

insulated where they pass through on the poles and over the whole length of the span on each side of the pole crossed through. Where the insulated wires cross through on the pole they shall be encased in some approved hard protecting substance for the entire length of the arms on such pole. If metal pipe is used to encase the wires it shall be effectively earthed.

Where the electric lines intersect telegraph lines the latter shall be suitably insulated if deemed necessary, and when the crossing is above and near a pole the spans on each side of the pole shall be insulated if deemed necessary. This insulation shall be effected at the expense of the Board in cases where the telegraph lines existed previously to the erection of the electric lines.

Where high-pressure electric lines intersect telegraph lines the former shall be insulated with not less than 600-megohms grade of vulcanized rubber, and the low-pressure wires with weatherproofed insulation as prescribed in clause 25.

Where deemed necessary efficient guard-wires, effectively earthed, or other approved protective devices, shall be erected in a manner to meet with the approval of the Minister of Telegraphs at all crossings or places where electric lines intersect telegraph lines, or at any place where such protection may be considered necessary.

Such guard-wires shall be carried on substantial supports at a height of 2 ft. above the electric lines if the telegraph wires pass over the electric lines, or 2 ft. above the telegraph wires if they pass under the electric lines. In addition to the above precautions, telegraph wires may be insulated if deemed necessary by the Minister of Telegraphs.

The cost of all necessary guard-wires and special provisions required to comply with this clause shall be borne by the Board when the telegraph lines are erected before the electric lines. In other cases the Board, on receipt of notice from the local officer of the Telegraph Department that it is proposed to run a telegraph line along the route, shall forthwith make the necessary changes required to comply with this clause at any point at which electric lines already cross such routes.

Earth-wires.

30. Earth-wires, where led down poles, shall be protected by a casing for a distance of 8 ft. from the ground. A test shall be made every three months, and oftener if required, of all earths, to ensure that the earth-wire is intact and that the earth is effective.

Railway Crossings.

31. No work of any nature shall be erected or constructed in pursuance of this license upon, over, or under any part of the Government railways until the Board has obtained the consent of the Minister of Railways thereto, as required by section 4 of the Government Railways Amendment Act, 1910 (No. 2).

Service Connections.

32. Service connections from aerial lines shall be taken direct from insulators, and shall not be tapped off between insulators. They shall be led as directly as possible to insulators firmly attached to some portion of the consumer's premises which is not accessible to any person without the use of a ladder or other special appliance.

Every portion of any aerial line which is outside a building and is within 7 ft. from any part of the building, shall be rubber-insulated.

Facilities for Service Connections.

33. Where electric lines are on one side of the road and electric-telegraph lines on the other, and service is required to be given from either to the other side of the road, the Board and the Minister of Telegraphs shall give to each other reasonable facilities as far as possible to effect supply.

Arc Lamps.

34. All arc lamps shall be so guarded as to prevent pieces of ignited carbon or broken glass falling from them, and shall not be used in situations where there is any danger of the presence of explosive dust or gas.

Arc lamps used in any street for public lighting shall be so fixed as not to be in any part at a less height than 10 ft. from the ground.

Arc lamps used in any street for private lighting shall be so fixed as not to be in any part at a less height than 8 ft. from the ground, and shall be so screened as to prevent risk of contact with persons.

Arc lamps must be insulated from earth and be fixed so that they cannot swing into contact with any substance, metallic or otherwise, that might connect them to earth. They may be run in series, and at any available voltage up to 400 volts. Resistances for the regulation of arc lamps, if

exterior to the lamp, shall be mounted on incombustible bases, shall be so placed that they cannot be conducted or radiation set fire to any contiguous materials, and shall be of ample size to safely carry the maximum current that will normally flow through them. Each arc-lamp circuit shall be provided with a fuse on each pole. Interior arc lamps shall also be provided with a switch on each circuit.

Maintenance.

35. Every aerial line, including its supports, its conductors, and their insulating covering, and all structural parts and electric appliances and devices belonging to or connected with the line, shall be duly and efficiently maintained as regards both electrical and mechanical conditions.

High-pressure Transformers.

36. Where high-pressure transformers are attached to poles they shall be placed so as to be inaccessible except by the use of a ladder or other special appliance. Where high-pressure transformers are placed in sub-stations all high-tension conductors shall be thoroughly insulated or protected from accidental contact, and the substation shall be entirely inaccessible to unauthorized persons. Where high-pressure transformers are placed on consumers' premises the whole of the apparatus shall be enclosed or rendered inaccessible except to authorized persons. The cases of all transformers shall be earthed by means of a copper conductor at least 0.022 square inch in section.

Where cables are led to and from transformer enclosures they shall be protected on the poles by being run in iron pipes, which shall be effectively earthed.

Lightning-arresters.

37. Where any portion of any electric line or support for an electric line is exposed in such a position as to be liable to injury from lightning it shall be efficiently protected against such liability.

Underground Conductors.

38. Underground conductors shall be thoroughly insulated, and shall be protected from mechanical damage by steel armouring, or by wooden boxing, or earthenware, stoneware, concrete, iron, or fibre conduits or pipes. They shall be laid wherever possible under the footpaths, and with a cover of at least 12 in. from the surface of the pavement. Where laid under any other part of the road such cover shall be increased to 2 ft.

All conduits, pipes, casings, and street boxes used as receptacles for electric lines shall be constructed of durable material, and they shall be of ample strength to prevent damage from heavy traffic, and reasonable means shall be taken to prevent the accumulation of gas in such receptacles.

Where any underground line crosses or is in proximity to any metallic substance special precaution shall be taken against the possibility of any electrical charging of the metallic substance from the line or from any metallic conduit, pipe, or casing enclosing the line.

Earthing Conduits.

39. All metallic conduits, pipes, or casings containing an electric line shall be efficiently earthed, and shall be so jointed and connected across all street boxes and other openings as to make good electrical contact throughout their whole length.

Street Boxes.

40. The covers of street cable-boxes shall be so secured that they cannot be opened except by means of a special appliance. Street boxes shall be either filled solid with cable compound or oil, or if not so filled shall be inspected from time to time for the presence of gas, and suitable action shall be taken to check its influx and accumulation.

Insulation of Electric Wires.

41. Every main, either overhead or underground, shall be tested for insulation after having been placed in position and before it is used for the purposes of supply, the testing pressure being at least 500 volts, and the Board shall duly record the results of the tests of each main or section of a main and forthwith forward a report thereon to the Public Works Engineer at present stationed at Wanganui.

The insulation of every complete circuit used for the supply of energy, including all machinery, apparatus, and devices forming part of or in connection with such circuit, shall be so maintained that the leakage current shall not under any conditions exceed one-thousandth part of the maximum supply current. Every leakage shall be remedied without delay. Every such circuit shall be tested for insulation at least once in every month, and the Board shall duly record