

shall be placed on the opposite side of the street to that on which any telegraph lines exist; and where the erection of the electric wires necessitates the alteration of any existing telegraph wires, and such alteration is approved by the Minister of Telegraphs, the cost of the alteration shall be borne by the Council.

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

In running the lines authorized by this license through streets where no telegraph line exists the Council shall keep to the one side of the street, and in running service wires to the opposite side of the street the Council shall arrange so as to interfere as little as possible with the route on that side of any future telegraph line.

#### 18. TELEGRAPH AND TELEPHONE.

Electric lines shall not under any circumstances be attached to the Telegraph Department's poles without the consent of the Minister of Telegraphs.

Where electric lines are permitted to be supported on telegraph poles all details of the support and of the insulation shall be approved by the Minister of Telegraphs, who may require the Council to remove such electric lines at any time from such telegraph poles on reasonable notice and without compensation of any description.

At telegraph crossings the electric wires shall cross over or under the telegraph wires as may be decided by the Minister of Telegraphs.

Where overhead electric lines at low pressure cross telegraph lines, the electric lines shall be protected for the crossing-span with a triple covering of jute braiding and thoroughly compounded.

Where overhead electric lines at extra high pressure cross telegraph lines, the electric lines shall be subject to special conditions as may be required by the Minister of Telegraphs in each case of such crossing.

Where lead-covered telephone cables are crossed above or below by the electric wires the latter wires shall be insulated with 600-megohms grade of vulcanized rubber throughout the crossing-span, and the maximum tension in the electric lines shall not exceed one-half the elastic limit of the wire in the event of the minimum temperature and wind-pressure specified in clause 10.

In cases where it may be required to cross with the electric wires through any other aerial wires or through cables because of the impracticability of crossing above or below (and crossing shall be effected above or below if possible), all such through crossings, if permitted, shall be effected at a pole. In every case of a through crossing, no matter whose property the lines crossed through may be, the method of carrying the electric wires across the pole, of protecting them thereon, of preventing other wires from coming in contact with them, and of protecting persons working on the poles from danger of shock shall be to the satisfaction of the Minister of Telegraphs. The electric wires shall be insulated with a triple covering of jute braiding thoroughly compounded 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.

Efficient guard-wires, effectively earthed, or other approved protective devices, shall be erected where electric wires intersect telegraph wires or cables, if so required by the Minister of Telegraphs.

• Earth-wires, where led down poles, shall be protected by a casing for a distance of 8ft. from the ground.

The cost of all necessary guard-wires and special provisions required to comply with this clause, or deemed to be necessary as a protection to telegraph wires generally, shall be borne by the Council, when the telegraph lines are erected before the electric lines. In other cases the Council, 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 points at which electric lines already cross such routes.

#### 19. RAILWAY CROSSINGS.

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

#### 20. TRANSFORMERS.

The substation shall be inaccessible except to authorized persons; all high-tension or extra high-tension conductors therein shall be thoroughly insulated or protected from accidental contact. A substantial insulating rubber mat or insulated wooden platform and rubber gloves shall be supplied. The cases of all transformers shall be earthed in accordance with the rules of the Institution of Electrical Engineers of Great Britain for earthing.

#### 21. MOTOR INSTALLATIONS.

The frames of all motors shall be connected to an efficient earth by a copper conductor in accordance with the rules of the Institution of Electrical Engineers of Great Britain for earthing. All metal casings of switches, resistances, fuses, cables, and wires shall be efficiently earthed in a similar manner.

Every motor must be controlled by an efficient quick-break iron-clad switch suitable to prevent arcing, and conveniently placed so that the person in charge of the motor can cut off wholly the supply from the motor and all devices in connection therewith.

Efficient fuses or other automatic cutout must be provided to efficiently protect the conductors in each circuit from excess of current.

Every precaution shall be taken in choosing positions for and in wiring and setting-up of motors, and the necessary devices in connection therewith, so that there shall be no danger of fire being caused by their normal or abnormal action, or of shock being sustained, or in the ordinary handling thereof.

Terminals of motors must be so guarded that they cannot be accidentally touched or short-circuited.

The insulation resistance of each motor-circuit, including all devices necessary for the working of the motor, shall be not less than 1 megohm to earth when all metal parts that are required to be connected to earth are so connected.

#### 22. SERVICE CONNECTIONS TO OVERHEAD LINES.

Service lines from aerial lines shall be taken 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 service line which is outside a building and is within 7ft. from any part of the building shall be rubber-insulated.

#### 23. MAINTENANCE.

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 sufficiently maintained by the Council as regards both electrical and mechanical conditions.

#### 24. LINES NOT IN COMMISSION.

An aerial line shall not be permitted to remain erected after it has ceased to be used for the supply of energy, unless the Council intends within a reasonable time again to take it into use.

#### 25. LIGHTNING-ARRESTERS.

Where any portion of an electric line or any 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.

#### 26. UNDERGROUND CONDUCTORS.

Underground conductors shall be thoroughly insulated, and shall be protected from mechanical damage by a wooden boxing or earthenware or stoneware conduit. 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 the roadway this 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 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.

#### 27. EARTHING CONDUITS.

All metal 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 connection throughout their whole length.