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| Under            | the Fast-track Approvals Act ('FTAA')                                                                                                                                                                                                                                    |
| In the matter of | a substantive application under the FTAA for an alteration to an existing designation, resource consents, a wildlife approval, archaeological authorities and a complex freshwater fisheries activity, to construct, maintain and operate the Belfast to Pegasus Project |
| By               | <b>New Zealand Transport Agency Waka Kotahi</b><br>Applicant                                                                                                                                                                                                             |

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**Second Statement of Evidence of Paul Edward Walker (contaminated land)**

Dated 3 July 2026

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## **Second Statement of evidence of Paul Edward Walker**

### **1 Introduction**

- 1.1 My full name is Paul Edward Walker.
- 1.2 My qualifications and experience are set out in paragraphs 1.2 – 1.5 of my first statement of evidence (dated 15 May 2026, provided as Attachment 3B to the New Zealand Transport Agency Waka Kotahi ('**NZTA**') response to comments from invited parties).
- 1.3 I repeat the confirmation in my first statement of evidence, that I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023, and agree to comply with it.

### **2 Scope of evidence**

- 2.1 My scope of evidence addresses draft conditions C1.19 (d) and (e) of land use consent CRC263282 as proposed by the Expert Panel ('**Panel**') in Appendix C to its draft decision of 26 June 2026.

### **3 Response to proposed condition C1.19 (d)**

#### **Panel draft condition**

- 3.1 As proposed by the Panel, condition C1.19 (d) states:

A siting assessment shall be carried out and provided to CRC for certification, where contaminated soils to be re-used exceed the Class 4 adopted Waste Acceptance Criteria set out in table C-3 of the Waste Management Institute of New Zealand Technical Guidelines for Disposal to Land Revision 3.1 September 2023.
- 3.2 Paragraphs 239 and 240 of the draft decision provide the basis for the addition of this condition. Whilst the Panel agrees that Class 4 leaching to water acceptance criteria ('**WAC**') proposed by NZTA for the re-use of soil from HAIL sites for landscaping within the Project Designation are appropriate, the Panel does not agree that the siting re-used soil is inherently considered in the way the criteria area set.
- 3.3 Neither the Panel's draft decision nor condition C1.19(d) specify how siting should be assessed or the criteria CRC will use for certification.

## Siting assessment guidelines and application of WAC

3.4 The Waste Management Institute of New Zealand Technical Guidelines for Disposal to Land, Revision 3.1, September 2023 (the 'TGDL') provides guidance on the key siting constraints to be considered for a Class 4 Controlled Fill (from which the NZTA proposed soil re-use criteria are taken). The key constraints are shown below, reproduced from Table 4-1 of the TGDL.

| Class                                                             | 1                                                                                                                                                                                                                                                | 2                                                                          | 3                                                                          | 4                                                                           | 5                                                |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------|
| Type of facility                                                  | Landfill                                                                                                                                                                                                                                         | C&D Landfill                                                               | Managed Fill                                                               | Controlled Fill                                                             | Clean Fill                                       |
| Geology constraints (without site-specific additional mitigation) | High permeability soils, sand and gravels, fractured rock                                                                                                                                                                                        | High permeability soils, sand and gravels, fractured rock                  | High permeability soils, sand and gravels, fractured rock                  | High permeability fractured rock                                            | NA                                               |
| Geology and site stability constraints                            | Geothermal areas<br>Karst areas<br>Active faults                                                                                                                                                                                                 | Geothermal areas<br>Karst areas<br>Active faults                           | Geothermal areas<br>Karst areas<br>Active faults                           | Geothermal areas<br>Karst areas                                             | Geothermal areas                                 |
| Hydrogeology constraints                                          | Drinking water aquifers                                                                                                                                                                                                                          | Drinking water aquifers                                                    | Drinking water aquifers                                                    | Drinking water aquifers                                                     | NA                                               |
| Surface hydrology constraints                                     | Flood plains<br>Water supply catchments<br>Estuaries, marshes and wetlands                                                                                                                                                                       | Flood plains<br>Water supply catchments<br>Estuaries, marshes and wetlands | Flood plains<br>Water supply catchments<br>Estuaries, marshes and wetlands | Water courses<br>Water supply catchments<br>Estuaries, marshes and wetlands | Water courses<br>Estuaries, marshes and wetlands |
| Environmentally sensitive areas - constraints                     | Significant wetlands<br>Inter-tidal areas<br>Significant areas of native bush and areas able to comply with the requirements for Q.E.II Trust status<br>Recognised wildlife habitats<br>Any areas with sensitive fish/wildlife/aquatic resources |                                                                            |                                                                            |                                                                             |                                                  |

3.5 Section 4.3 of the TGDL sets out the aspects to be considered within a site selection (siting) process. Section 4.4 of the TGDL provides further detail on hydrogeological and hydrological aspects that should be considered when siting a fill facility.

3.6 An assessment of the hydrogeological and hydrological setting of the site is presented in the T+T Ground Contamination Assessment ('GCA'), which is Volume 3F of Application. I am one of the authors of that report. The report

addresses the key constraints and aspects I refer to in paragraphs 3.4 and 3.5 above:

- a Groundwater is typically less than 2 m below ground level and is likely to flow to the east.
  - b Whilst two community drinking water protection zones are intersected by the Designation, abstraction occurs from a deep, confined aquifer and not the shallow water table aquifer.
  - c Bores that abstract from the shallow aquifer are located within 100m downgradient of the Designation.
  - d Irrespective of the presence of abstraction bores in proximity to the Designation, groundwater quality limits apply at the Designation boundary, in accordance with Rule 5.187 of the Canterbury Land and Water Regional Plan ('LWRP').
  - e The Designation intersects several named and unnamed watercourses and numerous wetlands.
- 3.7 I considered these site-specific aspects when assessing the suitability of the soil re-use criteria. Specifically, I considered whether any of these site-specific aspects were inconsistent with the assumptions upon which the derivation of the Class 4 leaching to groundwater re-use criteria was based.
- 3.8 In the table below I summarise how the site-specific aspects correspond to the WAC derivation assumptions.

| Siting consideration | Site specific aspects                                                                                                                                                         | WAC derivation assumption                                                                                                                                                                                                                                                                                                                                                                                                    | Application of WAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth to groundwater | Depth to groundwater is typically less than 2m below ground level, meaning that the vertical migration distance for contaminants in re-used material to groundwater is small. | The derivation assumes that soil contamination extends down to groundwater. This means that the attenuation processes that commonly apply as contaminants move through unsaturated soils are not accounted for. The derivation therefore over-estimates the mass of contaminant that will enter groundwater, resulting in WAC that are more conservative than would be the case if attenuation processes were accounted for. | <p>Soil will typically be reused in the general area from which it has been excavated.</p> <p>Soil will typically be reused in noise bunds or for landscaping – in other words above the current ground level.</p> <p>Any contaminated leachate generated by rain infiltrating through the reused material will need to pass through unsaturated soil before reaching groundwater. This will allow attenuation (through dilution in groundwater and immobilisation in soil) of contamination in leachate to occur before contamination could reach groundwater.</p> |
| Groundwater use      | Shallow groundwater is assumed to be used for potable purposes within 100m of the Designation.                                                                                | The WAC are derived to comply with NZ Drinking Water Standards ( <b>NZDWS</b> ) in groundwater. The derivation assumes that the receptor (i.e. groundwater well) is located at the immediate downgradient boundary of the contaminated material. Accordingly, the derivation assumes there is no opportunity for dilution or attenuation between the contaminated material, groundwater under the material and the receptor. | <p>Based on the derivation process, where soils meeting the re-use criteria are used within the Designation, groundwater at the boundary of the re-use area (which may or may not be the Designation boundary) should comply with NZDWS.</p> <p>In addition, whilst abstraction from shallow groundwater may be occurring within 100m, records indicate that abstraction does not occur at the Designation boundary. This means that further dilution between the site boundary and the wells is likely to occur, further reducing the</p>                          |

| Siting consideration                | Site specific aspects                                                                                                         | WAC derivation assumption                                                                                                                                                                                                                                                                                                                                                                                     | Application of WAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                               | potential for groundwater concentrations to exceed NZDWS at the receptor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| LWRP rule 5.187                     | Groundwater quality limits (50% NZDWS) apply at the site boundary (or otherwise consent is required for a passive discharge). | The derivation is based on meeting NZDWS (not 50% of NZDWS). However, the Dilution and Attenuation Factor ("DAF") does not incorporate attenuation (only dilution). This over-estimates the mass of contaminant that will enter groundwater, resulting in WAC that are more conservative than would be the case if attenuation processes were accounted for.                                                  | It is possible that soil re-use will extend to the boundary of the Designation (i.e. the LWRP compliance point) at some places along the alignment. However, the derivation incorporates sufficient conservatism that groundwater concentrations at the site boundary are likely to comply with 50% NZDWS.                                                                                                                                                                                                                                                                                                       |
| Proximity of surface water/wetlands | Numerous surface water features and wetlands are intersected by the Designation                                               | Derivation assumes that surface water is located at downgradient boundary of contaminated material. Derivation also incorporates an additional 5x dilution factor to allow for dilution in receiving water. Again, no attenuation (sorbing of contaminant on soil, microbial breakdown of organic contamination) of contamination is allowed for in the derivation, adding to the conservatism of the values. | Proposed re-use criteria within 20m of surface water include sediment quality guidelines which are several times lower (more protective) than the leaching to groundwater criteria. This means that soils meeting the leaching to water WAC will be reused no closer than 20m from surface water, allowing for further dilution in ambient groundwater before discharging to the surface water. In addition, siting has also been considered with respect to surface water infrastructure – with the consent conditions explicitly prohibiting re-use of contaminated material within stormwater infrastructure. |

- 3.9 Based on the comparison provided above, I consider that the key siting aspects have already been incorporated into the assessment of the suitability of the soil re-use criteria. Consequently, the siting assessment proposed in condition C1.19 (d) is unnecessary because:
- a I cannot identify any site-specific aspects within the Designation that are likely to be identified by further siting assessment that would require more conservative assumptions than those upon which the current derivation is based.
  - b To be effective, soil reuse criteria need to balance risk mitigation with certainty and ease of implementation. The proposed condition C1.19(d) adds a further step into the reuse process, and in its current form is unclear as to the scope of the siting assessment it requires, or the basis for CRC certification. The delay caused by an additional siting assessment, and the uncertainty of the basis upon which ECan would certify the assessment are likely to undermine the utility and sustainability benefits of the re-use criteria and the soil re-use approach overall.
  - c Although I do not consider that further certainty is necessary, if the Panel seeks greater certainty regarding the re-use of soil from HAIL sites with respect to the depth to groundwater, I recommend that the proposed condition C1.19 (a) is amended as follows:

Soil derived from HAIL sites is not used within stormwater infrastructure or below existing ground level.

## **4 Response to proposed condition C1.19 (e)**

### **Panel draft condition**

- 4.1 As proposed by the Panel, condition C1.19 (e) states:

[Soil derived from the Site during Construction Works may be reused within the Site providing]....The requirements of the CLWRP are achieved when measured at the property boundary (<0.5 DWS MAV).

- 4.2 Paragraph 241 of the draft decision provides the Panel's basis for the addition of this condition and states that the Project effects should be monitored in accordance with the requirements of the CLWRP.

## Consideration of monitoring programme

- 4.3 I have considered how a monitoring programme could be implemented to assess compliance with Rule 5.187 of the LWRP. In particular, I have considered:
- a That reuse may occur within embankments (if geotechnically suitable), noise bunds or in roadside landscaping – i.e. re-use will typically have a long, thin linear footprint that is generally parallel to the Designation and generally perpendicular to the groundwater flow direction.
  - b That the soil being re-used is already present within the Designation. The manner of re-use is unlikely to exacerbate the potential for contaminant leaching. Where soil is reused in noise bunds or embankments the risk of leaching is likely to be reduced compared with soils remaining in place.
  - c Existing groundwater quality monitoring data from the Gladstone Road landfill.
  - d Whether the re-use criteria provide an indirect means/surrogate for assessing contaminant discharges to groundwater and surface water.
  - e Other projects, where contaminated soil has been reused/retained but where groundwater and surface water monitoring has not been required to demonstrate compliance with Rule 5.187 of the LWRP.
- 4.4 Establishing a robust monitoring programme to assess groundwater and surface water in areas of soil re-use is likely to require the installation of a large number (potentially more than 50) of monitoring points on both upgradient and down gradient Designation boundaries due to the linear nature of the potential soil re-use areas. Periodic monitoring of groundwater and surface water would be required over an extended period. In my view, the implementation of such a monitoring programme would present an unreasonable cost to NZTA compared to the risk of groundwater and surface water contamination that re-use presents.
- 4.5 I note that groundwater sampling completed within the Gladstone Road landfill (as reported in the GCA) confirmed that contaminant concentrations in groundwater within a well installed within the landfill site were well below 0.5 X DWS MAV. This is despite the Gladstone Landfill being the largest HAIL site identified within the Designation, and despite concentrations of contaminants in some individual soil samples being above the leaching to groundwater criteria.

- 4.6 It is common for soil contamination to be retained on sites based on protection of groundwater quality criteria, but without the requirement for monitoring to demonstrate compliance with rule 5.187 of the CLWRP. In my 21 years of practice in New Zealand, I have been involved in well over 50 service station or other petroleum industry sites where soils containing petroleum hydrocarbons that comply with leaching to groundwater-based criteria have been retained on site, but without the need for subsequent monitoring to demonstrate compliance with water quality limits at the site boundary. I have also worked on numerous sites in Canterbury where the retention of soils containing above background concentrations of contaminants has been allowed (without confirmatory monitoring) based on Synthetic Precipitation Leaching Potential ('SPLP') analysis. I note that the analysis of an NZ SPLP data set forms the bases for the WAC derivation.
- 4.7 Lastly, I would note that CRC recently supported the retention of soil contamination that met commercial/industrial soil contaminant standards within the Gladstone Road Landfill (refer to Waimakariri District Council consent RC255052, May 2025). Commercial/industrial soil contaminant standards are in almost all cases higher than the proposed re-use criteria. However, CRC did not require groundwater monitoring to confirm compliance with rule 5.187 of the CLWRP.

## **5 Conclusion**

- 5.1 For the reasons below I consider that the draft consent conditions C1.19 (d) and C1.19 (e) are more onerous than necessary to address the potential effects from soil reuse within the site.
- 5.2 I do not support the addition of consent condition C1.19 (d) on the basis that it risks undermining the utility of the soil re-use approach by increasing complexity and the potential for construction delays, and creating uncertainty. In my opinion, key siting aspects have already been considered in the derivation and application of the re-use criteria. I think it is unlikely that a siting assessment would identify aspects that are any more conservative than currently incorporated in the derivation of the WAC.
- 5.3 I do not support the addition of consent condition C1.19 (e) on the basis that the scale of the programme that would be required is inconsistent with the risk that Rule 5.187 of the CLWRP would not be complied with at the site boundary. In my experience it is common for re-use or retention of contaminated soil to occur on sites in Canterbury solely on the basis of leaching to water criteria and without the

requirement for monitoring to confirm compliance with the addition of Rule 5.187 of the CLWRP.

**Paul Edward Walker**  
**3 July 2026**