

Before a Board of Inquiry
Transmission Gully
Notices of Requirement and Consents

under: the Resource Management Act 1991

in the matter of: Notices of requirement for designations and resource consent applications by the NZ Transport Agency, Porirua City Council and Transpower New Zealand Limited for the Transmission Gully Proposal

between: **NZ Transport Agency**
Requiring Authority and Applicant

and: **Porirua City Council**
Local Authority and Applicant

and: **Transpower New Zealand Limited**
Applicant

Statement of evidence of Teresa (Terre) Ann Maize (Contaminated land)
for the NZ Transport Agency, Porirua City Council and Transpower New Zealand Limited

Dated: 16 November 2011

REFERENCE: John Hassan (john.hassan@chapmantripp.com)
Nicky McIndoe (nicky.mcindoe@chapmantripp.com)

**STATEMENT OF EVIDENCE OF TERESA (TERRE) ANN MAIZE
FOR THE NZ TRANSPORT AGENCY, PORIRUA CITY COUNCIL
AND TRANSPower NEW ZEALAND LIMITED**

QUALIFICATIONS AND EXPERIENCE

- 1 My full name is Teresa (Terre) Ann Maize.
- 2 I am a Senior Environmental Engineer with Aurecon New Zealand Ltd (employed on a contract basis), and an Energy and Sustainability Engineer with Spotless Company New Zealand Ltd.
- 3 I hold a Bachelor of Science degree in Civil/Environmental Engineering from the University of Nevada, Las Vegas, United States (US).
- 4 I have 28 years of experience in environmental management. My experience encompasses occupational hygiene, waste management, contaminated site investigation and remediation, risk assessment, sustainability, and development of environmental management programmes under international standards.
- 5 I have been engaged as a contaminated land specialist in New Zealand for the last three years. Previously, I have been employed by private consultancies, Federal Government contractors, and State and Local Government agencies. My positions have included acting as the Manager of the Nevada Division of Environmental Protection's Las Vegas Office, Senior Project Manager for a \$45 million investigation and remediation of a former US Army airfield site for the IT Group, a US consulting firm; Environmental Principal at several US environmental consulting firms (TRC Companies, Kleinfelder, Mactec), and Radioactive and Hazardous Waste Management Specialist for Reynolds Electrical & Engineering Company, Inc.
- 6 I am a member of the Waste Management Institute of New Zealand – (*WasteMINZ*) and am a member of the WasteMINZ Contaminated Land Steering Committee.
- 7 I have worked on hundreds of contaminated land projects in New Zealand, Australia, and the United States. These have included the contaminated land study for a portion of the Waterview road connection in Auckland, a 260 ha parcel of land in Canterbury, several Novo Rail projects in Sydney, a 430 acre former Army Airfield near San Francisco, a Superfund site in Phoenix, and a major highway interchange in Nevada.
- 8 My involvement in these projects has included undertaking and/or supervising contaminated land investigations, as well as developing options for, and directing, remediation of contaminated land.

- 9 On 15 August 2011 the NZ Transport Agency (NZTA), Porirua City Council (PCC) and Transpower New Zealand Limited (*Transpower*) lodged Notices of Requirement (*NoRs*) and applications for resource consent with the Environmental Protection Authority (*EPA*) in relation to the Transmission Gully Proposal (*the Proposal*).
- 10 The Proposal comprises three individual projects, being:
- 10.1 The 'NZTA Project', which refers to the construction, operation and maintenance of the Main Alignment and the Kenepuru Link Road by the NZTA;
 - 10.2 The 'PCC Project' which refers to the construction, operation and maintenance of the Porirua Link Roads by PCC¹; and
 - 10.3 The 'Transpower Project' which refers to the relocation of parts of the PKK-TKR A 110kV electricity transmission line between MacKays Crossing and Pauatahanui Substation by Transpower.

My evidence is given in support of all three projects. For the purposes of referring to the NZTA Project and the PCC Project collectively in this evidence, I will use the term "Transmission Gully Project" (and hereafter *the TGP* or *the Project*).

- 11 I am familiar with the area that the Proposal covers and the State highway and local roading network in the vicinity of the Proposal.
- 12 I am the primary author of the Land Contamination Assessment (Technical report number 16) which formed part of the Assessment of Environmental Effects (*AEE*) lodged in support of the NZTA and PCC Projects. I also authored the Addendum to Technical Report 16: Contaminated Land Assessment, lodged in support of the Transpower Project.
- 13 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2011), and I agree to comply with it as if this Inquiry were before the Environment Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

¹ The Porirua Link Roads are the Whitby Link Road and the Waitangirua Link Road.

SCOPE OF EVIDENCE

- 14 My evidence will deal with the following:
- 14.1 Background and role in relation to the Project;
 - 14.2 Methodology for assessment;
 - 14.3 Contaminated land within the TGP designation boundaries;
 - 14.4 Contaminated land within the Transpower Project area;
 - 14.5 Methods for managing contaminated land (including unexpected finds and the role of the Contaminated Land Management Plan (CLMP))²;
 - 14.6 The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (*the Soil NES*)³;
 - 14.7 Proposed conditions; and
 - 14.8 Conclusions.
- 15 I understand that none of the submissions lodged on the Proposal raised particular concerns regarding contaminated land issues.

SUMMARY OF EVIDENCE

- 16 A contaminated land investigation was conducted of the TGP in accordance with the Ministry for the Environment's Contaminated Land Management Guidelines⁴.
- 17 The first stage of the investigation included a review of current and historic documents and records, analysis of historic aerial photos, interviews with persons with knowledge of various areas within the

² The proposed consent and designation conditions refer to a "Contaminated Land Management Plan". However, the applicable draft plan appended to the AEE is called the "Contaminated Soil Management Plan." Both names are intended to refer to the same document. For the purposes of this evidence, I will refer to the Contaminated Land Management Plan and hereafter, "the CLMP".

³ MfE, 2011. National Environmental Standard for Assessing and Managing Contaminated Soil. Ministry for the Environment: Wellington.

⁴ Ministry for the Environment (MfE), 2004. Contaminated Land Management Guidelines No. 5. Site investigation and analysis of soils (Report 497), Wellington: Ministry for the Environment; MfE, 2003. Contaminated Land Management Guidelines No. 1. Reporting on contaminated sites in New Zealand (Report 492), Wellington: Ministry for the Environment; MfE, 2007. Contaminated Land Management Guidelines No. 2. Hierarchy and Application in New Zealand of Environmental Guideline Values (Report 491), Wellington: Ministry for the Environment.

designation and site reconnaissance. Areas within the designation boundaries were included in the first stage of the assessment, along with directly adjacent sites.

- 18 The second stage of the investigation included a geophysical survey and intrusive investigations with soil sampling and analysis.
- 19 A geophysical survey was undertaken to locate possible unexploded ordnance near MacKays Crossing. Sampling and laboratory analysis was undertaken at other identified sites where past and current activities were most likely to have led to site contamination. The results were compared with appropriate guidelines⁵, and background⁶ values to evaluate the level of risk to human health and the environment.
- 20 From those assessments, I have concluded that the overall risk to human health and the environment from land contamination within the Project designation boundaries is low, with the exception of the MacKays Crossing area, the Porirua Gun Club, and portions of the former Golden Coast Nurseries site.
- 21 A preliminary CLMP was developed to guide the early stages of works and I recommend that it be implemented. The CLMP contains measures for the management of contaminated soil and recommendations for Plan updates to reflect more detailed operational processes as work progresses.
- 22 Two landfill sites were identified by PCC.⁷ One of the landfills has been identified and is substantially down gradient of the Main Alignment. The other landfill could not be verified despite extensive research, but is reportedly in an area which is currently plantation forest, near the Kenepuru Link Road and Main Alignment interchange. There is a possibility of finding landfilled material in the area of the unidentified landfill and the potential risk can be readily managed as part of normal construction and through implementation of accidental discovery procedures, as described in the CLMP.
- 23 Due to the presence of contamination above human health and ecological guideline levels, remedial action is required at the Porirua Gun Club. The remedial action will likely be a discretionary activity

⁵ MfE, 2011. National Environmental Standard for Assessing and Managing Contaminants in Soil, Cabinet Paper. Wellington: Ministry for the Environment; MfE, 2007. Contaminated Land Management Guidelines No. 2. Hierarchy and Application in New Zealand of Environmental Guideline Values (Report 491). Wellington: Ministry for the Environment.

⁶ URS, 2003, *Determination of Common Pollutant Background Soil Concentrations for the Wellington Region*

⁷ Key Issues Report of the Porirua City Council, para 4.72.

under the Soil NES and will be addressed as part of a future consenting process.

- 24 I have also developed a protocol for discovery and management of unexploded ordnance near MacKays Crossing. This protocol is included in the CLMP and should be implemented prior to undertaking works in the vicinity of MacKays Crossing. The protocol calls for anomalies identified in the geophysical survey to be treated as potential unexploded ordnance and for coordination with the New Zealand Police to facilitate disposition of the unexploded ordnance.
- 25 While one sample at the former Golden Coast Nurseries had arsenic present above human health risk-based guideline values⁸, I do not consider that specific remedial action needs to be undertaken as the contamination is limited in extent and does not pose an undue hazard to human health. However, the soil must be considered contaminated soil and managed as specified in the CLMP.
- 26 I consider that the management of all contaminated soil associated with the TGP can be successfully undertaken in accordance with the CLMP and that the CLMP be implemented as a condition of the NZTA general resource consent conditions.⁹
- 27 Overall, the potential risks associated with contaminated land are not considered to be significant and are typical of those found at similar sites across New Zealand. Potential adverse effects can be readily managed as part of the construction process. There will in fact be some potential positive benefits as contaminated soil will be better separated from potential receptors following the Project's construction.
- 28 I am confident that the likelihood of finding unknown contamination within the TGP designation boundaries is relatively low, and that the known contaminated sites pose a low risk if properly managed in accordance with existing guidelines and standards of practice (which are provided for as part of the CLMP).
- 29 The Transpower Project was evaluated through a desktop study. While there is some potential for contamination beneath the towers, it can be managed with standard construction techniques in accordance with the National Environmental Standard for Electricity Transmission Activities¹⁰.

⁸ MfE, 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Ministry for the Environment: Wellington.

⁹ NZTA G.13, G.15.

¹⁰ MfE, 2010. National Environmental Standards for Electricity Transmission. Wellington: Ministry for the Environment.

BACKGROUND AND ROLE

- 30 My role and responsibilities in relation to the Project include:
- 30.1 Development of the technical strategy and approach;
 - 30.2 Oversight and implementation of the land contamination assessment and investigation plans (the assessment was conducted by a team of Aurecon engineers and scientists as well as experts from GPR Geophysical Services);
 - 30.3 Preparation of the technical report and its addendum for the Transpower Project;
 - 30.4 Development of the qualitative risk assessment presented in the technical report;
 - 30.5 Engagement with Greater Wellington Regional Council (GWRC) and their reviewers concerning the technical report;
 - 30.6 Discussions with the New Zealand Police and New Zealand Army regarding unexploded ordnance management; and
 - 30.7 Participation in Project workshops, including risk evaluation and consent conditions workshops.
- 31 My evidence relies on the findings of other technical reports and the evidence of other experts involved in the Project, including **Mr Martell** (surface water and groundwater quality and stormwater management), **Mr Fuller** (ecology) and **Mr Lister** (landscape).

METHODOLOGY FOR TGP INVESTIGATION

- 32 The contaminated land investigation for the TGP was conducted using a staged approach, in accordance with the Ministry for the Environment's Contaminated Land Management Guidelines.¹¹
- 33 A Stage 1 environmental assessment, consisting of a desktop study and site reconnaissance, was conducted first. The desktop portion of the assessment included a review of current and historic documents and records, analysis of historic aerial photos, and interviews with persons with knowledge of various areas within the designation. Areas within the designation boundaries were included in the first stage of the assessment, along with directly adjacent

¹¹ Ministry for the Environment (MfE), 2004. Contaminated Land Management Guidelines No. 5. Site investigation and analysis of soils (Report 497), Wellington: Ministry for the Environment; MfE, 2003. Contaminated Land Management Guidelines No. 1. Reporting on contaminated sites in New Zealand (Report 492), Wellington: Ministry for the Environment.

sites. Relevant data from other studies conducted for the TGP were also reviewed.

- 34 During the desktop study, two landfill sites were identified by Porirua City Council: the Sievers Grove Landfill site and the Ribbonwood Terrace Landfill site. The Sievers Grove Landfill site is significantly downgradient of and downhill from the Main Alignment and is not expected to pose risk during Project construction.
- 35 Extensive research was conducted in an attempt to verify the location, size, and nature of the Ribbonwood Terrace Landfill. This research included conversations with Council staff and a former (now retired) Porirua City Engineer, review of historic photos and documents, and a site reconnaissance over a portion of the area. No evidence could be found of a landfill; however, Council documents suggest it is in an area currently developed as a plantation forest. Therefore, it was not possible to verify the presence or absence of the landfill.
- 36 A qualitative risk assessment was developed to focus the next phase of work, which was an intrusive investigation of the sites identified as having the highest risk of contamination and a geophysical survey for potential unexploded ordnance.
- 37 The sites identified for additional investigation were:
 - 37.1 MacKays Crossing, where unexploded ordnance may be present;
 - 37.2 the Sang Sue Market Garden,
 - 37.3 the former Car Haulways site,
 - 37.4 the former Golden Coast Nurseries site,
 - 37.5 Pauatahanui Inlet Garden Supplies site,
 - 37.6 a former sheep dip site,
 - 37.7 a livestock holding area,
 - 37.8 the Porirua Gun Club, and
 - 37.9 the Mana Coach facility.
- 38 Additional investigation was also conducted along the existing State Highway 1 at Linden where the existing road is to be raised to accommodate the new Main Alignment, and at the proposed Kenepuru Interchange area.

CONTAMINATED LAND WITHIN THE TGP DESIGNATION BOUNDARIES

MacKays Crossing

- 39 A geophysical survey was conducted at the MacKays Crossing area and a map of buried metal objects that may be unexploded ordnance was generated from the survey. Objects, such as fencing material, which are not likely to be unexploded ordnance were also identified on the drawings. The remaining objects are considered to be possible unexploded ordnance which will require additional investigation and special handling.
- 40 At MacKays Crossing, work should be conducted by qualified unexploded ordnance technicians under the direction of the New Zealand Police.

The other identified sites

- 41 Intrusive soil sampling and analysis was conducted within the designation boundaries at the remaining sites identified. The results were compared with appropriate guideline values¹² to determine whether contaminants were present above ecological or human health risk-based guideline values. Results were also compared with regional background values, where available.
- 42 All sites except the Mana Coach site (at Waitangirua) had metals present above ecological risk-based guideline values and/or regional background values. In most cases, the exceedances were not significant; i.e., less than 10 percent above the guideline or background value.
- 43 Pesticides were present above ecological risk-based guideline values at the former GWRC sheep dip site at Takapu Road and former livestock yard near Battle Hill. However, exceedances were limited to the upper 150mm of soil. Therefore, only a small proportion of soil is contaminated and a significant amount of material is not impacted.
- 44 The potential adverse effects associated with these types of contaminants are spread of contamination from airborne dust or stormwater run-off during construction. In my view, standard construction techniques using erosion and dust control measures will mitigate any potential adverse effects. Also, as only the uppermost

¹² MfE, 2011. National Environmental Standard for Assessing and Managing Contaminants in Soil. Wellington: Ministry for the Environment; MfE, 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Ministry for the Environment: Wellington. MfE, 2007. Contaminated Land Management Guidelines No. 2. Hierarchy and Application in New Zealand of Environmental Guideline Values (Report 491). Wellington: Ministry for the Environment; MfE, 2003. Environmental Guideline Database. Wellington: Ministry for the Environment.

layer of soil is impacted with contaminants, groundwater contamination is considered unlikely.

- 45 Metals were present above human health guideline values at the Porirua Gun Club and in one sample at the former Golden Coast Nurseries (in the northeastern-most glass house). Polycyclic aromatic hydrocarbons (*PAH*) are also present well above guideline values¹³ in surface soils at the Porirua Gun Club.
- 46 The contamination at the Porirua Gun Club was associated with the presence of ammunition and clay targets. Deeper samples analysed demonstrated that the vertical migration of contamination was minimal and, in general, only the upper layer of soil was impacted.
- 47 In my view, remediation is required at the Porirua Gun Club because of the relatively high magnitude and large extent of contamination. However, this type of remedial action is common in New Zealand and throughout the world and uses standard construction practices. Standard environmental excavation and remediation action techniques with erosion and dust control measures will apply at this site and will appropriately manage associated risk. Soil must be properly disposed of off-site at a licensed landfill. In addition, the requirements of the Soil NES must be followed.
- 48 The contamination at the former Golden Coast Nurseries site is associated with former nursery operations, with the heaviest contamination present in one of the glass houses and the likely result of use of pesticides which contained heavy metals, such as arsenic. As with the other sites, the contamination was limited to the upper 150mm of soil, and vertical migration was minimal. As explained above, standard excavation techniques with erosion and dust control measures will apply at this site and will appropriately manage any risk. Groundwater is also not likely to be impacted.
- 49 I do not consider that specific remedial action needs to be undertaken at the former Golden Coast Nurseries site as the contamination is limited in extent and does not pose an undue hazard to human health. However, the soil must be considered contaminated soil and managed as specified in the CLMP. The Soil NES will also be relevant to soil disturbance activities at the site.
- 50 There will be some positive effects from the Project as contaminants currently present in surface soils will be better separated from potential receptors following completion of construction.

¹³ MfE, 2011. National Environmental Standard for Assessing and Managing Contaminants in Soil. Wellington: Ministry for the Environment.

TRANSPOWER PROJECT

- 51 The Transpower Project was addressed through a desktop study, which included a literature review, evaluation of current and historic aerial photos, and evaluation of tower locations with regard to known contaminated sites within the TGP designation boundaries.
- 52 Because the TGP land contamination study was conducted on land within and adjacent to the designation boundaries, the majority of the proposed Transpower Project was also evaluated as part of the first stage of the environmental assessment for the TGP. Therefore, Technical Report Number 16 is applicable as detailed in the Addendum to Technical Report Number 16.
- 53 The majority of the towers are located in greenfields areas where risk of contamination is low. Only two towers were near areas of known contamination: Tower 1, near the former Golden Coast Nurseries and Tower 25A, near the former livestock yard.
- 54 Tower 1 is just outside the fence at the southern end of the former Golden Coast Nurseries property and the majority of the contamination at the facility was found near the northern end of the facility. Therefore, the risk of contamination from the former Golden Coast Nursery site to impact Tower 1 is low.
- 55 Tower 25A is located near a former livestock yard where pesticide (DDT) was found in surface soil. Because the pesticide appears to have been broadcast over a relatively large area, it is possible that the area around Tower 25a could also be impacted. The concentrations of pesticide are well below human health guideline¹⁴ values, but above ecological risk-based guideline values.
- 56 There is potential for soil contamination from the towers themselves due to use of galvanised steel in structures and lead-based paint.
- 57 The National Environmental Standard for Electricity Transmission Activities¹⁵ provides guidance on conducting works to minimise the spread of contamination during tower and line relocation. This guidance should also be implemented during the Transpower Project works.
- 58 In my view, the overall risk to human health and the environment from land contamination within the Transpower Project area is relatively low. It is my understanding that appropriate earthworks and related consents will be applied for by Transpower in the future.

¹⁴ MfE 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Ministry for the Environment: Wellington.

¹⁵ MfE, 2010. National Environmental Standard for Electricity Transmission Activities. Wellington: Ministry for the Environment.

Contaminated land management will be addressed under the National Environmental Standard for Electricity Transmission Activities¹⁶ and the Soil NES (as applicable) as part of that consenting process.

METHODS FOR MANAGING CONTAMINATED LAND

The Contaminated Land Management Plan

- 59 A preliminary CLMP has been developed for the NZTA Project for the management of soil which has contaminants present above guideline or background levels.
- 60 My opinion is that remedial action is not required for the majority of sites investigated (with the exception of the Porirua Gun Club site and the potential unexploded ordnance at MacKays Crossing, which is discussed further below), however I consider that soil must be properly managed, in accordance with the CLMP.
- 61 Proper on-site management of contaminated soil (as outlined in the preliminary CLMP) includes not using the soil in construction of stormwater basins or berms; implementing proper stormwater, erosion, and dust control measures; and placing the soil under structures, such as the new road or within bridge abutments. This effectively provides for capping of contaminated soil, which reduces potential exposure to contaminants following completion of construction. Contaminated soil taken off-site must be disposed of at a properly licensed landfill. All of these techniques are standard construction methods used throughout New Zealand.
- 62 The CLMP also contains measures addressing the accidental discovery of contaminated soil, particularly as features such as historic sheep dip sites, offal pits, rubbish pits, or effluent ponds may be present on farm land sites, as well as the unverified Ribbonwood Terrace Landfill.
- 63 Finally, the CLMP also recommends asbestos and hazardous material surveys for buildings which are to be demolished.

Management of unexploded ordnance

- 64 I have developed a suggested protocol for managing the potential unexploded ordnance near MacKays Crossing, along with recommendations for future sampling and analysis should ordnance be detonated in place. This protocol is provided as an appendix to the preliminary CLMP. The protocol is based on New Zealand standard practice, which includes involving the right expertise from the New Zealand Police and Army. By using trained personnel and

¹⁶ MfE, 2010. National Environmental Standard for Electricity Transmission Activities. Wellington: Ministry for the Environment.

standard safety practices, the unexploded ordnance can in my view, be safely managed.

Porirua Gun Club

- 65 I have recommended remedial action for the soil at the Porirua Gun Club, where clay targets and ammunition are present. As contamination is present above human health guideline values¹⁷ the remedial action will require consent under the Soil NES. The remedial action plan, which I recommend be developed in due course, should delineate the areas to be remediated (likely by excavation), construction techniques, erosion and stormwater controls, dust control, and transport and disposal requirements. It is likely that traditional, proven remedial action techniques, such as soil excavation and stabilisation will be utilised at this site.

NATIONAL ENVIRONMENTAL STANDARD FOR MANAGING AND ASSESSING CONTAMINANTS IN SOIL

- 66 I am familiar with the Soil NES. The Soil NES does not come into effect until January 2012. Because the regulations are not yet in place, consent will need to be obtained prior to conducting works at sites where soil is to be disturbed and has contaminants present above concentrations specified in the Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health, such as the Porirua Gun Club and former Golden Coast Nurseries site. The remaining areas investigated do not have contaminants present above human health guideline values and therefore are not addressed by the Soil NES.
- 67 Prior to issuance of the Soil NES, a Cabinet Paper was released that provided the information now found in the Soil NES and the Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. The Cabinet Paper was considered when evaluating data from the Project investigations.

PROPOSED CONDITIONS

- 68 As **Ms Rickard** explains in her evidence, conditions relating to contaminated land are no longer proposed to be imposed on the NZTA designations (as suggested in the AEE), but are instead proposed to be imposed on the relevant regional resource consents.
- 69 I have recommended conditions which relate to implementation of the CLMP for the NZTA Project, including unexploded ordnance management. The CLMP also addresses management of soil in areas where contamination is present below human health guideline

¹⁷ MfE, 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Ministry for the Environment: Wellington.

values but above ecological risk-based guideline values, and accidental discovery of contamination.

- 70 As I have noted elsewhere, although the draft CLMP contains measures in relation to remediation of the Porirua Gun Club site, the remediation process at that site will be dealt with as part of future consents sought under the Soil NES.¹⁸
- 71 The general resource consent conditions require a CLMP to be appended to the Construction Environmental Management Plan¹⁹ for the NZTA Project. The CLMP is to include information regarding:
- 71.1 Management of areas where unexploded ordnance may be present²⁰;
 - 71.2 Measures for the handling, storage and disposal of contaminated material excavated during construction;
 - 71.3 Proposed soil validation and verification testing;
 - 71.4 Measures to be undertaken in the event of unexpected contamination being discovered during construction;
 - 71.5 Procedures to protect workers and the public (this is particularly important for operations at the Porirua Gun Club and former Golden Coast Nurseries sites where contaminants were found at concentrations above human health guideline levels);
 - 71.6 Measures to control stormwater runoff and runoff from contaminated soil areas;
 - 71.7 Procedures governing removal of contaminated soil; and
 - 71.8 Measures to be undertaken around handling of asbestos and hazardous materials which may be present in structures. (For example, buildings should be evaluated for the presence of asbestos and hazardous materials prior to demolition. Asbestos management plans and proper abatement practices should be implemented where asbestos is present. Hazardous materials should be properly disposed of prior to building demolition.)

¹⁸ Consequently, designation condition NZTA.44 is now proposed to be deleted.

¹⁹ Conditions G.13, G.15.

²⁰ I suggest that condition G.15 be amended to specifically include this matter. This proposed amendment arises as a consequence of the proposed deletion of designation condition NZTA.43.

- 72 A suitably qualified contaminated land specialist should also be made available to supervise construction works in the vicinity of contaminated soil and supervise any removal of contaminated soil.²¹

CONCLUSIONS

- 73 After undertaking the contaminated land study of the TGP, I have concluded that, in general, the risk from contamination is low. At three sites, the risk is higher: MacKays Crossing, where unexploded ordnance may be present; the Porirua Gun Club, where ammunition and clay targets are present and metals and PAHs have leached into the soil; and the former Golden Coast Nurseries, where past use of pesticides has impacted surface soils. At all but one of the other sites investigated (Mana Coach), contaminants are present above ecological risk-based guideline values or background levels; however, the risk is evaluated as relatively low, provided proper soil management practices are followed.
- 74 Remedial action for the contaminated soil is recommended at the Porirua Gun Club, and management of possible unexploded ordnance conducted by qualified unexploded ordnance technicians is recommended at MacKays Crossing. At the remaining sites, proper soil management measures, including erosion control, dust control, and proper disposition of soil will mitigate the risk to an acceptable level.
- 75 There is a possibility of accidental discovery of contaminated soil during highway construction. Procedures outlined in the CLMP will minimise the risks to human health and the environment associated with accidental discovery of contamination.
- 76 There is potential that contamination is present in soil beneath the Transpower towers. The risk is considered to be relatively low and procedures for managing this potential contamination are described in the National Environmental Standard for Electricity Transmission Activities²². It is expected that these procedures will be followed and that erosion and dust control will be further addressed in earthworks and related consents that will be applied for in the future.
- 77 The potential risks associated with contaminated land within the TGP designation boundaries and potential contamination in the Transpower Project area are not considered to be significant and are typical of those found at similar sites across New Zealand. Potential adverse effects can be managed as part of the construction process,

²¹ This was previously part of condition NZTA.12 (the aspects of condition NZTA.12 relating to contaminated land are now proposed to be deleted). I therefore recommend that condition G.15 be amended so as to include this.

²² MfE, 2010. National Environmental Standards for Electricity Transmission. Wellington: Ministry for the Environment.

and in many respects the contaminated land issues are no different than would normally be expected to occur during any major earthworks project. Managing contaminated land and potential effects from it, therefore, will not be onerous or particularly complicated.

- 78 Additionally, there will be some positive benefit as contaminated soil will be better separated from potential receptors following completion of construction.



Teresa (Terre) Ann Maize
16 November 2011