

MOORSIDE EDGE

MISCELLANEOUS TECHNICAL NOTES

TRANSMITTERS Nos. 1, 2 & 3

2. **WATER TREATMENT ROOM.** Here the domestic water supply for the whole of the building is treated and filtered, and then fed to two large storage tanks on the roof.
5. **ENGINE ROOM.** Contains four Diesel Engines, each developing 345 H.P. at 335 r.p.m. direct coupled to D.C. Generators rated at 1,000 amps 230 volts, used to maintain a supply in the event of prolonged mains failure. The installation is mounted on a concrete raft weighing approximately 600 tons, supported on cork insulating material $2\frac{1}{2}$ " thick. The Engines are started by compressed air at a pressure of 300 lbs. per square inch, from air bottles and compressors installed together with the Engine Cooling Water Pumps in this room.
6. **BATTERY ROOM.** Contains 230 volt Battery of 115 cells capacity 1,000 ampere hours at the 10-hour rate, used for supplying the station's domestic load and essential technical equipment during maintenance of the Low Tension Mercury Arc Rectifiers.
10. **TRANSMITTERS Nos. 1 & 2—MACHINE ROOM.** Contains the 600 kW Mercury Arc Rectifiers which supply power at 230 volts D.C. to the driving Motors of the Main Filament, Main H.T., Auxiliary H.T. and Grid Bias Motor Generator Sets, which are also installed in this room, and in addition, distributed from the Engine Room Switchboard, these Rectifiers supply the necessary current for all the lighting and electrical auxiliaries in the old building. Also installed in this room are the three Direct Current Motor-Driven H.T. Generators, each with a rated output of 18 amperes, 12,000 volts at 750 r.p.m. to provide the high tension D.C. supply for the transmitters. The weight of each armature is two tons and the enclosure gates to these machines are electrically interlocked to make it impossible to enter the enclosure without automatically opening the motor circuit breaker.
11. **TRANSMITTER HALL.** Two 50 kW Regional Type Transmitters are installed, one on either side of the Hall, together with their appropriate control desks. One of the Transmitters radiates the Light Programme. The main switchboard which controls the output of the Generators in the adjoining Machine Room (10), and contains the switchgear and protective devices for the Transmitters, runs almost the full width across the top of the Hall. Behind this switchboard are housed the Transmitter Smoothing Equipments. The Crypt beneath the Transmitter Hall floor, houses the Valve Cooling Water tanks and pumps and, run on expanded metal trays, the various supply cables to the individual transmitter units.
- 15 & 17. **CONTROL ROOMS.** In each are installed the necessary Programme Amplifiers, Receivers and Checking Apparatus for monitoring the programme before and after it has been radiated by the Transmitter.
30. **STUDIO & QUALITY CHECKING ROOM.** Normally used for testing purposes, but could be used for programme purposes in an emergency.
33. **TRANSMITTER No. 3 HALL.** This Hall contains two 150 kW High Power Medium Wave Transmitters, each of which is used on alternate days for the North Regional Programme.
34. **CONTROL KIOSK. Transmitter No. 3.** This contains all the control apparatus for starting the machines and the Transmitters from one central point. A mimic diagram indicates the operational state of the Main H.T. and L.T. Circuit breakers and switchgear. A long Control Desk within the kiosk, facing the transmitters, contains all the essential transmitter meters, together with a control position for the engineer on duty. Standing at the back of the

room are the Programme Amplifiers and Programme Checking Apparatus similar to that installed in Control Rooms Nos. 1 & 2.

35. **L.T.A.C. SWITCHROOM.** This contains all the Low Tension Switchgear controlling the 415 volt, 3-phase supply for the machines, etc., associated with Transmitter No. 3.
41. **MACHINE & RECTIFIER ROOM—Transmitter No. 3.** This contains all the essential machines and starters associated with Transmitter No. 3, and includes a 240 volt D.C. Motor Generator Set (giving a supply controlling the operation of the Transmitter Auxiliary Supplies, Starters, Transmitter Interlocks, etc.), a Grid Bias Motor Generator, an Auxiliary H.T. Motor Generator (3,000 volts) and a Main Filament Motor Generator. These equipments are duplicated, there being one complete set for each transmitter. The Main E.H.T. Smoothing Equipment and Valve Cooling hose coils are housed in the Enclosure No. 45. The Modulation Transformer, Speech Reactors etc., are housed in the Enclosures Nos. 46 and 47. On the far side of the Machine Room are the two E.H.T. Mercury Arc Grid Controlled Rectifiers giving a supply of 15,000 volts D.C. to the anodes of the large transmitter valves.
46. **E.H.T. SWITCHROOM.** This contains all the oil circuit breakers associated with the E.H.T. incoming supplies to the main E.H.T. Rectifiers and the Auxiliary Transformers supplying power at 415 volts to the L.T.A.C. Switchroom (35).
49. **VALVE COOLING ROOM.** This contains the distilled water storage tanks, cooling water circulating pumps, Electroflo metering equipment, and two air blowers which supply the cooling air to the anode and filament glass to metal seals of the larger type transmitter valves.

GENERAL :

MASTS. The site stands 1,100' above sea level and contains three 500' lattice steel masts, one supporting the 'Light' programme aerial, the other two supporting the 'Home' programme T aerial. These aeriels are connected to the appropriate transmitters by means of 5-wire feeders, the necessary termination networks being housed, in each case, in a hut at the base of the aeriels. The aerial earth system consists of a network of bare copper wires buried below the surface of the ground, spreading radially from each termination hut and extending equal distances from the huts in all directions.

WATER SUPPLY. This is obtained from the Huddersfield Corporation and is fed into a small reservoir of 200,000 gallon capacity. This reservoir supplies via the water treatment apparatus, all the domestic needs of the station. This water is also used for extracting the heat from the distilled water in the Valve Cooling System, two heat exchangers being submerged in cooling sumps adjoining the main reservoir. The treated water from the reservoir is also used to make up evaporative and other losses from the cooling system associated with the main Diesel Engines.

VALVE COOLING. Distilled water only is used for this purpose, where it comes into contact with the anodes of the transmitting valves, a small distilling plant being installed to make up losses due to evaporation. Cooling of the distilled water is effected as described above.

POWER SUPPLY. This is obtained from the British Electricity Authority, being fed at 10,500 volts into a sub-station situated on the site.

FIRE FIGHTING EQUIPMENT. All areas where large quantities of oil-filled equipment are housed are protected by CO₂ extinguishers which are automatically discharged in the event of a fire.

OIL STORAGE. The oil required for the Diesels and central Heating System is stored in two over-ground tanks each having an oil storage capacity of 75 tons, and two under-ground tanks each having a storage capacity of 50 tons.