

Appendix 3: s53(2)(a) Fast-track Approvals Act 2024 (FTAA) Technical Advice

Date	2/10/2026
To	Consents – Fast-track
Expert Name and Job Title	Hannah Mirabueno, Senior Scientist – Contaminated Land and Waste Science, Canterbury Regional Council.
Project advice provided for	Carter Group Limited - Ōhoka Residential Subdivision
Documents referred to	Detailed Site Investigation – Supplementary, 531 and 535 Mill Road, Ohoka, EHS support New Zealand Ltd. Ohoka Development Detailed Site Investigation - Fast-track Application, Tetra Tech Coffey Assessment of Effects on the Environment & Statutory Analysis, Novogroup
Qualifications	I hold a Doctor of Philosophy in Earth and Environmental Science from Kagoshima University, Japan, a Master of Science in Geology from Canterbury University, and a Graduate Diploma in Environmental Health from Massey University. I am a Senior Scientist on the Contaminated Land and Waste Team at Canterbury Regional Council (CRC) since 2019. Prior to working at CRC, I worked at the Christchurch City Council (CCC) for nine years, primarily as an Environmental Health Officer in the Regulatory Compliance Unit and on the implementation of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.
Code of Conduct	I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical report has been prepared in accordance with that Code. In particular, unless I state otherwise, the opinions I express are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

Introduction/ Executive Summary

1. There are a number of outstanding issues, specifically:
 - a. A Remedial Action Plan (RAP) has been requested since July 2025 to be provided upfront, along with consideration of how remediation works could be staged. To date, the RAP has not been provided.
 - b. Procedures and methodology for soil reuse, excavation, removal and disposal, as well as the importation of fill, have also not been provided. This information is particularly important given that the proposal involves net fill. This should include as a minimum, details of the type and levels of contamination of material that will be imported to the site that will consider the protection of human health and environmental receptors.
 - c. Concerns remain regarding the assessment of contaminants against the ANZG (2018) GV High guideline values and WasteMINZ leaching to water criteria, which may not be appropriate for evaluating long-term operational stormwater infiltration to groundwater.

Discussions with the applicant

2. I have been involved with meetings and/or discussions with the applicant (or their experts) on 14 August 2026.
3. Given the site's condition's i.e very shallow groundwater level and streams traversing the site. I have raised concern with the applicant's representatives regarding the potential effects of leaching of heavy metals, particularly arsenic from (chromated copper arsenate) CCA -treated wood that will be used as posts and boundary fences. The applicant has considered cementing the bases of CCA treated posts as a form of mitigation.

Outstanding areas of contention and significance

4. It is important that a Remedial Action Plan (RAP) is provided upfront, as several outstanding issues will need to be addressed during the remedial works. While these matters can reasonably be managed as part of the remediation process, the RAP should clearly outline how they will be addressed. Specifically, the RAP should include:
 - a) Investigation and remediation of the farm dump areas, preferably prior to the commencement of bulk earthworks;
 - b) Further investigation of potential infilled waterways, including testing, as recommended in the Supplementary Site Investigation;
 - c) For a development of this scale and sensitivity of environmental receptors and human health; and
 - d. Target remedial goals whilst may be protective of human health are not necessarily appropriate and protective of the groundwater and surface water receptors;
5. Soil contamination was compared to the ANZG (2018) GV High and WasteMINZ leaching to water criteria has been considered as low risk to groundwater and surface water. The supplementary detailed site investigation has compared the soil test results to Australian and New Zealand Guidelines for Fresh and Marine Water Quality. GV-High values (ANZG GV-High) and Leaching to Water values for Class 4 fill scenarios, obtained from Waste Management Institute New Zealand (WasteMINZ), September 2013, Technical Guidelines for Disposal to Land, Revision 3.1 (Table C3).
6. In the technical advice that I provided in August 2026, I have stated that the ANZG (2018) GV High are not appropriate to use when considering operational stormwater discharge (as there will be infiltration to the groundwater in perpetuity). Whilst mitigation measures can be put in place during construction phase, when soils and contaminants

will be mobilised, using ANZG GV High values may not provide levels of protection to surface or groundwater for operational phase discharges.

7. Of greater concern is the proposed application of the Class 4 "leaching to water" landfill waste criteria. Considering the site's very shallow groundwater conditions and the presence of multiple surface water systems both within and downgradient of the site, I do not consider these criteria to provide an appropriate level of environmental protection for this receiving environment.
8. By comparing the soil test results to WasteMINZ Class 4 'leaching to water' landfill waste criteria, I am concerned that this application will propose to use waste acceptance criteria for landfills as a criteria for soil reuse and for operational discharge areas.
9. The WasteMINZ Technical Guidelines for Disposal to Land provide guidance relating to the siting, design, operation and monitoring of landfills in New Zealand. They state that the final decision on site specific requirements for a landfill are made by an appropriate regulatory authority following a comprehensive site-specific assessment of effects on the environment. The guidelines are not intended to reduce the necessity for developing site specific requirements for investigations, design, operation or monitoring of landfills.
10. The WasteMINZ Technical Guidelines for Disposal to Land have siting criteria for Class 4 fills, with constraints which include drinking water aquifers, water courses, water supply catchments, estuaries, marshes and wetlands. Where these constraining features are present, engineered controls could be utilised in combination with waste acceptance criteria and monitoring to manage effects. Alternatively, such sites might simply be poor choices for a landfill location.
11. The contaminant concentrations with entrained sediment, in addition to groundwater which might interact with surface water or be used as a drinking water resource.
12. Soil contaminant standards for residential and commercial/industrial land uses will likely be applied. The Class 4 leaching to water waste acceptance criteria are tabulated below, against some other guideline values that are used in New Zealand to protect receptors.
13. The Class 4 leaching to water waste acceptance criteria are tabulated below, against some other guideline values that are used in New Zealand to protect receptors.
14. The Class 4 leaching to water WAC were derived in three main ways. For trace element contaminants, criteria were largely derived from a national dataset which looked to develop a relationship between total recoverable contaminant concentrations and contaminant concentrations that would leach in a synthetic precipitation leaching

procedure test. Partition coefficients were used for organic contaminants. For trace elements, target leachate concentrations were calculated by multiplying drinking water or surface water guideline values by factors of 20 and 100 respectively, then selecting the lower leachate value. Then the corresponding total recoverable contaminant concentration where approximately 3% of the SPLP results exceeded the target concentration was determined. For some trace elements however, the leaching to water WAC were selected by judgement to accommodate variability in datasets and cater to areas and regions that have naturally elevated trace element concentrations in soils.

15. I note that the dilution attenuation factors (DAFs) that are utilised in the WasteMINZ Guidelines are the same as have been used by the USEPA in derivations for leaching (USEPA, 1996). There are assumptions on source size and mixing that are built into the DAFs which include well depths below the groundwater table of 15-300 feet (circa 5-100 metres), which may not approximate the shallow groundwater (e.g., 1-2 metres depth) and proximal surface water that are present in parts of the project area.
16. There is also misalignment between the guideline inference that groundwater quality at drinking water quality guideline levels is acceptable, and the Canterbury Land and Water Regional Plan that limits groundwater quality at property boundaries to half of the Maximum Acceptable Value in drinking water.
17. Neither of these guidelines consider redox chemistry, which is of critical importance in the project area and can increase the mobility of contaminants.
18. For a national guideline for landfill waste acceptance criteria, where site specific risk assessment of fill materials will ensure they are located to minimise risk to receptors, I believe the WAC derivation approach has merit. However, I don't believe they are appropriate as a proxy for unrestricted reuse of soils in areas where numerous constraining site selection features that are outlined in the guidelines are present.
19. The assumptions that underlie the derivation of Class 4 leaching to water values are derived from a national dataset. Soils in the Canterbury region are often well draining due to alluvial gravel and sediments due to alluvial gravels and sediments derived from weathering of the southern alps. The majority of the application site where contaminated soils are anticipated to be disturbed occurs on gley soils. These soils are characterised by strong waterlogging and chemically reduced nature, usually containing high organic matter (Manaaki Whenua- Landcare Research). Soils in reducing environment and high organic matter, depending on soil chemistry, could favour the mobility of contaminants such as arsenic. The Class 4 leaching to water WAC might not be protective of groundwater in Canterbury soils. The Class 4 leaching to water WAC might not be protective of groundwater in Canterbury soils.

20. I do not believe the WAC in the WasteMINZ Technical Guidelines were ever intended to derive soil reuse values that protect shallow (<1-3 m depth) Canterbury groundwaters that are proximal to surface water environments such as are present in the application site. As such any proposed reuse of soils or long-term operational infiltration on these levels of contamination might pose risk to receptors both during construction phase work through sediment risks to surface water, as well as an ongoing risk from leaching and potential erosion.

21. Rather, I consider that the WAC were intended to reflect levels which will pose an acceptable risk in an appropriately sited landfill (noting that acceptability in the TGDL does not align with acceptable groundwater quality in the Canterbury Land and Water Regional Plan) when used with other controls and mitigations including siting, operational controls, and potentially engineering controls as well.

22. Table A below presents Class 4 leaching to water and adopted waste acceptance criteria together with various guideline values to protect different human health and ecological receptors. The Class 4 leaching to water are proposed for operational phase discharge, and the NESCS residential and Commercial/industrial Soil Contaminant Standards will also likely be proposed as target remediation values. Values exceeded by the proposed reuse criteria are bolded, indicating that ecological receptors might not be protected by the Class 4 leaching to water WAC. The table also displays the highest background level used for regulatory purposes in soils at the site where available, with the three soil types for trace element levels including regional recent and gley (Tonkin and Taylor 2007).

Table A. Comparison between various Guideline Values, including the Class 4 adopted WAC (which I recommend in this case) in order to limit associated hazards and risks.

23. It is proposed to re-use and import soils across the application site. I have repeatedly requested for a soil management plan, whether a standalone document or incorporated

<i>All values in mg/kg</i>	Class 4 Leaching to water WAC	Class 4 Adopted WAC	NESCS Human Health Commercial-Industrial	Ecological receptor	ANZG DGV for sediment quality	ANZG GV-high for sediment quality	Highest background level in application site (regional recent)
As	140	17	70	20	20	70	12.58
Cd	10*	0.8	1,300	1.5	1.5	10	0.19
Cr	150	150	6,300	300	80	370	22.7 (RR)
Cu	280	220	10,000	220	65	270	20.3
Pb	460	160	3,300	30	50	220	40.96
Hg	3*	0.7	4,200	0.7	0.15	1	0.11
Ni	32*	35		35	21	52	20.7
Zn	1200*	190		190	200	410	93.94

in the RAP, that would provide details on procedures and methodology for imported

material, re-use of contaminated soils, including soil re-use criteria, location, soil testing regime and proposed locations of contaminated soils that will be re-used across the site. This is to ensure that soils protective of groundwater and surface water, not just of human health, are imported and re-used in the application site.

24. In summary, a Remedial Action Plan (RAP) is required to address several outstanding matters that can be managed through remediation but must be clearly documented upfront. Key issues include investigating and remediating the farm dump areas before bulk earthworks commence, and undertaking further investigation and testing of potential infilled waterways as recommended in the supplementary site investigation. Concerns also remain regarding the assessment of contaminants against the ANZG (2018) GV High and WasteMINZ leaching to water criteria values, which may not be appropriate for evaluating long-term operational stormwater infiltration to groundwater. In addition, a soil management plan is still required to outline the methodology for soil reuse, importation, and management of contaminated soils, including reuse criteria, testing requirements, and the proposed locations where contaminated soils will be placed across the site.

Solutions and/or comments on conditions

25. I agree that prior to further earthworks, all contaminated areas should be remediated, but it is important that a key document, the remedial action plan, should be provided upfront which will provide remedial objectives and mitigation measures protective of both human and environmental health.
26. Soil management plan detailing soil re-use criteria etc is provided upfront to ensure that soil with appropriate contamination levels protective of all receptors are imported and re-used in the application site.

Benefits of the project

27. A potential benefit of the proposal is the remediation of contaminated soils, provided the remediation works are undertaken appropriately and in accordance with an approved remedial action plan.
28. The proposed reuse of soil may reduce the volume of material requiring disposal to landfill. However, this benefit will only be realised if soils are demonstrated to be suitable for reuse and are placed in locations where contamination levels will not result in adverse effects on human health or the environment.

Appendix 1: Record of consultation

Expert and date of discussion	Subject	Summary	Matter resolved? Y/N
14 August 2026	Contaminated land	The applicant was receptive to the recommendations and advice provided. The meeting concluded with the applicant confirming that they would consider the issues raised during the meeting.	Some

Appendix 2: Summary of Issues/Environmental Effects

Issue/ Environmental Effect	Significance of the issue	Solution	Conditions and/or mitigation	Why Condition or mitigation is necessary and not too onerous.
Remedial Action Plan (RAP) not provided	High	Provision of RAP upfront	Not an ideal situation to condition the submission and approval as the RAP should be an integral part of the overall staging/sequencing of works and the overall protection of the sensitive receptors of	
Soil Management Plan not provided	High	Soil Management Plan not provided upfront	Soil re-use and importation are proposed so it is necessary that soils are repurposed appropriately that will be protective of receptors.	
Use of guideline not protective of groundwater (i.e. ANZG	High	Use ANZG DGV values and adopted values of Table C-3 Technical Disposal to Land (WasteMINZ, 2023)	For the long-term operational discharge, these criteria should be used for the protection of	

GV High and WasteMINZ leaching to water criteria values			surface water and groundwater.	
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Reference:

Manaaki Whenua- Landcare Research (2026) <https://soils.landcareresearch.co.nz/topics/soil-classification/nzsc/soil-orders/gley-soils>

Fast Track Approvals Act 2024 (FTAA) Technical Advice

Ōhoka Residential Development – Contaminated Land

Date	09/04/2026
To	Joanne Mitten, Principal Consents Planner, Environment Canterbury, cc Samuel Prystupa, Consents Planner, Environment Canterbury
From	Hannah Mirabueno, Senior Scientist – Contaminated Land and Waste Science, Environment Canterbury
Project advice provided for	Carter Group Limited - Ōhoka Residential Subdivision
Documents referred to	Detailed Site Investigation – Supplementary, 531 and 535 Mill Road, Ohoka, EHS support New Zealand Ltd. Ohoka Development Detailed Site Investigation - Fast-track Application, Tetra Tech Coffey Assessment of Effects on the Environment & Statutory Analysis, Novogroup
Qualifications	I hold a Doctor of Philosophy in Earth and Environmental Science from Kagoshima University, Japan, a Master of Science in Geology from Canterbury University, and a Graduate Diploma in Environmental Health from Massey University. I am a Senior Scientist on the Contaminated Land and Waste Team at Canterbury Regional Council (CRC) since 2019. Prior to working at CRC, I worked at the Christchurch City Council (CCC) for nine years, primarily as an Environmental Health Officer in the Regulatory Compliance Unit and on the implementation of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.
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Executive summary/overview

1. I have reviewed the following documents

- Detailed Site Investigation – Supplementary, 531 and 535 Mill Road, Ohoka, EHS support New Zealand Ltd.
- Ohoka Development Detailed Site Investigation - Fast-track Application, Tetra Tech Coffey

Email from hannah for s46 comments- sent Thursday 2nd July 2026.

Hi Jo

I hope this format is okay.

There are new reports/information that are relevant to contaminated land that were provided:

1. Appendix 30 - Site Management Plan - Its objectives include environmental controls and measures, and ESCP. It also mentioned that a remedial action plan is required. The SMP, however, did not include sufficient details on how contaminated material will be managed, except in the dewatering procedures in Section 6.8 where it proposes to test the groundwater quality sampling prior to works commencing. It is proposed to discharge t to surface water and ground.
2. AEE
3. Appendix 26 Scheme Plan - shows the stages of work. The areas where contamination would be intersected are mostly in Stages 1, 2, 5 and 7

Comments:

1. The RAP should be provided upfront and should align the proposed staging of works and the SMP. The SMP should also consider the DSI and supplement and should also be aligned with the RAP.
2. I also still have not seen procedures /methodology around soil re-use, removal, and disposal, as well as importation of fill as there will be net filling.
3. Please also alert the groundwater and surface water regarding the proposal for dewatering and disposal during construction phase. Some details around dewatering procedure and disposal were contained in the SMP, but it lacks details.

4. None of the following concerns that I previously raised were addressed: (Advice provided in an email on 16/7/2025)
 - Given the site's condition's e.g. shallow groundwater level and streams traversing the site, if subdivision would proceed, I have concern that the application site would be subjected to potential leaching of heavy metals, particularly arsenic from (chromated copper arsenate) CCA -treated wood that will be used as posts and boundary fences. The applicant should provide an assessment how the potential adverse effects would be mitigated.
 - The Site Management Plan (SMP) envisaged resource consenting requirements around dewatering, earthworks, and stormwater discharge. For dewatering, it is proposed to test the groundwater quality sampling to be carried out prior to the works commencing to ensure that discharges to surface water will meet the receiving water criteria. I suggest seeking the advice of the Water Quality Team with regards to this. It is highly likely that groundwater testing of the extracted water will be the more ideal way to confirm the suitability prior to discharge.
 - If importation of fill material will be undertaken, please provide details of the type and levels of contamination of material that will be imported to the site.

These are my comments to the supplementary DSI , which addressed most of the information gaps identified in the original DSI; however, several points should be incorporated into the remediation and construction management approach. The current SMP has not sufficiently addressed the issues below and no RAP has been provided to date.

- Farm dumps/pits: Delineation and validation of the farm dump areas can reasonably be undertaken during development earthworks. However, any additional investigation and remediation should preferably be completed before bulk earthworks commence. A Remedial Action Plan (RAP) and/or Site Management Plan (SMP) should be prepared, submitted, and approved prior to earthworks to ensure contaminated materials are appropriately managed and environmental risks are mitigated.
- Potential infilled waterways: Based on a review of historical aerial imagery, the report concludes that the waterways were channelised rather than infilled and are therefore considered low risk. While further investigation during construction is acceptable, this should be specifically addressed within the RAP and/or SMP, incorporated into the works staging, and potentially included as a consent condition.
- Asbestos-containing material (ACM): Cement board fragments suspected to contain ACM were identified in garden soils to the east and south of the dwelling and should be addressed through the site's remediation and management framework.
- Additional soil sampling: Forty-five additional soil samples were collected and assessed against relevant human health, water quality, and fill acceptance criteria. The results indicate that areas outside the identified HAIL sites are generally consistent with

background concentrations. However, exceedances of the NES-CS Soil Contaminant Standards, ECan background levels, WasteMINZ Class 4 fill criteria, and ANZG (2018) guideline values were identified in some locations. Asbestos concentrations exceeding BRANZ human health guideline values were also detected.

- ANZG guideline values: While the report considers exceedances of ANZG GV-High values in waterway areas to represent a low risk, this interpretation is considered appropriate only during the construction phase. ANZG GV-High values are not necessarily suitable for assessing operational stormwater discharges or situations where there is a significant groundwater connection.

Hannah

