



Electricity Specification 400 C8

LV Service Cables

Issue 8

May 2026

Amendment summary

Issue No/Date	Description
7 Oct 2021	Restructure and reformatting to the new Model Electricity Specification template. Update of technical and constructional information to the latest versions of British Standards. Addition of the following cable types: • Cables with LSOH sheath • 3 x 25cu SWA cables for over ground unlooping Removal of the following types: • 3 x 35Al cables (CNE & SCNE) Prepared by: P. Howell Approved by: Policy Approval Panel and signed on its behalf by Steve Cox, Engineering and Technical Director
8 May 2026	Updated to new template. Prepared by: Elizabeth Pattison Approved by: Technical Policy Panel and signed on its behalf by Paul Turner, PAP Chair

Contents

Amendment summary	2
1. Scope	6
2. Definitions	6
3. General Requirements for Approvals and Testing	7
3.1. Product not to be Changed	7
3.2. SP Electricity North West Technical Approval	7
3.3. Quality Assurance	7
3.4. Formulation	8
3.5. Identification Markings	8
3.6. Minimum Life Expectancy	8
3.7. Product Conformity	8
3.8. Confirmation of Conformance	8
4. Conditions of Installation	8
5. Conditions of Operation for Power Cables	9
6. Cable Longevity	9
7. Manufacturing	9
8. Technical Support	10
9. Requirements for testing and Sampling	10
9.1. Requirement for Type Tests at the Supplier's Premises	10
9.2. Type Test Approval	10
9.3. Requirement for Routine Tests at the Supplier's Premises and Sampling	10
9.4. Routine and Sample Testing	11
9.5. Samples	11
10. Technical Particulars	11
10.1. Scope	11
10.2. Technical Requirements	12
10.3. Cable Data	12
10.3.1. Impedance Data	12

10.3.2.	Current Rating Data	12
10.4.	Installation Parameters	13
10.5.	Shrinkage	13
10.6.	Cable Identification	13
10.6.1.	Oversheath Marking	13
10.7.	Logistical Requirements	13
11.	Constructional Requirements	14
11.1.	SCNE Single Phase Spilt Concentric Polymeric Insulated Cables	14
11.1.1.	Conductor Types	14
11.1.2.	Insulation	14
11.1.3.	Concentric Conductors	14
11.1.4.	Oversheath	14
11.2.	CNE Single Phase Polymeric Insulated Cables	15
11.2.1.	Conductor Types	15
11.2.2.	Insulation	15
11.2.3.	Concentric Conductor	15
11.2.4.	Oversheath	15
11.3.	SCNE Three Phase Spilt Concentric Polymeric Insulated Cables	15
11.3.1.	Conductor Types	16
11.3.2.	Insulation	16
11.3.3.	Concentric Conductors	16
11.3.4.	Oversheath	16
11.4.	CNE Three Phase Polymeric Insulated Cables	16
11.4.1.	Conductor Types	16
11.4.2.	Insulation	17
11.4.3.	Concentric Conductor	17
11.4.4.	Oversheath	17
11.5.	Three Core Steel Wire Armoured Polymeric Insulated Cables	17
11.5.1.	Conductor Types	17
11.5.2.	Insulation	17

11.5.3.	Bedding Layer	17
11.5.4.	Armouring	17
11.5.5.	Oversheath	17
11.6.	Alternative materials	18
12.	Documents Referenced	18
Appendix A – Schedule of Cables		20
Appendix B – Logistical Requirements		21
B1 Cable Drums and Labelling		21
B2 General Logistical Requirements		21
Appendix C – Conformance Declaration		23

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.

1. Scope

This Specification covers the technical requirements for Low Voltage (LV) service cables for use on the Electricity North West Limited (hereinafter referred to as SP Electricity North West) Distribution System.

2. Definitions

Approval	Sanction by the SP Electricity North West Circuits Policy Manager that specified criteria have been satisfied
Contract	The agreement between SP Electricity North West and the Contractor for the execution of the Works including therein all documents to which reference may properly be made in order to ascertain the rights and obligations of the parties under the said agreement.
Contractor	The person or person's firm or company, including personal representatives, successors and permitted assigns, who's Tender has been accepted by SP Electricity North West.
LSOH	Low Smoke,Zero Halogen – refers to specific type of materials for enhanced performance in fire situations
PVC	Poly-Vinyl Chloride
Specification	The Specifications and schedules (if any) agreed by the parties for the purpose of the Contract.
Sub-Contractor	Any person (other than the Contractor) named in the Contract for any part of the Works or any person to whom any part of the Contract has been sub-let with the consent in writing of the SP Electricity North West Circuits Policy Manager, and the legal representatives, successors and assigns of such person.
Supplier	Any person or person's firm or company who supplies goods to SP Electricity North West or to its Contractor.
Tender	An offer in writing to execute work or supply goods at a fixed price.
Tenderer	The person or person's firm or company, including personal representatives, successors and permitted assigns, invited by SP Electricity North West to submit a Tender.
XLPE	Cross-Linked Polyethylene

3. General Requirements for Approvals and Testing

3.1. Product not to be Changed

No change in the product, packaging or labelling shall be made after Approval has been granted without prior notice to the SP Electricity North West Circuits Policy Manager, and receipt of a written agreement to the proposed change from the SP Electricity North West Circuits Policy Manager.

3.2. SP Electricity North West Technical Approval

The Tenderer shall submit, with this Tender, proposals for testing which will demonstrate, to the satisfaction of the SP Electricity North West Circuits Policy Manager, compliance with this Specification. Such tests shall be carried out without expense to SP Electricity North West.

Alternatively, technical reports and other data may be submitted that the Tenderer considers will demonstrate, to the satisfaction of the SP Electricity North West Circuits Policy Manager, compliance with this Specification. Acceptance of this evidence shall be at the discretion of the SP Electricity North West Circuits Policy Manager but will not be unreasonably withheld.

Approval shall be 'factory specific' and is not transferable to another factory without the written Approval of the SP Electricity North West Circuits Policy Manager.

The Supplier and product shall comply with all the relevant requirements of SP Electricity North West document CP311 - Equipment Approval Policy and Process.

3.3. Quality Assurance

The Tenderer shall confirm whether or not Approval is held in accordance with a quality assurance scheme accredited under ISO 9000. If not, the Tenderer shall submit a statement of the quality assurance procedures employed to control the quality of the product, including the performance of Suppliers and Sub-Contractors.

The right is reserved for the repeat of such tests, from time to time, that the SP Electricity North West Circuits Policy Manager may deem to be reasonably necessary to demonstrate continued compliance with the Specification.

The Tenderer shall submit, with the Tender, a list of tests and inspections which are carried out on the product prior to despatch which shall demonstrate, to the satisfaction of the SP Electricity North West Circuits Policy Manager, fitness for installation and service.

The Tenderer shall provide free of charge to SP Electricity North West such samples as may, in the opinion of the SP Electricity North West Circuits Policy Manager, be reasonably required for inspection and/or retention as quality control samples. The SP Electricity North West Circuits Policy Manager will confirm the requirement for samples at the time of Tendering.

The right is reserved for inspections to be made of Tenderer's facilities, from time to time, as deemed reasonably necessary by the SP Electricity North West Circuits Policy Manager to ensure compliance with this Specification and any Contract of which it forms a part.

The Tenderer shall submit, with the Tender, such details of product packaging disposal, as will enable SP Electricity North West to comply with the requirements of BS EN ISO 14001 - Environmental Management Systems.

3.4. Formulation

The Tenderer shall submit, with the Tender, such details of the formulation and use of the product and associated substances as will enable SP Electricity North West to comply with the obligations of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 2002, in the use, storage and disposal of the product. The Tenderer may stipulate, prior to submission of such information, that it is to remain confidential, and the SP Electricity North West Circuits Policy Manager will, if requested, confirm agreement to this prior to receipt of the information.

3.5. Identification Markings

The Tenderer shall submit, with the Tender, details of markings which it is proposed to apply to the product or packaging to identify manufacturing batches or items. The forms and content of such markings shall be subject to the Approval of the SP Electricity North West Circuits Policy Manager and shall in all cases include the SP Electricity North West approved description and commodity code number.

The Tenderer shall submit, with the Tender, such details of marking gross weight on components, assemblies and packages, as will enable SP Electricity North West to comply with the Health and Safety Manual Handling Operation Regulations 1992, for components, assemblies and packages supplied with a gross weight over 1kg. The forms and content of such markings shall be subject to the Approval of the SP Electricity North West Circuits Policy Manager.

3.6. Minimum Life Expectancy

The minimum life expectancy of all products covered by this Specification is 60 years.

3.7. Product Conformity

Preference will be given to those Suppliers who can provide suitable product conformity certification to a recognised or specified standard, or an equivalent certification.

3.8. Confirmation of Conformance

The Tenderer shall complete the conformance declaration sheets in Appendix C. Failure to complete these declaration sheets may result in an unacceptable bid.

4. Conditions of Installation

Cables specified in this Specification will be pulled or laid into open trenches, pulled into ducts or installed in air. Cables may also be installed directly by trenchless installation techniques.

During storage and after installation cables can be expected to be subjected to the full range of climatic conditions encountered in the UK.

Cables may be surrounded by ground water for most of their operating life. Where cables are installed in ducts, flooding of ducts can occur resulting in permanently wet sections along the cable route.

Cables installed above ground will be supported by means of cleats either vertically or horizontally and these cables may be exposed to direct sunlight for significant periods.

Cables may be installed on wood poles in contact with the pole and, therefore, in contact with a pole preservation medium such as creosote.

All cables must be compatible with all Approved solvent cleaning wipes and other materials used in installing and jointing of them. Accessories used on these cable types may be cold applied or require application of heat and joints will be encapsulated in resins as specified in ES400R10.

5. Conditions of Operation for Power Cables

The following are the general conditions under which power cables purchased in accordance with this Specification are required to operate:

- Nominal system voltage 400/230.
- The working voltage of any part of the system does not normally exceed the normal system voltage by more than 10%.
- Nominal system frequency: 50Hz.
- The system operates with the neutral point earthed either directly or through a resistance or reactance at one or more points.

6. Cable Longevity

Cables offered shall be designed and manufactured to operate satisfactorily under the installation and operating conditions detailed in [Sections 4](#) and [5](#).

7. Manufacturing

The Tenderer shall provide at the time of Tender details of manufacturing location(s) for each cable offered.

Any Approval granted will be site specific and will not be transferable to any other site without the prior written agreement of the SP Electricity North West Circuits Policy Manager.

8. Technical Support

During the contact period questions will arise regarding methods of preparing cables, unusual or non-standard applications where advice will be required on matters such as cable ratings etc.

The successful Tenderer(s) will be expected to support SP Electricity North West with technical advice on these matters.

9. Requirements for testing and Sampling

The SP Electricity North West Circuits Policy Manager shall set out the requirement of the following tests to be carried out by the Supplier at the Supplier's cost.

9.1. Requirement for Type Tests at the Supplier's Premises

These are a series of one-off type tests, which are carried out to ensure the satisfactory performance of the product design, under extremes of operating stresses, and of endurance, as may be appropriate, to be determined by the SP Electricity North West Circuits Policy Manager.

These may or may not be destructive tests.

9.2. Type Test Approval

All cables offered shall be fully Type Tested and Qualified according to the requirements of the Technical Specification and Standards detailed for each cable type. The Tenderer shall provide Type Test certificates and Type Test reports, including details of independent witnesses, at the time of Tender.

Where a Tenderer wishes to offer a cable, which has been Type Tested to an alternative Standard(s), full details of the alternative Standard(s) and how it differs from the Specified Standard(s) shall be provide at the time of Tender along with Type Test certificates.

If, during the period of the Contract, the Contractor wishes to make any changes to the Approved product, packaging or labelling, proposals for such changes shall be notified in writing to the SP Electricity North West Circuits Policy Manager. No such changes shall be implemented without the prior written Approval of the SP Electricity North West Circuits Policy Manager. If the SP Electricity North West Circuits Policy Manager deems that the changes require Type Approval testing to be repeated, in full or in part, the cost of such testing shall be borne by the Contractor.

9.3. Requirement for Routine Tests at the Supplier's Premises and Sampling

These tests may be required to be carried out on every individual unit or component, as specified, or at some regular frequency to be determined by the SP Electricity North West Circuits Policy Manager.

The results of these tests may be required to be supplied to SP Electricity North West with each unit purchased or retained for inspection, at a period to be determined by the SP Electricity North West Circuits Policy Manager.

9.4. Routine and Sample Testing

The Contractor shall carry out all routine and sample tests specified for each cable. Tenderers shall state at the time of Tender their proposals for sample test frequencies where such frequencies are not detailed specifically by this Specification or the relevant referenced Standards or Specifications. The SP Electricity North West Circuits Policy Manager reserves the right to be present and witness routine and sample tests. Where the SP Electricity North West Circuits Policy Manager wishes to witness any such tests, the date and time of testing shall be mutually agreed.

9.5. Samples

During the Tender period the Tenderer shall submit samples for Approval as required by the SP Electricity North West Circuits Policy Manager. The samples will be of reasonable lengths to allow for any testing on suitability for the SP Electricity North West's cable jointing system to be made.

Such samples shall remain the property of SP Electricity North West.

10. Technical Particulars

10.1. Scope

This Specification covers the supply of the following types of service cables:

- a. Single phase: 4mm² or 25mm² stranded copper or 35mm² solid round aluminium conductor, polymeric insulated Split Concentric Neutral Earth (SCNE) Cables with **PVC oversheath**.
- b. Single phase: 4mm² or 25mm² stranded copper or 35mm² solid round aluminium conductor, polymeric insulated Split Concentric Neutral Earth (SCNE) Cables, with **LSOH oversheath**.
- c. Single phase: 4mm² or 25mm² stranded copper or 35mm² solid round aluminium conductor, polymeric insulated Combined Neutral/Earth (CNE) Cables with **PVC oversheath**.
- d. Single phase: 4mm² or 25mm² stranded copper or 35mm² solid round aluminium conductor, polymeric insulated Concentric Neutral Earth (CNE) Cables, with **LSOH oversheath**.
- e. Three phase: 25mm² solid round aluminium conductor, polymeric insulated, Split Concentric Neutral Earth (SCNE) Cables with **PVC oversheath**.
- f. Three phase: 25mm² solid round aluminium conductor, polymeric insulated, Split Concentric Neutral Earth (SCNE) Cables with **LSOH oversheath**.
- g. Three phase: 25mm² solid round aluminium conductor, polymeric insulated, Combined Neutral/Earth (CNE) Cables with **PVC oversheath**.

- h. Three phase: 25mm² solid round aluminium conductor, polymeric insulated, Combined Neutral/Earth (CNE) Cables with **LSOH oversheath**.
- i. Three core 25mm² stranded copper conductor, polymeric insulated, steel wire armoured with PVC oversheath*

*3x25Cu/SWA cable is a non-standard type which is only to be used for service unlooping when the standard concentric designs are not suitable – see CP226 for details.

10.2. Technical Requirements

The cables shall comply with the relevant International Standards, British Standard Specifications and all relevant Energy Networks Association Technical Specifications (ENA TS) current at the time of tendering, except where varied by this standard.

Where a requirement of this Specification differs from that of another quoted Specification or Standard, the requirements of this Specification shall apply.

If a Tenderer is unsure regarding any requirement of this Specification, clarification shall be sought in writing from SP Electricity North West.

10.3. Cable Data

The following additional cable data shall be provided with all cables supplied:

10.3.1. Impedance Data

- Maximum dc resistance of phase conductor at 20°C in ohms/km.
- Maximum dc resistance of CNE or SCNE conductor(s) at 20°C in ohms/km.
- Maximum ac resistance of phase conductor at maximum conductor temperature in ohms/km.
- Equivalent star reactance at 50Hz in ohms/km.
- Equivalent star capacitance in pF/km.
- Charge current per phase at normal voltage and frequency in mA/m.
- Zero sequence impedance $R_0 + jK_0$ in ohms/km.

10.3.2. Current Rating Data

The maximum continuous current carrying capacity per phase conductor for the following conditions:

- Laid direct with $g = 1.2 \text{ °C/W}$ and $T_g = 15\text{°C}$.
- Laid direct with $g = 0.9 \text{ °C/W}$ and $T_g = 15\text{°C}$
- Drawn into a 32mm internal diameter smooth bore plastic duct (one cable per duct) where
- $g = 1.2 \text{ °C/W}$ and $T_g = 15\text{°C}$
- Drawn into a 32mm internal diameter smooth bore plastic duct (one cable per duct) where

- $g = 0.9^{\circ}\text{C}/\text{W}$ and $T_g = 15^{\circ}\text{C}$
- In Air where $T_g = 25^{\circ}\text{C}$

The following assumptions shall be made when quoting ratings:

- Depth of cover to top of LV cables is 450mm.

Tenderers shall also provide data to show the variation in rating with Ground Thermal Resistivity and depth of cover.

10.4. Installation Parameters

For each power cable offered the Tenderer shall provide the following parameters:

- Minimum dynamic bending radius in mm.
- Minimum static bending radius in mm.
- Recommended pulling method and maximum pulling tension in kgF.

10.5. Shrinkage

Insulation shrinkage shall be performed at 130°C for 6 hours and a then further test at 65°C for 24 hours. The maximum shrinkage following the test should be should be 2%.

10.6. Cable Identification

Each delivery length of cable shall be allocated a unique reference number. This unique reference number shall be embossed on the cable near to the metre mark. This unique reference number will be used to identify all materials used within the manufacturing process. This number shall appear on the factory test sheet covering the cable length and shall be clearly marked on the drum on which the length is delivered and shall be referred to on all invoices and advice notes.

Additional costs should be included if applicable for the option of providing a unique identifier / batch number or having SP Electricity North West printed on to the conductor to enable positive identification of ownership in event of theft.

10.6.1. Oversheath Marking

In addition to the requirements detailed in the relevant specification for each cable supplied, the unique reference number shall be embossed in the cable oversheath.

All markings on the sheath shall be clearly legible.

10.7. Logistical Requirements

Each cable supplied shall meet the requirements of [Appendix B](#).

11. Constructional Requirements

11.1. SCNE Single Phase Spilt Concentric Polymeric Insulated Cables

Single core plus split neutral and earth 600/1000 volt cable; phase conductor, XLPE insulation; helical concentric layer of blue polymeric covered copper wires (neutral) and bare copper wires (earth).

PVC sheathed cables to comply with BS 7870-3.21

LSOH sheath cables to comply with BS 7870-3.22

11.1.1. Conductor Types

Depending on specific cable detailed in Appendix A, the conductor shall be either;

- 4mm² stranded plain annealed copper – Class 2 in accordance with BS EN 60228
- 25mm² stranded plain annealed copper – Class 2 in accordance with BS EN 60228
- 35mm² circular solid aluminium phase conductor – Class 1 in accordance with BS EN 60228

11.1.2. Insulation

- XLPE Type DIX 3 conforming to the requirements given in BS 7870-1 annex B.

11.1.3. Concentric Conductors

- Concentric neutral and earth conductor: blue polymeric covered solid copper neutral wires and solid plain annealed copper earth wires.
- To distinguish the neutral conductor from the earth continuity conductor, each wire shall be covered by extrusion with a blue polymeric compound, conforming to the requirements of BS 7870-3.21 section 17.3, to a diameter approximately the same as that of the individual wires in the earth continuity conductor. The covered neutral wires shall be easily separated for stripping whilst jointing.
- The concentric layer shall be applied with a right-hand direction of lay. The wires forming the neutral conductor and earth continuity conductor shall be applied in individual groups over the insulation with non-hygroscopic string separators.
- Either one or two non-hygroscopic string separator(s) shall be located on either side of the group of bare copper wires to separate it from the group of covered wires.

11.1.4. Oversheath

The oversheath shall be applied so that there is no internal protrusion of the oversheath material between or around the Neutral or Earth wires.

Depending on specific cable detailed in Appendix A, the oversheath material shall be either;

- Black PVC Type DMV 23 conforming to the requirements given in BS 7870-1 annex B.
- Orange LSOH Compound Type DMZ 4 conforming to the requirements given in BS 7870-1 annex B.

11.2. CNE Single Phase Polymeric Insulated Cables

Single core plus concentric CNE (combined neutral and earth) 600/1000-volt cable, XLPE insulation; helical CNE concentric copper wires.

PVC sheathed cables to comply with BS 7870-3.11

LSOH sheath cables to comply with BS 7870-3.12

11.2.1. Conductor Types

Depending on specific cable detailed in Appendix A , the conductor shall be either ;

- 4mm² stranded plain annealed copper – Class 2 in accordance with BS EN 60228
- 25mm² stranded plain annealed copper – Class 2 in accordance with BS EN 60228
- 35mm² circular solid aluminium phase conductor – Class 1 in accordance with BS EN 60228

11.2.2. Insulation

- XLPE Type DIX 3 conforming to the requirements given in BS 7870-1 annex B.

11.2.3. Concentric Conductor

- Concentric combined neutral and earth conductor: solid plain annealed copper wires

11.2.4. Oversheath

The oversheath shall be applied so that there is no internal protrusion of the oversheath material between or around the Neutral /Earth wires.

Depending on specific cable detailed in Appendix A, the oversheath material shall be either;

- Black PVC Type DMV 23 conforming to the requirements given in BS 7870-1 annex B.
- Orange LSOH Compound Type DMZ 4 conforming to the requirements given in BS 7870-1 annex B.

11.3. SCNE Three Phase Split Concentric Polymeric Insulated Cables

Three-core plus split neutral and earth 600/1000 volt cable,XLPE insulation; helical concentric layer of blue polymeric covered copper wires (neutral) and bare copper wires (earth).

PVC sheathed cables to comply with BS 7870-3.21

LSOH sheath cables to comply with BS 7870-3.22

11.3.1. Conductor Types

- 25mm² circular solid aluminium phase conductor – Class 1 in accordance with BS EN 60228

11.3.2. Insulation

- XLPE Type DIX 3 conforming to the requirements given in BS 7870-1 annex B.
- Phase colours: Brown, Black, Grey
- The cores laid up with a right-hand direction of lay in the sequence Brown, Black, Grey.

11.3.3. Concentric Conductors

- Concentric neutral and earth conductor: blue polymeric covered solid copper neutral wires and solid plain annealed copper earth wires.
- To distinguish the neutral conductor from the earth continuity conductor, each wire shall be covered by extrusion with a blue polymeric compound, conforming to the requirements of BS 7870-3.21 section 17.3, to a diameter approximately the same as that of the individual wires in the earth continuity conductor. The covered neutral wires shall be easily separated for stripping whilst jointing.
- The concentric layer shall be applied with a right-hand direction of lay. The wires forming the neutral conductor and earth continuity conductor shall be applied in individual groups over the insulation with non-hygroscopic string separators.
- Either one or two non-hygroscopic string separator(s) shall be located on either side of the group of bare copper wires to separate it from the group of covered wires.

11.3.4. Oversheath

The oversheath shall be applied so that there is no internal protrusion of the oversheath material between or around the Neutral or Earth wires.

Depending on specific cable detailed in Appendix A, the oversheath material shall be either;

- Black PVC Type DMV 23 conforming to the requirements given in BS 7870-1 annex B.
- Orange LSOH Compound Type DMZ 4 conforming to the requirements given in BS 7870-1 annex B.

11.4. CNE Three Phase Polymeric Insulated Cables

Three-core plus concentric CNE (combined neutral and earth) 600/1000-volt cable, XLPE insulation; helical CNE concentric copper wires.

PVC sheathed cables to comply with BS 7870-3.11

LSOH sheath cables to comply with BS 7870-3.12

11.4.1. Conductor Types

- 25mm² circular solid aluminium phase conductor – Class 1 in accordance with BS EN 60228

11.4.2. Insulation

- XLPE Type DIX 3 conforming to the requirements given in BS 7870-1 annex B.
- Phase colours: brown, black, grey

11.4.3. Concentric Conductor

- Concentric combined neutral and earth conductor: solid plain annealed copper wires

11.4.4. Oversheath

The oversheath shall be applied so that there is no internal protrusion of the oversheath material between or around the Neutral /Earth wires.

Depending on specific cable detailed in Appendix A, the oversheath material shall be either;

- Black PVC Type DMV 23 conforming to the requirements given in BS 7870-1 annex B.
- Orange LSOH Compound Type DMZ 4 conforming to the requirements given in BS 7870-1 annex B.

11.5. Three Core Steel Wire Armoured Polymeric Insulated Cables

Three-core 600/1000-volt cable; XLPE insulation; Galvanised Steel Wire Armouring, PVC oversheath conforming to BS 5467.

11.5.1. Conductor Types

- The conductors shall be 25mm² stranded plain annealed copper – Class 2 in accordance with BS EN 60228

11.5.2. Insulation

- XLPE Type GP8 according to BS 7655-1.3
- Phase colours: Brown, Blue , Green/Yellow

11.5.3. Bedding Layer

- Compatible PVC compound

11.5.4. Armouring

- Galvanised round steel wire armours

11.5.5. Oversheath

- Black PVC Type 9 according to BS 7655-4.2.

11.6. Alternative materials

- A Linear Low Density Polyethylene oversheath (LLDPE) will be considered as an alternative oversheath material for PVC sheathed cables.

12. Documents Referenced

Health and Safety at Work Act 1974	
Control of Substances Hazardous to Health Regulations (COSHH)	
Manual Handling Operations Regulations 1992	
BS EN ISO 9000	Quality management systems
BS EN ISO 14001	Environmental management systems. Requirements with guidance for use
BS EN 60228	Conductors of insulated cables
BS 5467	Electric cables. Thermosetting insulated, armoured cables for voltages of 600/1000 V and 1900/3300 V
BS 7655	Insulation and sheathing materials for cables
BS 7870-1	LV and MV polymeric insulated cables for use by distribution and generation Utilities Part 1: General
BS 7870 Part 3-11	LV and MV Polymeric insulated cables for use by distribution and generation utilities – XLPE insulated combined neutral and earth copper wire concentric cables with copper or aluminium conductors
BS 7870 Part 3.12	LV and MV Polymeric insulated cables for use by distribution and generation utilities – XLPE insulated combined neutral and earth copper wire concentric cables with copper or aluminium conductors having low emission of smoke and corrosive gases when effected by fire

BS 7870 Part 3-21	LV and MV Polymeric insulated cables for use by distribution and generation utilities – XLPE insulated split concentric cables with copper or aluminium conductors
BS 7870 Part 3-22	XLPE insulated split concentric cables with copper or aluminium conductors, having low emission of smoke and corrosive gases when affected by fire
CP311	Equipment Approval Policy and Process
ES400C7	Returnable Cable Drums for Mains Cables Conforming to ECP 410 Chapter 1

Appendix A – Schedule of Cables

ITEM NO.	ORDERING SPECIFICATION	SIZE (MM ²)	CC NO.
a	SCNE single phase split concentric: polymeric insulated, PVC sheath	4Cu 25Cu 35Al	000213 000345 000299
B	SCNE single phase split concentric: polymeric insulated, LSOH sheath	4Cu 25Cu 35Al	000364 000367 000368
C	CNE Single phase: polymeric insulated, PVC Sheath	4Cu 25Cu 35Al	000108 000353 000175
D	CNE Single phase: polymeric insulated, LSOH Sheath	25Cu 35Al	000367 000365
E	SCNE three phase split concentric: polymeric insulated, PVC sheath	25Al	0021127
F	SCNE three phase split concentric: polymeric insulated, LSOH sheath	25Al	000371
G	CNE three phase concentric: polymeric insulated, PVC sheath	25Al	002119
H	CNE three phase concentric: polymeric insulated, LSOH sheath	25Al	TBA
I	Three core , polymeric insulated , steel wire armoured , PVC sheath	25Cu	TBA

Appendix B – Logistical Requirements

B1 Cable Drums and Labelling

Cable drums shall meet the requirements of ES400C7.

All cable drums shall be marked in accordance with the relevant cable specification or standard. The drum label shall also contain:

- SP Electricity North West commodity code
- Name of manufacturer
- Supplied length
- Rated voltage
- Number of cores
- Size of conductor
- Type of conductor material ("Cu" or "Al")
- Abbreviated description of cable construction
- Gross and nett weights
- Direction of rolling drum
- The metre marking start and end values
- The unique reference number

B2 General Logistical Requirements

In order to avoid snagging, cables shall be neatly wound in layers on the drum with the inner “start” end either protruding through, protected and securely fixed to the outer flange of the drum, or securely fixed to the inner surface of the drum. The end of the wound cable shall be securely fixed into position on the drum.

Cable drums may be stored for long periods outdoors. All drum labels shall remain legible and durable under these conditions.

All service cable drums shall be non-returnable. The Tenderers shall state at the time of Tender their proposed cable drum sizes and weights for each cable type offered.

The ends of all cables shall be effectively sealed against the ingress of moisture by a method appropriate to the cable type. Tenderers shall detail at the time of Tender their proposed sealing arrangement for each cable type offered.

Where applicable the cable end projecting from the drum shall be protected from damage during transit, storage and handling on site.

The cable on the drum shall not be susceptible to damage during transit, storage and handling on site.
Tenderers shall state at the time of Tender their proposed method of protection for each cable.

Appendix C – Conformance Declaration

Section-By-Section Conformance With Specification

The Tenderer shall declare conformance or otherwise for each product/service or range of products/services, section-by-section, using the following Conformance Declaration Codes.

Conformance Declaration Codes:

N/A =	Clause is not applicable/appropriate to the product/service.
C1 =	The product/service conforms fully with the requirements of this clause.
C2 =	The product/service conforms partially with the requirements of this clause.
C3 =	The product/service does not conform to the requirements of this clause.
C4 =	The product/service does not currently conform to the requirements of this clause, but the manufacturer proposes to modify and test the product in order to conform.

Manufacturer:

Product/Service Description:

Product/Service Reference:

Name:

Company:

Signature:

Section-By-Section Conformance

Section	Section Topic	Conformance Declaration Code	Remarks * (must be completed if code is not C1)
3.1	Product not to be Changed		
3.2	SP Electricity North West Technical Approval		
3.3	Quality Assurance		
3.4	Formulation		
3.5	Identification Markings		
3.6	Minimum Life Expectancy		
3.7	Product Conformity		
3.8	Confirmation of Conformance		
4	Conditions of Installation		
5	Conditions of Operation for Power Cables		
6	Cable Longevity		
7	Manufacturing		
8	Technical Support		
9.1	Requirements for Type Tests at the Supplier's Premises		
9.2	Type Test Approval		
9.3	Requirement for Routine Tests at the Supplier's Premises		

9.4	Routine and Sample Testing		
9.5	Samples		
10.1	Scope		
10.2	Technical Requirements		
10.3.1	Impedance Data		
10.3.2	Current Rating Data		
10.4	Installation Parameters		
10.5	Shrinkage		
10.6	Cable Identification		
10.6.1	Oversheath Marking		
10.7	Logistical Requirements		
11.1	Constructional Requirements - SCNE Single Phase Concentric Cables		
11.2	Constructional Requirements - CNE Single Phase Concentric Cables		
11.3	Constructional Requirements - SCNE Three Phase Spilt Concentric Cables		
11.4	Constructional Requirements - CNE Three Phase Concentric Cables		

11.5	Constructional Requirements – Steel Wire Armoured Cables		
* Applicable specifications shall be stated in the Remarks column where alternatives are quoted within a section. The Remarks column shall also be used to indicate cases where the products or services exceed the quoted specifications.			