

Before the Board of Inquiry
Waterview Connection Project

in the matter of: the Resource Management Act 1991

and

in the matter of: a Board of Inquiry appointed under s 149J of the Resource Management Act 1991 to decide notices of requirement and resource consent applications by the NZ Transport Agency for the Waterview Connection Project

Rebuttal evidence of **Terry Widdowson (Land and Groundwater Contamination)** on behalf of the **NZ Transport Agency**

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INDEX

INTRODUCTION..... 3

PURPOSE OF EVIDENCE..... 3

MR GALLAGHER AND MR BEER – AUCKLAND COUNCIL 3

COMMENTS ON SECTION 42A REPORTS..... 5

FURTHER INVESTIGATIONS AT 25 VALONIA STREET 7

REBUTTAL EVIDENCE OF TERRY WIDDOWSON ON BEHALF OF THE NZ TRANSPORT AGENCY

INTRODUCTION

- 1 My full name is Terence Widdowson. I refer the Board of Inquiry to the statement of my qualifications and experience set out in my evidence in chief (*EIC*) (dated 12 November 2010).
- 2 I repeat the confirmation given in that statement that I have read and agree to comply with the Code of Conduct for Expert Witnesses in the Environment Court.

PURPOSE OF EVIDENCE

- 3 The purpose of this rebuttal evidence is to respond to certain aspects of the evidence lodged by submitters. Specifically, my evidence will respond to:
 - 3.1 Messrs Gallagher and Beer on behalf of the Auckland Council (Submitter No. 111-9 and 111-10).
- 4 In addition, I will comment on relevant aspects of the section 42A Report prepared by Environmental Management Services (*EMS*) dated 7 December 2010 (*Section 42A Report*) and the Addendum Section 42A Report dated 20 December 2010 (*Addendum Report*).
- 5 Finally, I will provide a brief update on further land and groundwater investigations that have been completed at 25 Valonia Street since my EIC was prepared.

MR GALLAGHER AND MR BEER – AUCKLAND COUNCIL

- 6 Messrs Gallagher and Beer have asked the NZTA to consider establishing sports fields on Phyllis Street Reserve as an alternative to what is proposed by the NZTA on Waterview Reserve and Alan Wood Reserve.¹ Phyllis Street Reserve is zoned open space and owned by Auckland Council. It is the location of a closed landfill as described in Section 14.1 of the *Assessment of Land and Groundwater Contamination Report (G.9 Technical Report)*.² I understand that the likely method of construction for the sports fields would be a 'sand carpet'.³

¹ Evidence of Michael Gallagher, paragraphs 8.3 to 8.8 and Annexure C; Evidence of Andrew Beer, paragraphs 9.24 and 9.25.

² Technical Report G.9, Volume 1 (AEE, Part G).

³ Evidence of Michael Gallagher, paragraph 6.5(a).

- 7 I have considered the implications of constructing sports fields on Phyllis Street Reserve with respect to contamination and these are set out below:
- 7.1 Any excavations below the landfill cap are likely to encounter waste materials and contaminated soils. These excavated materials/soils would need to be disposed of to an appropriately licensed landfill. All earthworks on the landfill would require strict management as detailed in the Contaminated Soils Management Plan (*CSMP*)⁴ which may need to be amended to cater for landfill specific risks.
 - 7.2 Any excavations into the landfill could encounter landfill gas (methane and carbon dioxide) and this would need to be monitored during the works.
 - 7.3 Any changes to the existing surface cover on the landfill could affect the landfill gas flow regime and this could result in properties adjacent to the landfill being impacted by landfill gas. Landfill gas monitoring would need to be carried out before, during and after construction of the sports fields to establish baseline gas conditions, quantify risks and develop mitigation.
 - 7.4 Removal of the existing cap and replacement with more permeable material could change the water balance within the landfill and this in turn could affect the generation and discharge of leachate into Oakley Creek. Monitoring of water levels within the landfill and potential leachate discharge into the Creek would need to be implemented.
 - 7.5 The Contaminated Land Rules in the Proposed Auckland Regional Plan: Air, Land and Water (*ALWP*) which relate to closed landfills (Rules 5.5.48 to 5.5.50) do not provide for the disturbance of landfills. Therefore, I would expect that disturbance of a closed landfill would be covered by Rules 5.5.40 to 5.5.45. Given that soil contaminants have been identified in Phyllis Street Reserve during the assessment of land and groundwater contamination, a resource consent would be required for any land disturbance of the Reserve under Controlled Activity Rule 5.5.44 of the *ALWP*.
 - 7.6 Any resource consent for such land disturbance would likely need to include conditions for soil/waste management, landfill gas monitoring, leachate monitoring and stormwater management.

⁴ See Appendix O to Technical Report G.9, Volume 2 (AEE, Part G).

- 8 I have set out these implications in order to respond to Messrs Gallagher and Beers' evidence which seeks the provision of sports fields on Phyllis Street Reserve. This is not proposed by the NZTA as part of the Project.

COMMENTS ON SECTION 42A REPORTS

- 9 Paragraph 10.9.23 of the Section 42A Report summarises the results of groundwater analyses within Sector 8 of the Project as given in the AEE.⁵ The summary states that groundwater sampling initially indicated elevated concentrations of lead, copper and volatile hydrocarbons. However, later samples did not identify these contaminants at elevated levels and it was considered that there were no issues in relation to contaminated groundwater. The Section 42A Report states that:⁶

...the initial high levels are not explained and evidence addressing this matter would be of assistance.

- 10 I disagree that the initial high sample results have not been explained. Section 13.4 of the G.9 Technical Report gives a detailed account of the groundwater analysis results, which includes discussion of the elevated lead, copper and volatile hydrocarbons. In summary, the high results were suspected to result from the solvent based glue that was used to seal the lengths of PVC tubing used to construct the groundwater monitoring piezometers. Given that these very localised contamination sources constituted a 'depleting source' (contaminant concentrations reducing over time), subsequent monitoring rounds revealed successively lower contaminant concentrations.
- 11 The Conclusions section of the Section 42A Report includes the following topic for further consideration (referencing paragraph 10.9.23):
- Confirm that there are no groundwater contamination issues associated with construction works in the vicinity of Phyllis Reserve and Harbutt Reserves (that were in part former landfills).
- 12 This is discussed in detail in Section 14 of Technical Report G.9. In summary, sampling, monitoring and 2D groundwater modelling has shown that there are negligible groundwater contamination issues associated with tunnelling beneath the Phyllis and Harbutt Reserves.

⁵ I have also read the Addendum Report which does not raise any new contamination issues.

⁶ At paragraph 10.9.23 of the Section 42A Report.

- 13 Attached as Appendix A to the Section 42A Report is a marine ecology report prepared by Dr Brian Stewart of Ryder Consulting.⁷ In his report (at paragraph 3.13), Dr Stewart raises the issue of contaminants leaching from the former tannery adjacent to Oakley Creek (Sector 5) during the construction phase of the Project.
- 14 This issue is discussed in the rebuttal evidence of Dr Sharon De Luca (marine ecology). From a land and groundwater contamination perspective, I have the following comments. The former tannery was located on both the northern and southern banks of the Creek. The northern bank was investigated and sampled during the assessment of land and groundwater contamination and the soil samples were uncontaminated.⁸ The southern bank has not been investigated due to access restrictions, though investigations will take place once the access issues have been resolved.
- 15 Given the concerns raised about the former tannery, I recommend that proposed Contaminated Land and Discharge condition CL.2 be amended to include investigation of the location of the former tannery on the southern bank of Oakley Creek.
- 16 My suggested amendment (bold underlined) to Contaminated Land condition CL.2 is as follows:
- Prior to the main construction works commencing, the baseline quality of soils and groundwater within **Sector 5 (the southern bank of Oakley Creek coincident with the location of the former tannery) and** Sector 7 (particularly in relation to works in the vicinity of Great North Road) shall be investigated and established. The investigations shall be carried out in accordance with appropriate MfE and Auckland Council guidelines. The findings of the soil and groundwater investigations shall be used to determine any likely environmental effects in relation to the Project and the need for specific construction methods during work in this area.
- 17 In my opinion, the amended condition CL.2 is appropriate and addresses the concerns raised in Dr Stewart's report.

⁷ Review of the Assessment of Marine Ecological Effects and Submissions with Relevance to Marine Ecology, Ryder Consulting, November 2010.

⁸ See Section 10.3.2 of the G.9 Technical Report.

FURTHER INVESTIGATIONS AT 25 VALONIA STREET

- 18 My EIC (November 2010) summarised the land and groundwater investigations carried out for the Project, as described in more detail in the G.9 Technical Report. One of the areas within the Project that was not assessed during the investigations was the site at 25 Valonia Street (Goldstar Site). This was because permission to access the site had not been granted by the site owner. Since my EIC was prepared, land investigations have been completed at 25 Valonia Street.
- 19 The findings of the investigation at 25 Valonia Street have identified isolated contamination of soils by lead and polycyclic aromatic hydrocarbon (PAH) compounds.⁹ Land disturbance activities within the vicinity of those locations would require a discharge consent under Rule 5.5.44 of the ALWP. Those activities would be covered by the current consent application and therefore, a new consent application is not required. All excavations in that area will need to be carried out and managed in accordance with the Contaminated Soil Management Plan and Contractor Health and Safety Plan:¹⁰
- 19.1 To control the off-site migration of identified and any, as yet, unidentified contaminants; and
- 19.2 To minimise the exposure of construction workers to actually or potentially contaminated soils.



Terry Widdowson
February 2011

⁹ The investigation report for 25 Valonia Street is currently being reviewed by the NZTA and this review is anticipated to be complete in early February 2011.

¹⁰ The Contaminated Soil Management Plan is in Appendix K to the CEMP. The Contractor Health and Safety Plan will be prepared by the NZTA's contractor.