

## APPENDIX E: BROWNHILL SUBSTATION CONDITIONS

### Documents

1. The initial works to give effect to the designation of the Brownhill Transition Station/Substation shall be generally in accordance with Map 2 of Appendix V.
2. Tower 5 shall be a single-pole structure (monopole) and tower 4 shall be a six-pole termination structure.

### Cultural / spiritual

3. If any urupā, traditional sites, taonga (significant artefacts), or kōiwi (human remains) are exposed during site works, then the following procedures shall apply:
  - (a) works in the immediate vicinity of the site that has been exposed shall cease;
  - (b) the site supervisor shall immediately secure the area in a way that ensures that any remains or artefacts are untouched;
  - (c) the site supervisor shall notify representatives of relevant tāngata whenua, the New Zealand Historic Places Trust, the Manukau City Council and, in the case of human remains, the New Zealand Police; and
  - (d) the notification in (c) above shall allow such persons being given a reasonable time to record and recover archaeological features discovered before work may recommence on the exposed site.

### Electric and Magnetic Fields (EMF)

4. The works shall be designed and constructed to limit the EMF exposure at or beyond the secure boundary of the substation site to the *International Commission on Non-Ionising Radiation Protection Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz)* (*Health Physics*, 1998, 74(4): 494–522) (ICNIRP Guidelines) public reference levels of 5 kV/m for electric fields and 100 µT for magnetic flux density at one metre above ground level under maximum normal operating conditions (ie, when there are no faults in the transmission system).

**Radio frequency interference**

5. All works shall be designed to comply with NZS 6869:2004 *Limits and Measurement Methods of Electromagnetic Noise from High-Voltage a.c. Power Systems, 0.15 to 1000 MHz*.

**Earth potential rise**

6. In designing and constructing the work, Transpower shall give consideration to third-party conductive services to ensure compliance with regulations 58, 60, 69 and 87 of the Electricity Regulations 1997 as in force at the date of confirmation of the designation.
7. Substation earth grids shall be designed, built, and tested to ensure electrical safety at or beyond the designation boundary in accordance with Transpower Standard TP.DS.52.01, Issue 2, January 2005.

**Light spill**

8. All exterior lighting shall comply with Transpower's *Requirements for Outdoor Switchyard Lighting Policy*, TP GS 41.01, Issue 3, April 2006.

**Operational noise**

9. All activities within the site (except for construction and maintenance) shall be designed and operated to ensure that the following noise limits shall not be exceeded beyond the boundary of the designation:

All days 7 am to 10 pm 55 dBA  $L_{10}$

All nights 10 pm to 7 am 45 dBA  $L_{10}$

All nights 10 pm to 7 am 75 dBA  $L_{max}$

except that any standby generators may operate at a noise level not exceeding 55 dBA  $L_{10}$  at all times, measured within the notional boundary of any dwelling. Reliance on this limit should not exceed more than one successive night time period (10 pm to 7 am). Standby generators shall only be operated for maintenance purposes between the hours of 7 am to 10 pm.

10. All activities within the site (except for construction and maintenance) shall be designed and operated to ensure that the following noise limits shall not be exceeded within the notional boundary of any dwelling existing at the date of lodgement of the Notice of Requirement:

All days 7 am to 10 pm 45 dBA  $L_{10}$

All nights 10 pm to 7 am 35 dBA  $L_{10}$

All nights 10 pm to 7 am 65 dBA  $L_{max}$

11. Sound levels shall be measured and assessed in accordance with NZS6801:1991 *Measurement of Sound* and NZS6802:1991 *Assessment of Environmental Sound*.
12. Sound monitoring shall be undertaken by a suitably qualified and experienced person within one month of the commissioning of any new transformer. The results of the noise monitoring shall be made available to the Manukau City Council upon request.

### **Vibration**

13. Vibration from all construction activities shall not exceed the limits of, and shall be measured and assessed in accordance with, German Standard DIN 4150-3 (1999-02) *Structural Vibration – Effects of Vibration on Structures*.

### **Hazardous substances**

14. Any part of the facility containing oil shall be designed to comply with Transpower's *Oil Spill Management Policy* (TPG:GS.54.01), Issue 2, June 2002.

### **Visual mitigation and revegetation plan**

15. A visual mitigation and revegetation planting plan shall be prepared for the site and submitted at least two months prior to the commencement of initial construction on-site to Manukau City Council's Manager–Resource Consents and Compliance for approval/certification. The Manager, Resource Consents and Compliance shall respond within 20 working days indicating whether approval is given or refused. Such approval shall not be unreasonably withheld. The plan shall be in general accordance with the landscape mitigation concept plan (Map 3 of Appendix V) and shall consist of:
  - (a) excess cut and topsoil from the construction site shall be contoured to increase the height of the spur east of the substation platform and improve the growing conditions for screen planting proposed for this spur;
  - (b) fast-growing trees typical of rural landscapes shall be planted on the spur, with the intention of reducing visibility of the substation site from the east;
  - (c) native revegetation planting shall be carried out on lower slopes of the spur. This planting shall be similar in type to that undertaken in

the rural residential subdivision on the opposite side of Brownhill Road. It shall be planted to the property boundary adjacent to the Turanga Creek. The intention of this planting is to provide longer-term screening and ecological and amenity benefit;

- (d) native revegetation planting will be carried out on the spur north-west of the substation platform to provide partial screening from the Regis Park area. Species shall include kānuka, tōtara and rewarewa;
  - (e) native revegetation planting shall be carried out in the valley south-west of the substation site. The intention of this planting is to provide ecological and amenity benefits;
  - (f) a description of the name (including botanical), numbers, location, spacing and size of the plant species to be used in mitigation and ecological planting;
  - (g) as far as practicable, all indigenous plants shall be propagated from a local, naturally occurring source.
16. Once approved, the visual mitigation and revegetation planting plan required under condition 15 may be altered or updated at any time with the approval of the Manager–Resource Consents and Compliance. The Manager shall not unreasonably withhold his or her approval, and in particular for any changes to the plan required as a result of expansion of facilities within the substation site, irrespective of whether the extent of landscaping is reduced as a result of that expansion.
17. Transpower shall implement the visual mitigation and revegetation planting plan within the first planting season following completion of bulk earthworks and shall thereafter maintain the planting to the satisfaction of Manukau City Council’s Manager–Resource Consents and Compliance.

#### **Construction Management Plan (CMP)**

18. At least 30 days prior to commencement of any construction activity on the site, Transpower shall submit a construction management plan to the Council’s Consents Officer. The Council’s Consents Officer shall respond within 20 working days indicating whether approval is given or refused. Approval shall not be unreasonably withheld. The construction management plan shall detail:

- (a) the proposed earthworks methodology;
- (b) storage and reuse of topsoil;
- (c) on- and off-site disposal of soil;
- (d) silt and dust control;
- (e) traffic management for delivery of substation equipment and materials (excluding transformers) and general construction activities;
- (f) temporary equipment storage;
- (g) site security and lighting;
- (h) procedures for temporary storage and handling of hazardous substances, including insulation oil;
- (i) compliance with designation conditions, including (where applicable) for:
  - (i) noise;
  - (ii) hours of operation;
  - (iii) accidental discovery protocol;
  - (iv) protection of known archaeological sites;
- (j) community information and liaison (including local marae); and
- (k) procedure for managing the accidental discovery of archaeological sites or sites of significance to Māori, including contractor training prior to commencement of work.

#### **Construction and maintenance noise**

- 19.** Subject to condition 20, all construction and maintenance work shall be designed, managed and conducted to ensure that construction and maintenance noise from the site does not exceed the limits in NZS6803:1999 *Acoustics–Construction Noise* at locations set out in section 6.2 of that standard.

- 20.** The noise limits shall not apply to emergency work required to re-establish continuity of supply, work urgently required to prevent loss of life or other personal injury, or commissioning works at the substation site, but all practicable steps shall be undertaken to control noise and to avoid adverse noise effects particularly at times when the stricter noise limits apply (eg, at night-time).
- 21.** Prior to any significant construction work taking place, including any earthworks, a noise management plan shall be prepared, with the assistance of a suitably qualified and experienced person, that sets out the management procedures in terms of section 8 and Annex E of NZS6803:1999; and the works shall be undertaken in accordance with that noise management plan.
- 22.** The noise management plan required by condition 21 shall be submitted to Council's Consents Officer for approval, at least 20 working days prior to the works commencing. The Council's Consents Officer shall respond within 20 working days indicating whether approval is given or refused. Approval shall not be unreasonably withheld.

#### **Traffic Management Plan (TMP)**

- 23.** A traffic management plan (TMP) shall be prepared in relation to the transformer transportation from the port of arrival to the substation site, after consultation with:

  - (a)** the relevant road-controlling authorities;
  - (b)** New Zealand Transport Agency (NZTA);
  - (c)** New Zealand Police; and
  - (d)** key stakeholders identified by the organisations listed above in (a)–(c).
- 24.** The TMP shall be submitted to the Manukau City Council and NZTA for approval at least one month prior to transformer transportation to the substation site. Manukau City Council and NZTA shall respond within 20 working days indicating whether approval is given or refused (such approval shall not be unreasonably withheld). The TMP shall contain a method statement specifying the route and providing full details of:

- (a) deviations to avoid low over-bridges;
- (b) temporary bridge strengthening (where required);
- (c) road closures or other temporary traffic control measures required;  
and
- (d) contingency plans, should the transporter have mechanical problems.

**Brownhill Road upgrade**

- 25.** After installation of the cables, Transpower shall after consultation with Manukau City Council upgrade the surface of Brownhill Road to the entrance to the substation site to meet Manukau City Council's minimum design standards for rural roads as defined in their Engineering Quality Standard R16–*Rural Road "Minimum Standard"*.