NOTES

General
This drawing is to be read in conjunction with document SUB-03-017 General Specification for the Civil Engineering and Building Design and Construction of Secondary Substations. It is the constructor's responsibility to confirm, before construction, that the details on this drawing are correct as per SUB-03-017.

This is a generic guidance drawing that is deemed suitable for construction. However the constructor should consider all site specific risk that will affect the design and operation of the substation. Proposed substation details are to be submitted for acceptance before installation.

Details shown on this drawing are typical for this type of substation building but may not be suitable for substations housing alternative equipment. The constructor shall satisfy themselves that the appropriate details shown are correct depending on the type of substation being constructed.

Concrete
General
The concrete shall be in accordance with the specification and attain the relevant cub crushing strength at 28 days.

Foundations (Concrete 40N/mm² 28-Day Cube Strength)
Foundations are to be set on undisturbed inorganic strata that provide the required minimum design safe ground bearing capacity. Minimum bearing capacity to be 75kN/m².

Floor (Concrete 40N/mm² 28-Day Cube Strength)
A flat, level and smooth floor surface is essential for installation of plant. Tolerances to finished level expressed as a maximum permissible deviation beneath a straight edge with feet placed anywhere on the floor shall not exceed 1mm in 1m or 3mm in 3m. Floors to be cured, prepared & painted with 2 No. Coats of non-slip floor paint on completion.

Brickwork
General
All brickwork below D.P.C. to be H.D. category 1 min. 75N/mm² mean compressive strength and max 7% M.A. and durability designation F2 S2 (Ex Engineering Brickwork Class B) in English bond except for exposed faces.
External facing brickwork to be H.D. category 1 min. 30N/mm² mean compressive strength and max 12% M.A. and durability designation F1 S1 or better.
Internal facing brickwork to fair faced smooth textured solid concrete bricks, sized to match external facing bricks and with a mean compressive strength of not less than 20N/mm².
Class iii mortar.

Walls
Walls shall be 215mm English garden wall bond or Collar jointed stretcher bond.
Leaves of collar jointed double stretcher walls to be tied together by means of type 1 or type 2 stainless steel ties laid in every fourth course at 375mm centres and set back 38mm from outer face, ties are to be staggered.

Doors
Details of proposed doors shall be submitted to SPEN for comment, before work commences.
Proprietary GRP faced aluminium or steel security doors are the preferred option, unless stated otherwise.
An alternative option for hardwood doors (see Drg SP4000543 for details) or GRP doors is also available.

Cable Trench & Slots
On completion of cabling, cable trench and slots to be filled with dry sand topped with a minimum 150mm depth of rounded gravel chippings (top to be level with FFL).

Roof
Standard Concrete Roofs (Concrete 40N/mm² 28-Day Cube Strength)
Wherever practicable, roofs should be cast in situ reinforced concrete construction with a soffit finish. Slip joints shall be incorporated at wall bearings, polysulphide sealed externally. Internal / External faces of concrete to be fair faced. All external faces to be cured, prepared, primed and finished with a two coat high performance (Aliphatic) polyurethane waterproofing system (flat roof grade) with glass fibre mat reinforcement to initial coat, e.g.

1No. Coat of LPL bonding primer then
2No. Coats of LPL Decothane.

Obtainable from Liquid Plastics Tel. 01772 259 781 or Equal System

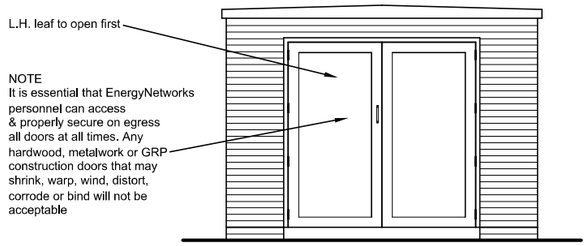
All finishes are to be in accordance with the manufacturers recommendations.

Where permanent structural metal soffit shutters are used as part of a composite roof system these shall be corrosion resistant and the Constructor's proposals for screening or tagging for earthing purposes shall be expressly agreed with SPEN prior to construction.

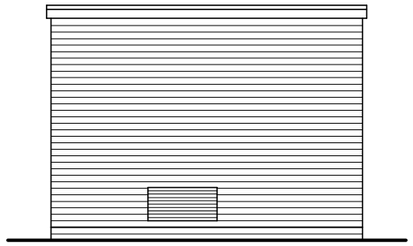
Ventilation
Ventilation shown is typical for a single 500kVA transformer substation.
The typical ventilation indicated may not be adequate in certain supply conditions which might require additional or alternative ventilation arrangements.

Related Typical Deemed to Satisfy Drawings

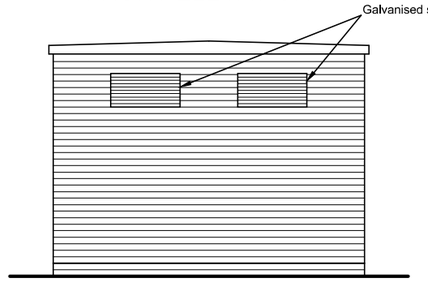
Hardwood Doors	SP4000543
Meter Cupboards	SP4078901
Vent for Brickbuilt substation	SP4000542



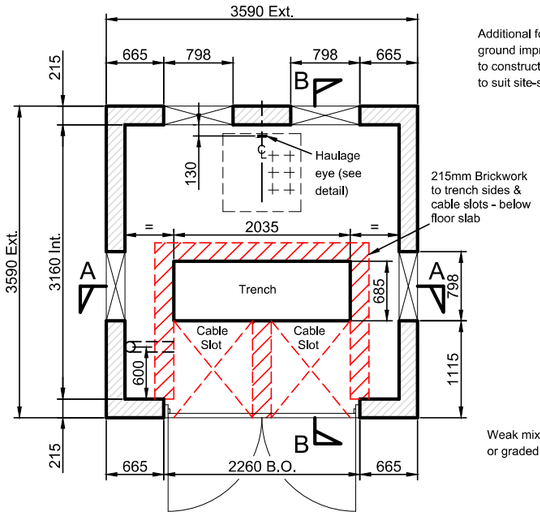
FRONT ELEVATION



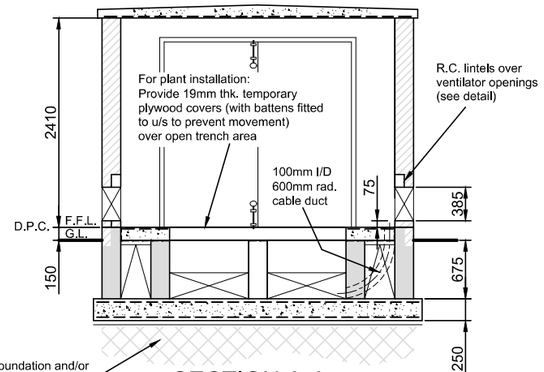
SIDE ELEVATION



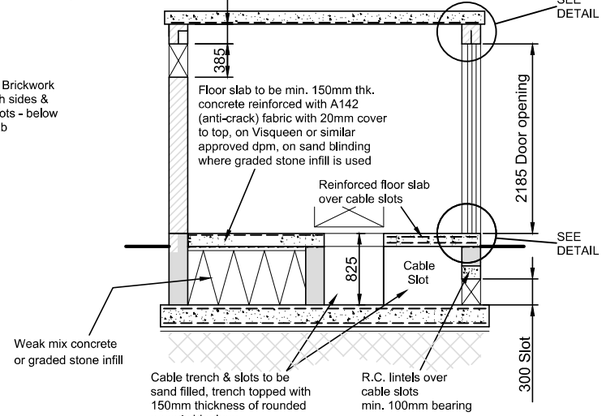
REAR ELEVATION



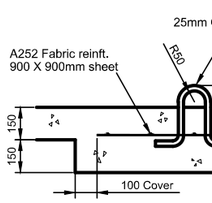
PLAN



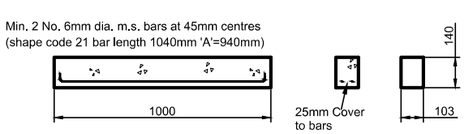
SECTION A-A



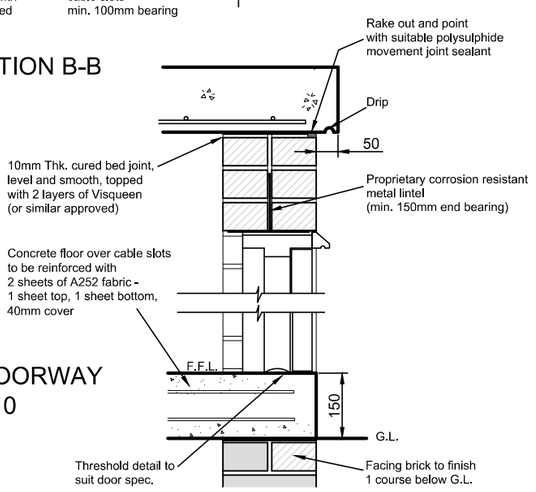
SECTION B-B



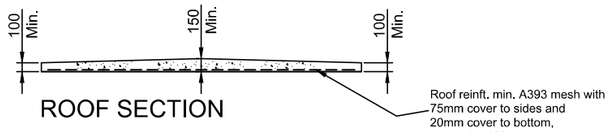
HAULGE EYE DETAIL Scale 1:20



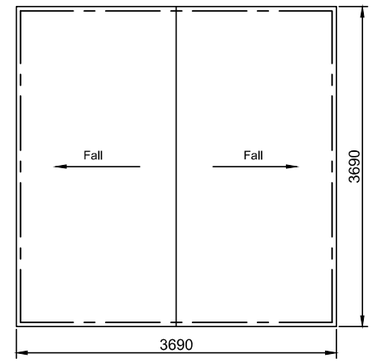
LINTOL TO VENT OPENING SCALE 1:20



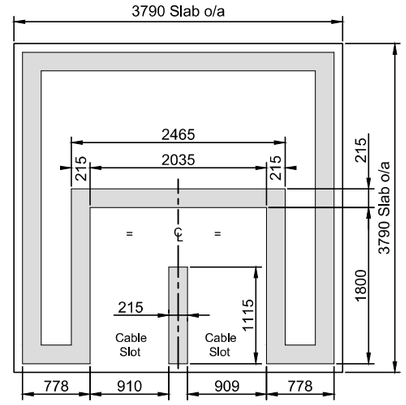
DETAIL AT DOORWAY
Scale 1:10



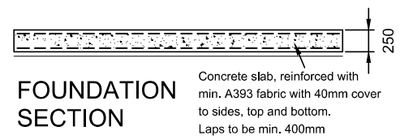
ROOF SECTION



ROOF PLAN



PLAN OF BRICKWORK BELOW FLOOR SLAB



FOUNDATION SECTION

Rev.	Date	
6.0	27/11/17	GENERAL UPDATES TO REFLECT CHANGES TO CIVIL POLICY DOCUMENTS
Drawn	C.B.	
Checked	GR	
Approved	GR	

SP ENERGY NETWORKS
SP PowerSystems Ltd
System Design, Drawing Office
3 Prenton Way , Prenton , CH43 3ET
Telephone 0151 6092491

Title
TYPICAL TRADITIONAL BUILDING DETAILS FOR 11kV BRICKBUILT SUBSTATION (CLOSE COUPLED GEAR)

Location					
TYPICAL					
Drawn	Date	Checked	Date	Approved	Date
M.T.	JAN.07	C.W.	JAN.07	A.J.R.	JAN.07

Status	Drg. No.	Rev.
ISSUED	SP3020357	6.0

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Scale	Size
1:50	A2