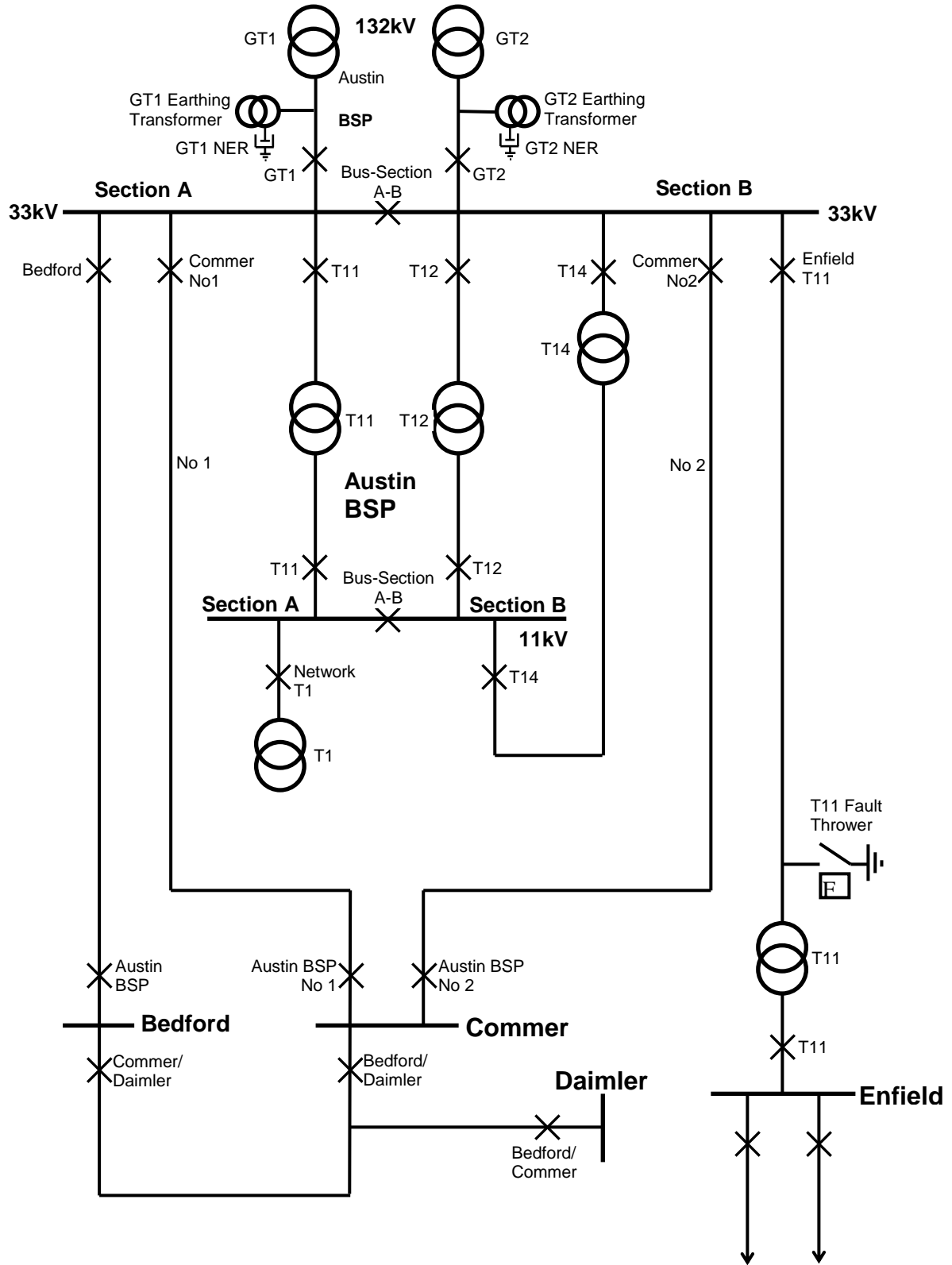


Figure 7 Examples of Circuit Designation - 33kV Network

APPENDIX I

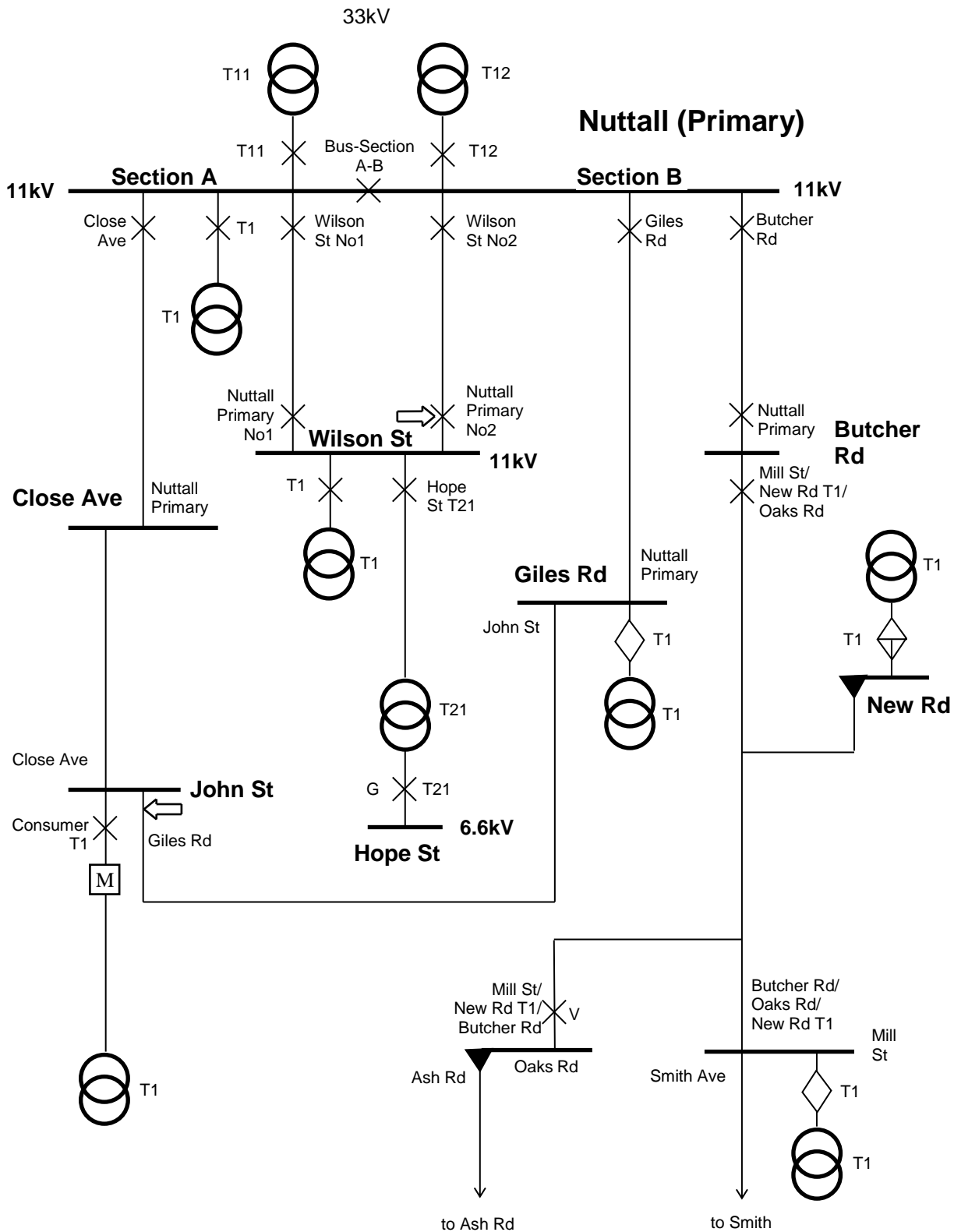


Figure 8 Examples of Circuit Designation - HV Network

APPENDIX J

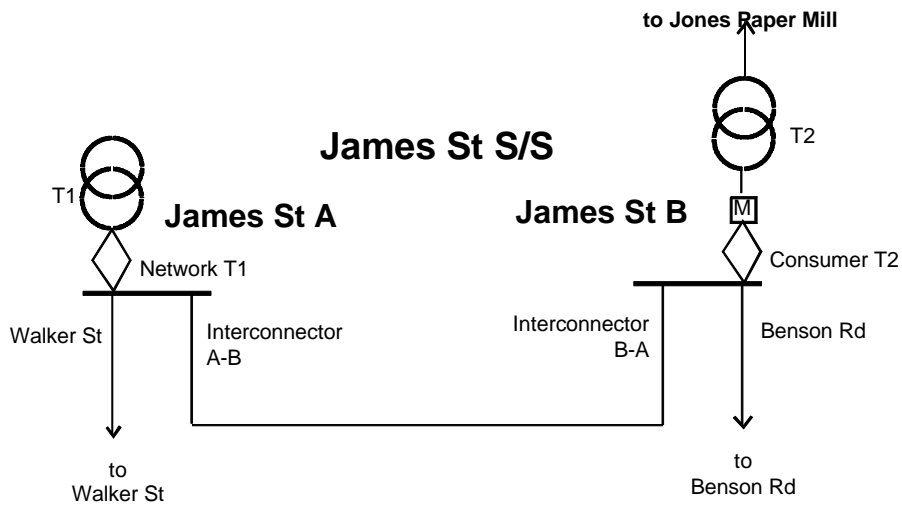


Figure 7 Example of 11kV Multi-Switchgear Site
9

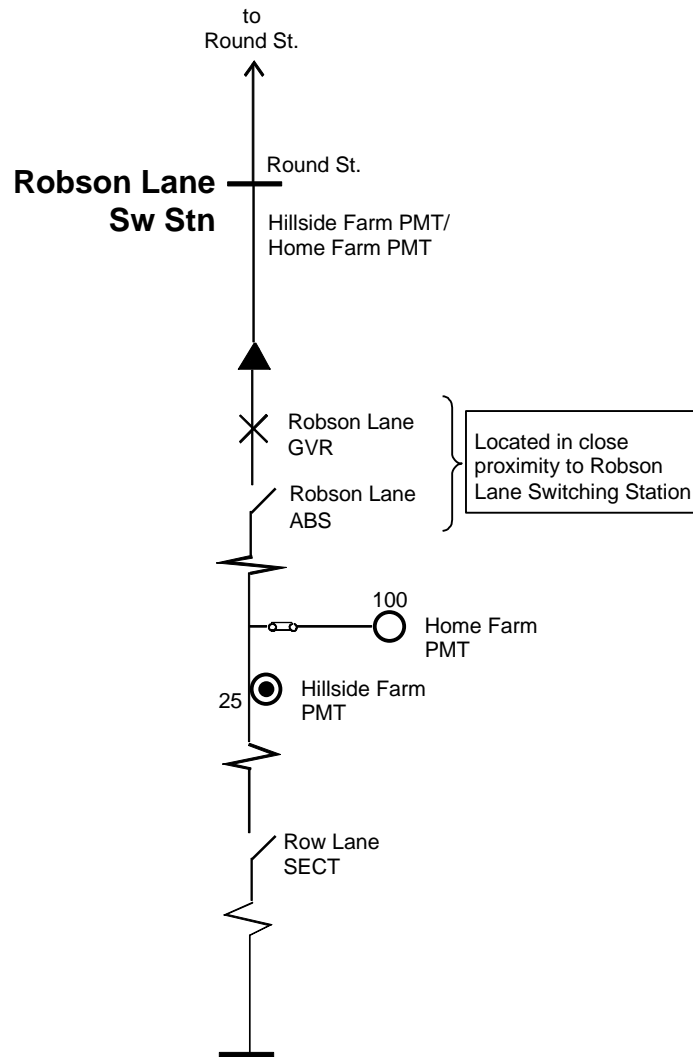


Figure 8 Example of 11kV Pole Mounted Equipment
9

APPENDIX K

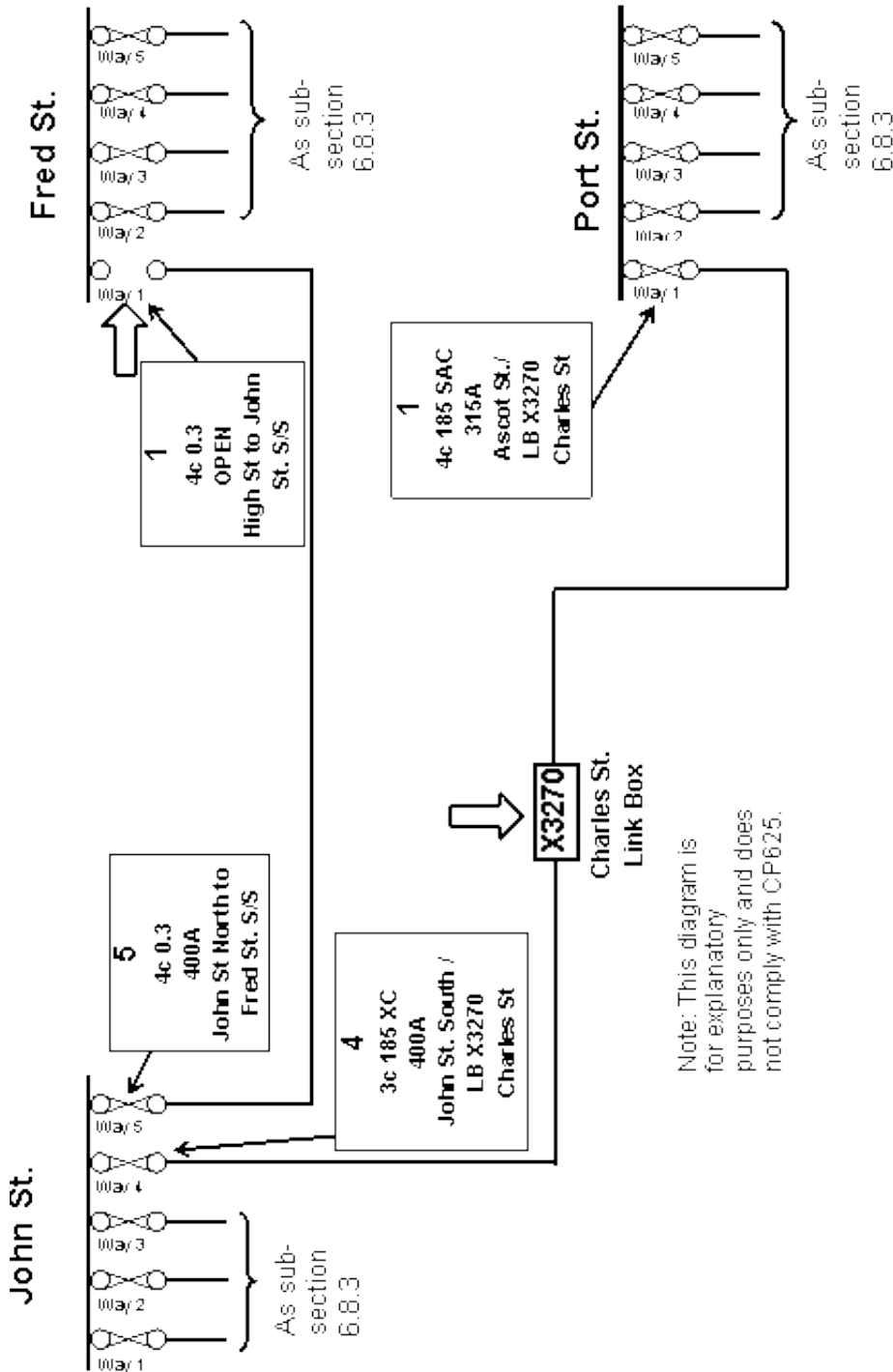


Figure 10 Examples of LV Interconnector Labelling

APPENDIX L

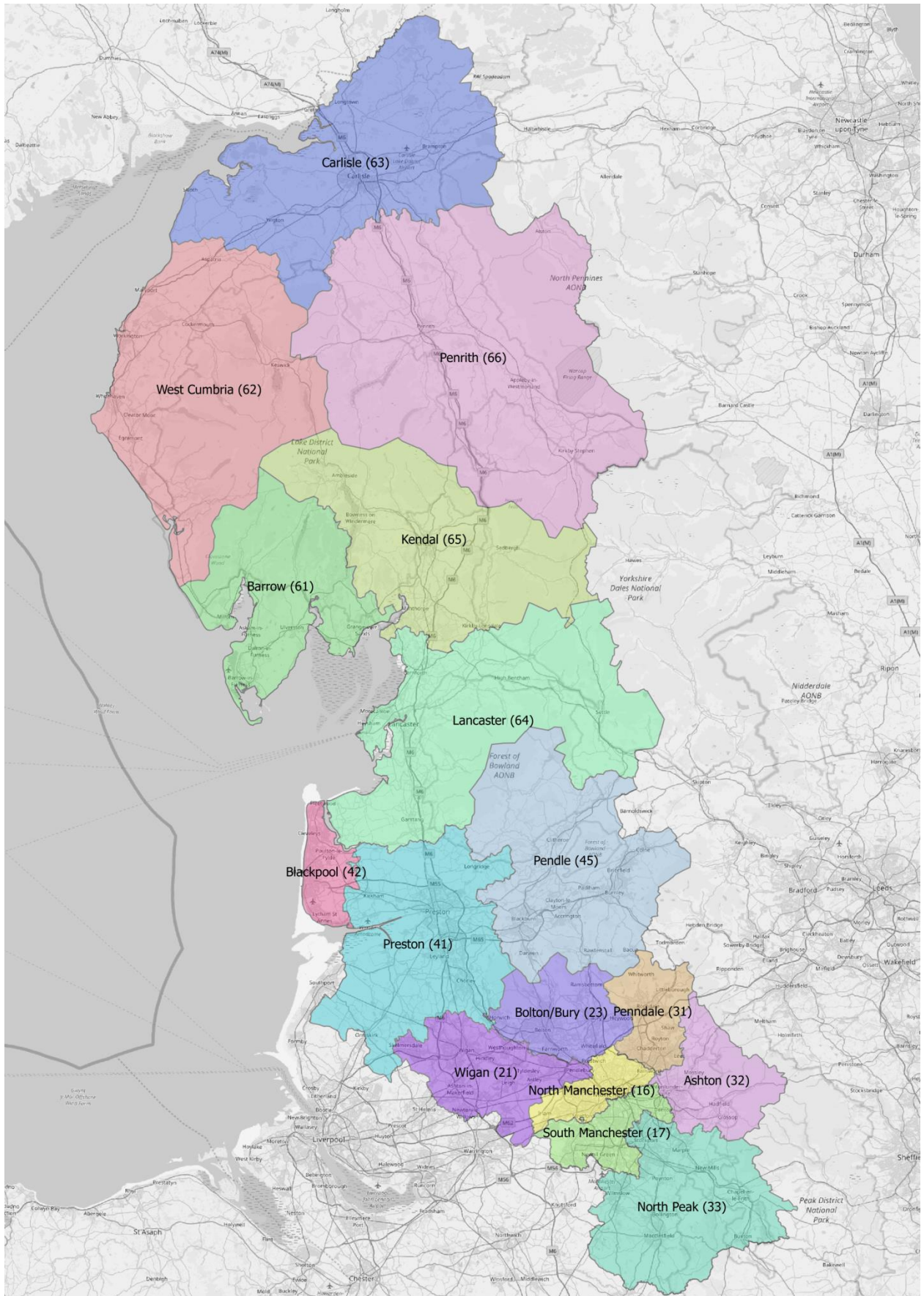
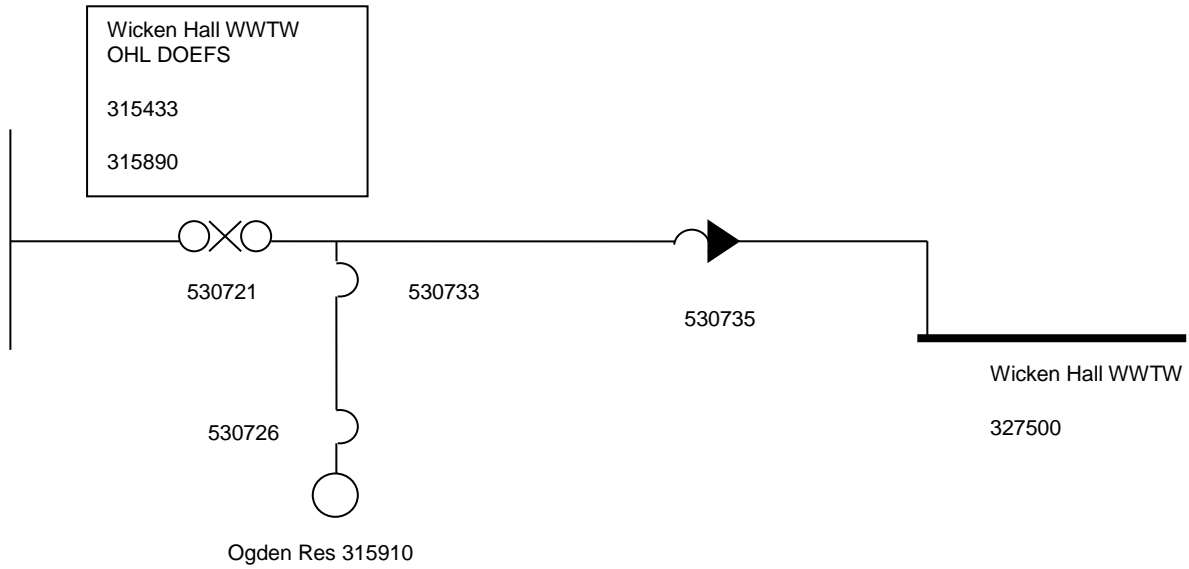


Figure 11 Geographical Map of Districts

APPENDIX M

Example 1

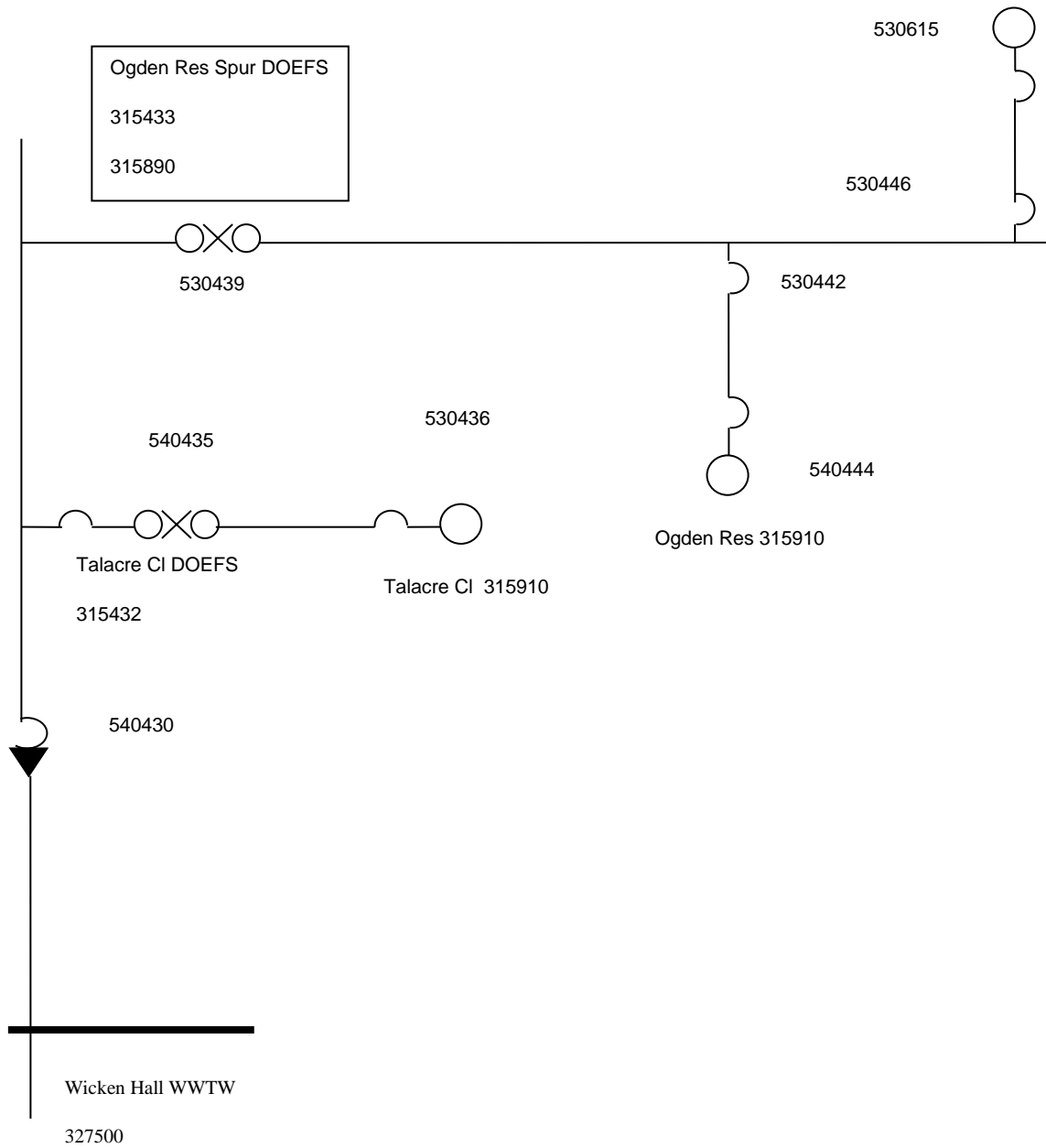
Where the OHL goes to a ground mounted Substation this shall be used to identify the circuit whether or not there are any PMT's connected to this line.



Example 2

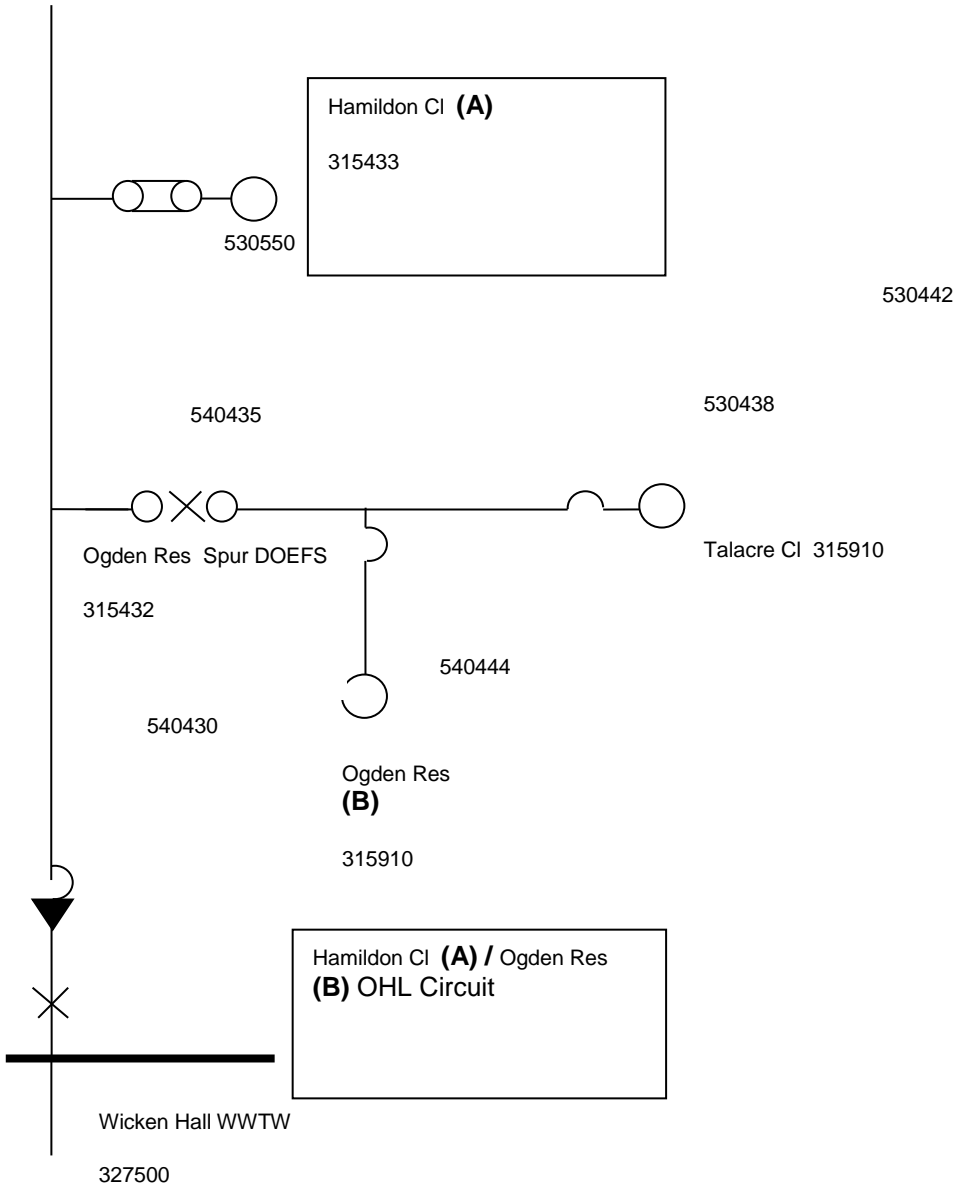
Where the OHL does not go to a ground mounted Substation the first pole mounted transformer on the line be used to identify the circuit.

Appleby 315610



Example 3

Where the first pole mounted transformer is at or beyond the position of the first spur, the overhead line shall be identified as a teed circuit, e.g. where A is the first PMT on the main line and B is the first PMT on the spur line, the circuit would be identified as A/B.



Example 4

Where pole mounted switchgear is close to a substation it shall be named with the name of the substation, followed by the switchgear type abbreviation as listed in Appendix C.

