

1. Where estimate
2. Who does work.
- 3.

RLBC/P.97

11/13

Rutherford Laboratory Building Committee

Additional M.V. Switchboard in Sub-Station No. 12 including
additional Transformer Capacity and outgoing feeders

1. Introduction

The future requirements for the site M.V. electrical distribution was outlined a year ago and RLBC/P.77 gave details of a comprehensive development in 8 phases which could be invoked as the loads build up. The schemes numbered 1 to 5 were authorised following RLBC/P.77 and this included a new M.V. switchboard in Sub-station No. 12 complete with 2 transformers of 1.25 M.V.A. each to meet the load requirement of July 1963. This was 50 per cent of the final development envisaged for this switchboard under Scheme 6 of the above paper and this second 50 per cent is now required in order to meet the full load requirement of the 60 power units now on order for use in 1964. This paper also covers the outgoing cabling and fusegear required for the distribution network in order to feed these loads.

2. Proposal

The complete requirement is shown in Fig. 1.

2.1 Switchboard The switchboard includes a part authorised under Scheme 3 (shown dotted in Fig. 1) but the board will be more costly than that envisaged in Schemes 3 and 6 since a board of all circuit breakers is now required and the original idea of using a mixed board of oil circuit breakers and switchfuse gear is not practical for the detailed requirements now known and in fact could not be accommodated in the space available.

2.2 Transformers Two additional transformers are required in order to duplicate the units already authorised for this board. Scheme 6 included the civil works for two transformers but only included one transformer and cabling in its cost breakdown. The costs included under section 3 of this paper are based on that cost breakdown.

2.3 Outgoing feeders The following cables and distribution fuseboards are required from the outgoing circuit breakers of the switchboard.

2.3.1 Seven sets of cables to carry 1000 amps and terminated in a 6 way fuseboard (2 ways of 300 amp and 4 ways of 150 amp).

2.3.2 Three sets of cables to carry 750 amps and terminated in a 6 way 150 amp fuseboard.

2.3.3 One set of cables to carry 500 amps and connected to a switch fuseboard inside the magnet ring.

2.3.4 One set of cables to be transferred from the present board to the new board to feed the experimental area switchroom.

3. Costs

Section	(Complete 19 unit switchboard (erected)	£ 18,500
2.1	(Delete cost of board authorised (Scheme 3) (Allowances, builders works, etc.)	- 5,500 2,000
Section	(Two transformers and cabling (in Scheme 6)	7,000
2.2	(Allowances, builders work, etc.)	2,000
Section	(Outgoing feeder cabling and fusegear	8,800
2.3	(Allowances, builders work, etc.)	1,200
	Total	<u>£ 34,000</u>

4. Programme

The switchboard is required by July 1963 and since the delivery is 24 weeks it will be necessary to arrange that the fuseboards and cables are fixed and laid before the switchboard arrives.

The two additional transformers and their cables are not required for load before July 1964 but it would be prudent to advance the completion date by six months to allow for a possible earlier build up of beams since experimental equipment will be available to do this.

It is not possible to delay part of the switchboard to line up with the additional transformers since the switchboard is required for connection to the 60 power units now on order as the saving is in the diversity of load rather than the number of power units required.

5. Recommendation

It is recommended that the planned build up of Sub-station 12 M.V. capacity should now be authorised at a total cost of £34,000 (excluding fees).

H. Hadley

2nd November 1962.

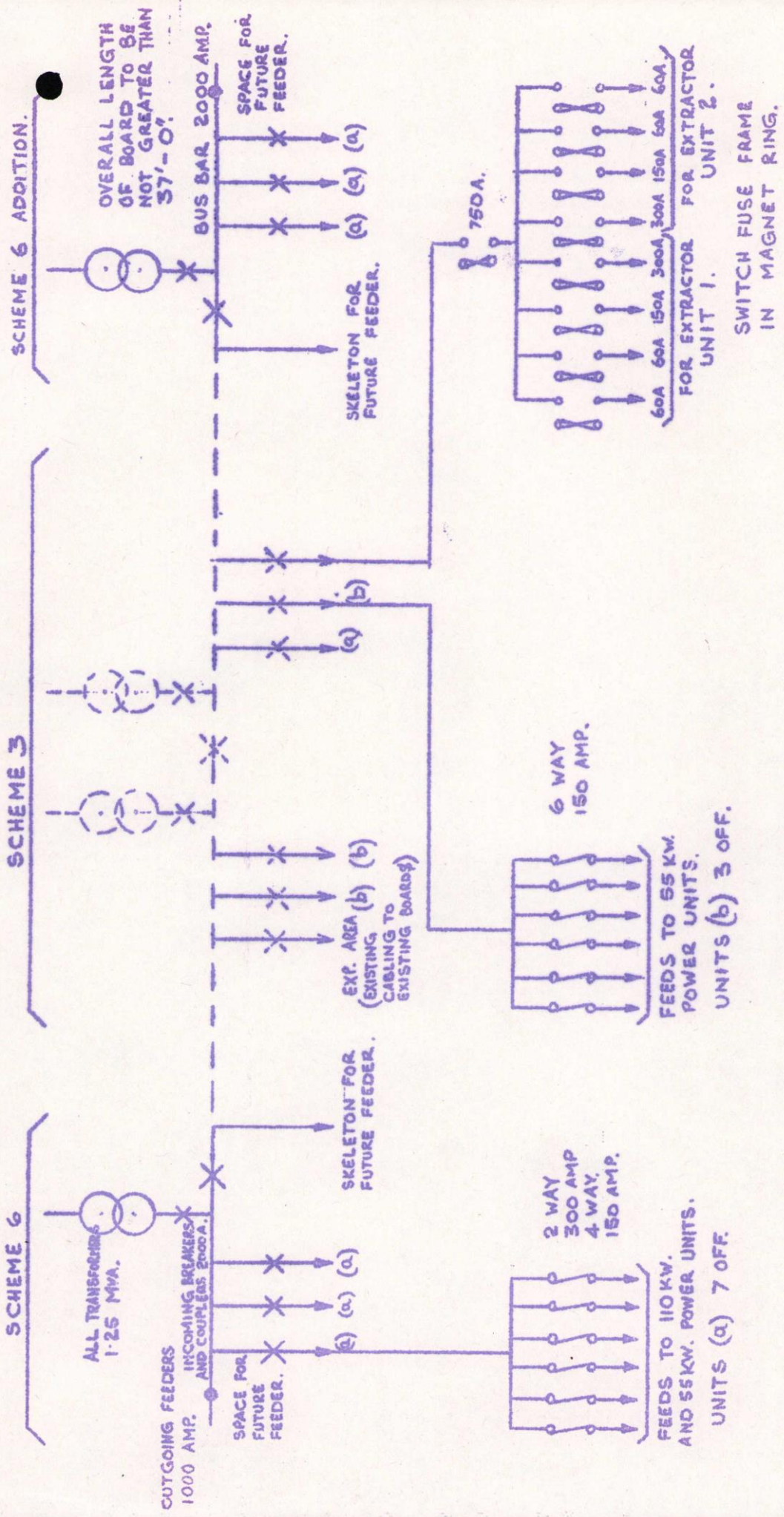


FIG. 1

ARRANGEMENT OF SUB. 12. M.V. BOARD FOR EXTRACTED BEAM POWER SUPPLY.