

Position paper: Resolving wastage in NZ's soil management approach

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INTRODUCTION

Between **\$1.35 billion** and **\$2.25 billion**¹ is now paid annually to dispose of soil from earthworks to landfills and contaminated waste sites, with soil now representing around 54 per cent of the material disposed to class 1 landfills (WasteMINZ, 2025).

In many cases, this is an unnecessary waste of money and of landfill space, which is very costly to construct and maintain. This amounts to **4.5-7.5 million tonnes** of soil every year, much of which should instead be reused on-site or at another site, or repurposed as cleanfill.

Overly strict soil classification, narrow legal interpretation to avoid any risk, a shortage of cleanfills, lack of council support for contractors, and a lack of planning have led to a perfect storm of wastefulness in dealing with "surplus soil" from earthworks. Civil Contractors New Zealand calls for action **to stop the waste**.

Civil Contractors New Zealand has produced this paper with input from members, to raise awareness of the problems contractors face in reusing surplus soil on-site or at another site, or repurposing this soil as clean, controlled and managed fill. We make recommendations to solve the problems raised.

CCNZ welcomes engagement with central and local government, and other organisations, on this topic. We welcome and support the recent work of WasteMINZ on the beneficial reuse and repurposing of surplus soil.

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¹ Rod Lidgard et al. (2024). *Reclaiming Resources: Optimising Soil Reuse in Infrastructure and Development*, published by WasteMINZ

Notes for ease of reading the document

References to most documents of interest are via hyperlink.

Where text appears in **bold**, this has been added for emphasis.

NES-CS means the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

MfE refers to the Ministry for the Environment.

RMA refers to the Resource Management Act 1991.

WasteMINZ is the Waste Management Institute New Zealand Incorporated.

EXECUTIVE SUMMARY

The New Zealand government has created a circular economy vision for our country, published as the [Aotearoa New Zealand Waste Strategy 2024](#). But when it comes to surplus soil from earthworks, New Zealand is the opposite of circular.

For any horizontal infrastructure to be constructed, soil must be moved and managed appropriately. However, current regulatory settings are preventing the re-use of soil on sites, at great financial and productivity cost to the country.

Our current soil regulatory system instead focuses on restricting re-use of soil on development sites, forcing contractors to cart soil massive distances and dispose of surplus soil to contaminated waste landfill sites, instead of reusing this soil across other sites, or repurposing it in clean, controlled and managed fills, as was previously common practice.

The massive cost to the nation of non-circular and wasteful soil management runs into the billions of dollars every year and is still rising, blowing out the costs of infrastructure construction, at a time of economic recession when New Zealand can least afford waste.

It is also a productivity cost, as often contractors are forced to cart soil long distances, which causes wear and tear on the transport network and unnecessary emissions – an environmental cost. CCNZ would like to see this situation resolved, and a more practical approach put in place.

CCNZ is far from alone in raising the issue:

“The majority of soil disposed to landfill is low-risk,” – **Landcare Research website**

“The NES-SC ... appears to result in the largely unnecessary disposal of soils to landfill,” – **Jo Cavanagh et al. (2023)**

“We are currently wasting large volumes of soil by trucking it to landfills,” – **Parliamentary Commissioner for the Environment Simon Upton (2024)**

“Wasteful soil practices costs New Zealand infrastructure and developers billions of dollars in direct costs and time each year.” – Rod Lidgard et al. (2024). Reclaiming Resources: Optimising Soil Reuse in Infrastructure and Development

Despite all of the research into the topic, little or no action has been taken to rectify the perfect storm of wastefulness referred to in the introduction to this paper.

It is of concern to CCNZ this situation is often seen as ‘a contractor issue’. It is everyone’s issue, and it is costing the nation dearly in lost opportunities to reverse the infrastructure deficit.

While the cost of soil management and disposal falls on private and public clients, it means contractors are able to construct far less for the money their clients’ pay, as the cost of construction is increasingly taken up by the costs of soil disposal and time spent on cartage of soil, rather than on more productive work.

CCNZ calls on central and local government to take urgent action to stop the waste and enable effective and efficient material reuse and disposal. The first step is to identify the causes of this wastefulness.

Causes of waste soil

The NES-CS drives councils to require resource consent for managing surplus soil that is not of risk to human or environmental health, and to manage and control sediment runoff from earthworks sites. While this surplus soil can contain contaminants, by and large it is not “contaminated waste”; it is instead soil that contains low levels of contaminants.

However, in many regions anything above “background levels” (pre-human inhabitation) is treated in the same way as heavily contaminated soil, which must be disposed to specially constructed facilities at a very high cost.

Currently, in many council regions, soil with contaminants above “background concentrations” - even if below environmental and human health exposure thresholds, where they exist - cannot be reused on-site or at another site, or repurposed as cleanfill, and therefore must be taken to the nearest managed or controlled fill site, which is sometimes hundreds of kilometres distant.

Note that in 2023-2024, Pattle Delamore Partners carried out a SWAP (soil waste analysis protocol) at class 3 and 4 fills around New Zealand, on contract to MfE. The study found that on average 92 per cent of the material going to class 4 fills (quarry sites) was “uncharacterised soils, virgin excavated natural material, and topsoil”.

Contaminated waste sites require extensive engineering, and are very costly to construct, maintain and decommission. So, taking soil that does not pose a risk to human or environmental health to these sites is counterproductive.

A better alternative is to re-use soil on site, however, there is no certainty that a contractor’s client will gain resource consent for managing surplus soil to be re-used in this (or any other) way. The reasons are:

1. A lack of specifications for materials produced during earthworks, eg demolition concrete, disturbed soils, to enable their reuse or repurposing. Instead, there should be clear specifications for re-using material.
2. Councils often expect contractors to apply for consented fill sites, but the industry lacks confidence that consent applications for cleanfills and managed fills will be approved. Active and direct council support for new fills, and other infrastructure such as soil-washing facilities is required.
3. There is low regional understanding of the volumes that require disposal, and contractors are often prevented from reusing soil under current regulations. Local and regional authorities should instead understand volumes of soil for disposal or re-use, how soil excavated in infrastructure should be used and plan for where it should be re-used or disposed of.
4. The definition of “natural inland wetland” in the National Policy Statement for Freshwater Management 2020, last updated in 2024, remains unclear when applied to wet pasture, a disincentive to development as a cleanfill. Natural wetlands should be more clearly defined.

The consequence is a strong incentive on contractors to dispose of the soil to landfill, pay the levy for this disposal, and pass on the cost to the client.

Lack of consented sites

Compounding the above is a shortage nationwide of Class 1-5 fill sites. One reason is lack of statutory direction on councils to plan for, and build these facilities. For their part, councils find resource consenting onerous, costly and time consuming, inhibiting them from seeking and securing community support for new facilities.

As a result, many are not planning for the volumes of soil requiring management in their regions, and contractors are often trucking surplus soil large distances out of region, as far as 200km, at increased cost and CO2 emissions, and for increased transport network wear and tear. This is because there are no available sites in their regions.

Long-distance trucking can also occur where councils in a district or region are less risk-averse, allowing certain soils with levels above “background” to be repurposed as cleanfill, at significantly lower overall cost.

In addition, some sites for better management are needed, for instance, for the repurposing of crushed concrete or hydrovac waste. There are instances of good practice where sites have been set up for the cleaning and grading of materials, but these are too few and far between, and require incentives if they are to meet the need for New Zealand’s regions.

All this adds significantly to the costs of constructing infrastructure at a time when New Zealand is seeking to redress an infrastructure deficit.

Often there is little understanding of the volumes of soil requiring disposal at a local authority level, and so this essential factor in construction projects is overlooked or not provided for in planning.

The importance of social licence

There is a clear public good in understanding regional soil management needs in a way that empowers re-use and disposal close to the excavation site, where possible.

Regions need soil to be managed appropriately, including fill sites and opportunities for re-use. However, contractors are not responsible for articulating this need, as it is a regional societal need. They can provide good, practical information, however, they require support from councils to share with communities why disposal and re-use sites are needed.

If this does not happen, contractors are far less likely to apply for consent for fill sites, as they will be forced into confrontations with communities, with little support from local authorities on the regional need for resources.

The key is social licence – there is an undeniable need for regional soil management. There is a need to manage soil well, including a need for regional authorities to understand and provide for the volumes of soil that need to be disposed of, or better, re-used.

Contractors need councils to support the need for sites, or they will be pitted against the communities for whom they work to construct infrastructure, and will not take on the risk of a failed consent, and of a discussion that will tarnish their reputation in the public eye without support from authorities to make the case for regional need.

The Waste Levy

Recently the government raised the levies for disposal of soil to landfill, however, without providing credible and adequate alternative solutions for soil management this will add to the country's infrastructure bill without achieving better outcomes.

In the definitions of waste under the Waste Levy, clean excavated soil (known as “cleanfill”) is exempt because it is not viewed as “waste”. Because it is absent from the definitions and plans, it is not being planned for, and some regional planners hold the view there is no “cleanfill” at all, because all soil contains some form of contaminant, even at very low levels.

Note: revenue earned from the increased waste disposal levy is not being invested in building facilities for repurposing soil. Rather, it is used to fund agencies and departments, instead of incentivising new sites for soil management or promoting a circular approach to surplus soil.

The Waste Levy has been recently raised twice, and further incremental increases are planned. The reasoning for this is sound – provided the funding results in the construction of new facilities for recycling waste and creating circular economies.

Higher waste disposal costs are also driving instances of illegal dumping of surplus soil in locations such as roadsides and streams (“fly tipping”). This is ironic at a time when the waste minimisation fund has just been expanded to include stream cleanup.

Because of these issues, New Zealand's soil management is becoming less circular, defeating the vision of our country's 2024 waste strategy. There are currently few managed sites for repurposing or re-using soil, and the incentives are not set up to enable good outcomes.

It is also contrary to the sustainability objectives of certain agencies, eg [NZ Transport Agency](#) Waka Kotahi.

While 50 per cent of the Waste Levy goes to councils, this is being applied in a piecemeal way, and is typically applied on a per household basis, rather than at a regional infrastructure level.

When it is applied to the construction industry at all, this is typically to re-use or recycle wood and plastics from vertical building sites or demolition sites. While these are worthwhile and necessary activities, there is little provision for management of soil waste from horizontal or vertical construction sites.

For instance, if hydroexcavation is contributing to the waste levy, it makes sense that the output of the funding would support the establishment of sites for disposal of hydro-excavation slurry.

This begs the question: if soil disposal is significantly contributing to the waste levy (and thereby adding billions to the “NZ inc.” infrastructure construction bill annually), why is the levy not being put to better use to fund good outcomes for horizontal infrastructure through the Waste Minimisation Fund?

Desired outcomes

Imagine contractors being able to shift soil during earthworks, loading it onto trucks and delivering it for:

- reuse at the project site through stabilising technology such as geogrids
- reuse at a nearby site (e.g. a nearby subdivision in landscaping works)
- repurpose in backfilling quarry sites – as managed, controlled or cleanfills (where quarry operators are subject to resource consent conditions)
- repurposing at a nearby facility, for instance a hydrovac waste recycling setup to clean and grade materials for resale and re-use, at low cost

The Parliamentary Commissioner for the Environment, Landcare Research, WasteMINZ, and CCNZ all agree: soil that is only slightly contaminated, and below environmental and health exposure thresholds, should be reused on site or at another site, or repurposed as cleanfill. It should not be disposed of at high cost, wastefully occupying council landfill space, which is already in short supply.

Sites for repurposing of material can be set up for those with higher levels of contamination, such as hydrovac waste. Other examples include the cleaning and re-use of KiwiRail ballast.

Ongoing RMA reform is an opportunity to solve issues with re-using and repurposing surplus soil from earthworks, once and for all. However, there are immediate issues and opportunities that should not wait years for RMA reform and should be addressed immediately.

RECOMMENDATIONS

CCNZ makes the following recommendations to enable re-use of surplus soil on-site or at another site, or repurpose this soil as cleanfill, and avoid the unnecessary and costly disposal of this material to landfill:

1. Define “cleanfill” in the Waste Minimisation Act, RMA and the NES-CS, drawing on the RMA National Planning Standards, focussing on actual risk to human and environmental health rather than ‘above background levels’
2. Amend ss30-31, RMA, to direct local authorities to plan for, and build Class 1-5 facilities to meet local demand, identifying regional soil management needs and supporting planning, siting and construction of such facilities
3. Local authorities to better co-ordinate with local contractors the planning, siting and construction of cleanfills
4. Amend the NPS-FM to provide clear definitions of ‘natural inland wetland’, that better recognises where areas are not natural wetlands. At present there is uncertainty, and this rule is being applied to drains and gullies.
5. Classify the re-use and repurposing of eligible surplus soil as a permitted activity under the RMA (noting Class 5 and other fills are consented facilities)
6. Review the Landcare Research “soil guideline values”, and action the findings to enable more re-use and repurposing of eligible soils
7. Delete cl 5 (9), NES-CS, and replace it with guidance to councils to allow the re-use and repurposing of slightly contaminated soils that are below environmental and human health exposure thresholds
8. Develop specifications for the re-use of all construction and demolition waste, including crushed demolition concrete
9. Harmonise the definitions of “contaminated site” and “contaminated land” in the Waste Minimisation Act, the RMA and the National Planning Standards, for clarity, and for logical and useful interpretation
10. The Ministry for the Environment and local authorities to better provide for workable re-use of lightly contaminated soil, and avenues for soil decontamination, in policy settings
11. Amend the Waste Minimisation Act to provide specifically for the re-use and repurposing of surplus soil
12. Remove levies for managed and controlled fills at quarry sites, in relation to site remediation, recontouring land, and re-using material as aggregate, as per what was originally intended by policymakers
13. Amend the MfE waste disposal rates table to include cleanfills (Class 5 facilities)
14. Review the WasteMINZ 2025 white paper, *Reclaiming Resources: Optimising Soil Reuse in Infrastructure and Development*, and adopt the findings, where appropriate
15. MfE to provide councils guidance on interpreting the Waste Minimisation Act and other legislation and regulation, for fit-for-purpose outcomes

16. Explore widespread failure to incentivise or provide for the re-use and repurposing of surplus soil via ongoing RMA reform, eg by repealing the NES-CS
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CASE STUDIES

The following case studies illustrate occurrences of policy failure in respect of surplus soil management in New Zealand:

Case study 1: Housing costs rise in Nelson / Marlborough

In April 2024, CCNZ submitted on the Tasman District Council's long-term plan, noting the lack of capacity in regional facilities, encouraging TDC to treat excavated soil as a key resource, noting the lack of facilities, and calling for a better approach to soil management.

A short time after, Tasman District Council Mayor Tim King wrote to Environment Minister Hon Penny Simmonds noting the escalated cost arising from regulations that treated excavated soil as "contaminated" because this soil had been moved. In short: orchard soil is fine for growing apples and other fruit; however, as soon as it is moved it must be treated as "contaminated" under the current regulations.

The NES-CS requirement (and its narrow interpretation by council officials) is estimated by the council to add \$50,000 cost to each section of a subdivision, from soil disposal in a landfill, which goes against a central government policy of affordable housing. In any case, there is shortage of cleanfills in the region.

Case study 2: No cleanfills in Wellington

The Wellington region has a shortage of fill sites, and more needs to be done to proactively manage soil re-use and fill site consenting.

In 2014 Greater Wellington declined resource consent for a 1.7 million m³ cleanfill at Judgeford, Porirua, at a former Winstone Aggregates quarry. The consequence is as above, contractors trucking material beyond the region, and passing this cost onto the infrastructure client, including, ultimately, taxpayers and ratepayers.

This is the sort of forward planning required to meet regional needs, and if this site was declined, an alternative for the region should have been explored by the local authorities.

During a rainy 2022 with many slips and a lack of facilities for disposal, the greater Wellington region was reduced to having a single site available. Contractors were in a difficult situation, where there was a lot of soil to dispose of, but nowhere was available to receive it – especially when the single, remaining site had advised it had met quota for the day, or its access road was closed for maintenance.

As a result, contractors have been forced to truck surplus soil from Wellington, Hutt Valley and Porirua earthworks to Marton, around 150 kilometres away, at the extra cost of many millions of dollars and significant reductions to project efficiency.

The volume of soil diverted to landfill in Wellington annually would come close to filling the Sky Stadium. Anecdotally, the cost of waste soil disposal can now amount to 20 per cent of total project costs.

Contractors have had to find locations outside the region for disposal, because the contaminated waste site at Silverstream has filled up with what is for the large part, clean soil, meaning it is not available for heavily contaminated soils, leading to a 14-month wait for the design and construction of another contaminated waste cell and more cartage of soil long distances.

While some progress has been made following meetings between councils and contractors to provide for sites, the escalation in fill costs and resulting productivity loss requires urgent attention.

Case study 3: Additional cost for Whangārei Base Hospital

The disposal of soil from the new Tira Ora Child Health Unit in Whangārei for Health New Zealand will cost more than \$500,000 extra, and does not achieve the benefits that would be reached from reusing or repurposing this soil.

The root cause of this issue is the fact that soil samples below human health and environmental criteria need review by the regional councils in the first place.

Besides a small asbestos area that was identified and managed appropriately, all soil test results for heavy metals and hydrocarbons fell below human health and environmental exposure thresholds, and only a small fraction of the tests were above “background” concentrations.

Following further testing, some areas for disturbance, including aggregate under existing carparks (and excluding soil contaminated with asbestos) were shown to meet Northland Regional Council’s definition of ‘cleanfill’. The NRC would have needed to confirm this; however, it advised it had limited capability to do so (further to this, it should be noted that regulation that is not fit for purpose can have a very negative impact on project management).

Health NZ opted to keep the project moving, rather than wait an indefinite period, and treat surplus soil as “managed fill” instead of cleanfill. (The project started in January 2025 and has a 12-18 month timeframe.)

This means up to 7,935 tonnes of managed fill (not counting the asbestos soil) was disposed of to the Whitepine fill at \$115/tonne, (hundreds of thousands of dollars in unnecessary additional costs). This is much cheaper than disposal at the nearby Puwera landfill at \$419/t. However, it means long-distance transport.

At 27t of spoil per truck-and-trailer unit, this equates to 294 trips to and from Whitepine (266km round trip), totalling 78,000km of truck movements, imposing additional wear and tear on the roading network and increased emissions.

This is why the consultant shifted the risk by stating it 'needed review by NRC', and NRC don't want to take the risk either and is not resourced or incentivised to say whether soils meet human and environmental health criteria.

No one is taking ownership due to the national legislation, which is seen as material with contamination 'above background level' (pre human habitation), and so under the current definitions must go to managed fill site (there is only one in the region).

This approach results in massive project cost escalation and the inability to re-use soil that does not pose a risk to human or environmental health on site.

Broadly, the process that was undertaken for soil sampling and results included:

- 17 boreholes, 115 samples (including 7 duplicates for QA)
- 26 selected for sampling, then a further 12 (38 samples total)

Heavy metals were detectable, but not at harmful levels to human or environmental health. If the levels are above background but do not pose a risk to human or environmental health, the soil should be able to be re-used, as per Northland Regional Council definitions.

But, there is confusion and inconsistency when soil has higher than background levels of contaminants, with consultants unwilling to take on any risk of interpretation. The confusion is around what is an acceptable level of risk and who holds responsibility. As quoted from the report:

"No heavy metal concentrations exceeded the applied human health and environmental protection criteria."

"4 soil samples contained concentrations of copper above published background levels, with one of these samples also returning a nickel concentration above background levels."

Hydrocarbons were also not a factor, with the report stating:

"All results were below the applied human health and environmental risk criteria."

"8 samples recorded detectable PAH concentrations"

On this project alone if this spoil (excluding asbestos soil) was not required to be disposed of at a contaminated soil site, (and it should fit NRC's definition of cleanfill) it would save the taxpayers around half a million dollars and huge environmental cost in cartage and emission.

Case study 4: NIMBY in Canterbury

Soil in the ground does not trigger any concern from the Canterbury Regional Council / Environment Canterbury (ECan). But as soon as earthworks occur, the surplus soil generated becomes defined as contaminated under the current regulations, which means it

cannot be re-used in the region because of ECan's mandate to protect the aquifers that supply Christchurch with water.

This is because it contains more than "background concentrations" of certain substances, eg copper, arsenic, or residual fertiliser, resulting from previous agricultural practices or urban usage.

ECan is justifiably concerned about contamination of the aquifers in the area, and prevents disposal of this material within the region's cleanfills, to the extent that any exist. However, this soil is already in situ, and the act of moving it does not change the composition of the soil in a way that justifies its removal from the region.

When this was raised with Ecan, the response was that the aquifer supplying Christchurch with water required protection, which seems to be a logical fallacy, given the soil is already in situ and the act of moving it does not change its composition.

The cost differential is striking. Anecdotally, \$6/tonne for cleanfill disposal has risen to up to \$240/tonne for disposal at a contaminated fill site due to the new interpretation of contaminated soil as "soil that contains a contaminant" (as opposed to soil that poses a risk to human or environmental health).

To reduce this cost for clients, contractors prevented from re-using or repurposing surplus soil truck this soil over the Arthur's Pass to the West Coast, where the district and regional council are less risk averse, and this solution is cheaper overall than disposing of the soil locally. But this approach of relocation is wasteful and inefficient.

Contractors have said that upwards of 70 per cent of disturbed soil was previously repurposed across other sites in the region. Instead of being reused across sites in the region, much of it now goes to landfill, or across the southern alps. ECan officials deem surplus soil to be a risk to human health, when that is usually not the case (Cavanagh et al 2023).

Simultaneously, many existing fill sites have been served abatement notices without warning, and without regard for the commercial implications of the closure of these sites.

Case study 5: Hydrovac waste materials

Hydrovac is a technique for water blasting areas around subsurface pipes and other utilities to enable safe and ready access to those utilities. The removal of the resulting sludge using vacuum into a storage tank needs careful handling, including a need for facilities that will receive processed hydrovac sludge.

ECan currently has not supported the construction of a purpose-built facility for repurposing and disposal of hydrovac waste, and more proactive and solutions-focussed dialogue is needed.

A counter-example is the Southey's Group facility in Auckland , which washes, grades and then re-sells hydrovac waste materials for re-use in construction in stockpiles of graded aggregate and sand.

Like other surplus soil, earth and rock materials, this is not just a contractor issue; it is everyone's issue, including the responsible councils' issue, for identifying regions' resource needs, and supporting consent of sites that meet these needs.

TECHNICAL APPENDIX

CCNZ has appended the following information for ease of reference for policymakers:

NES-CS

Cl 5.9, NES-CS states: "These regulations **do not apply** to a piece of land described in subclause (7) or (8) about which a detailed site investigation exists that demonstrates that any contaminants in or on the piece of land are **at, or below, background concentrations.**"

Local authorities often interpret cl 5.9, [NES-SC 2011](#) to mean any surplus soil containing "contaminants" above "background concentrations" must be disposed of to landfill (refer to Landcare Research findings below). In our view, this is an incorrect approach.

RMA National Planning Standards

The [National Planning Standards 2019](#), which provide direction for RMA planning, define cleanfill as: "virgin excavated natural materials including clay, gravel, sand, soil and rock that are **free of**: (a) combustible, putrescible, degradable or leachable components; (b) hazardous substances and materials; (c) products and materials derived from hazardous waste treatment, stabilisation or disposal practices; (d) medical and veterinary wastes, asbestos, and radioactive substances; (e) **contaminated soil** and other contaminated materials; and (f) liquid wastes."

The National Planning Standards and cl 5.9, NES-CS enable council officials to prohibit the repurposing of any surplus soil where one or more contaminants are at concentrations exceeding "background". This instead goes to landfill, at greatly elevated cost to projects. This is interpreted differently across different councils.

On a risk-averse reading, any proposal to reuse or repurpose slightly contaminated surplus soil will require resource consent, as opposed to disposal to landfill as of right. Historically, reuse of soil has been commonplace.

The National Planning Standards contain direction for objectives, policies and rules as regards “contaminated land” and for “hazardous substances”, however, not for non-hazardous substances, i.e. that which would meet a risk-based definition of cleanfill.

RMA functions of regional councils and local authorities

S30, RMA lists the functions of regional councils, and they include: (1) (c) (i) “the control of the use of land for the purpose of soil conservation”, and (1) (ca) “the investigation of land for the purposes of identifying and monitoring contaminated land”

S31, RMA lists the functions of territorial authorities, in particular: (1) (b) (iia) “the control of any actual or potential effects of the use, development, or protection of land, including for the purpose of the prevention or mitigation of any adverse effects of the development, subdivision, or use of contaminated land”

S7 (b), RMA: “all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to the **efficient use and development** of natural and physical resources”.

In parts of or most of New Zealand, there are few official cleanfill sites or a shortage of cleanfills. While fill was historically re-used to level paddocks or create sportsfields, the default option now is to dispose of surplus soil to landfill, which fills up landfills that should be reserved for household waste and contaminants that actually do pose a risk to human or environmental health.

Waste Minimisation Act 2008

The [Waste Minimisation Act 2008](#) contains no definition of “cleanfill” and lacks any reference to soil wastage or soil management.

The WMA has a new definition for “contaminant” (taken from s2, RMA, in amendments to the WMA in 2024):

contaminant includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat that either by itself or in combination with the same, similar, or other substances, energy, or heat,—

(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of the water; or

(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged

The Act contains a novel definition of “contaminated site”, which differs from the definition of “contaminated land” in the RMA and the National Planning Standards, see below:

WMA - means land where a contaminant is present, or is likely to be present, (a) in any physical state in, on, or under the land; and (b) in concentrations that pose an unacceptable risk to human health or the environment.

RMA – means land that has a hazardous substance in or on it that— (a) has significant adverse effects on the environment; or (b) is reasonably likely to have significant adverse effects on the environment.

The key difference is the WMA refers to risk to “human health”, and not solely to the environment. At any rate, the risk is of confusion when seeking to understand what is, or what is not contaminated land.

While the new definition as of 1 July 2024 is an improvement on the previous one, it is clear that some councils are taking an ‘(a) or (b)’ approach, rather than applying both parts (a) and (b) of the definition.

S5, WMA defines the terms, recovery, recycling and reuse, while waste “means anything disposed of or discarded”. The repurposing of surplus soil as cleanfill could meet a definition of “recovery”, noting cleanfill is not defined.

MfE waste disposal levy

[Waste disposal levy expansion | Ministry for the Environment](#)

The MfE table sets out costs of waste disposal, and how these will progressively increase over time. From July 2025 landfill costs will rise to \$65 per tonne on top of existing disposal costs, while there is no information on Class 5 facilities or cleanfills (possibly because the repurposing of surplus soil as cleanfill is not defined as waste, as noted above).

The table is confusing to any reader who wishes to repurpose surplus soil as cleanfill. On a plain reading, Class 5 facilities appear to not exist.

That is unfortunate because repurposing soil to cleanfill comes at significantly lower cost than landfill.

Landcare Research

[Guidance on the sustainable management of surplus soils in New Zealand » Manaaki Whenua](#)

“The bulk of soil disposed to landfills is considered to have contaminant concentrations above background concentrations but below applicable soil contaminant standards (residential, followed by commercial / industrial) for the protection of human health. In other words, **the majority of soil disposed to landfill is low-risk.**”

This guidance refers to a Landcare Research consultation draft report dated August 2023, which contains eight references to “cleanfill”.

[LandCare Report](#). “The bulk of soil disposed to landfills was considered to have contaminant concentrations above background concentrations **but below** applicable soil contaminant standards (residential, followed by commercial/industrial) for the protection of human health.”

The report’s recommendations include:

“ensuring the regulatory and logistical requirements associated with the movement and reuse of soils at a recipient site are easy to follow, because, as things stand, it is easier to dispose of that material to a landfill, particularly for low-risk soils”.

“developing qualitative (e.g. fit for purpose) and/or quantitative, risk-based ‘reuse’ criteria that include recognition that simply being above background concentrations should not be a reason to regulate against the reuse of soils.”

Revised national background soil concentrations for trace elements determined by [Cavanagh et al. \(2023\)](#) are also a useful reference. Many soils are above background concentrations for certain contaminants, however, are not so contaminated that they pose a risk to public health ([J Cavanagh et al. 2023](#)).

Page 13 of the Landcare Research report comments on the NES-CS:

“This clause [5.9] appears to often be interpreted as indicating that the NES-SC does apply to this land with soil concentrations above background, even if below any applicable human health criteria (i.e. soil contaminant standard) or environmental guideline ... **it appears to result in the largely unnecessary disposal of soils to landfill.**”

“In a review of policy and regulations surrounding the implementation of Eco-SGVs and surplus soils, Mayhew (2023) suggested that 8 (1) (f) could be reworded to be ‘soil taken away in the course of the activity must be disposed of at a facility authorised to receive soil of that kind or applied/reused in accordance with a rule in a relevant regional or district plan or resource consent,’ noting that local authority plans would probably still need to change to enable reuse. It is also intriguing to consider whether **another option is to simply remove clause 5 (9)**, and thus better enable risk-based assessment of contaminated land.”

The report contains case studies of how to manage surplus soil, including one in the Bay of Plenty. Here, orchard soils would not have met a definition of clean fill, with anticipated disposal costs to landfill exceeding \$5 million. The report says:

The balance of topsoil was **conditioned and recycled for reuse as clean fill** at other development properties. This project was a finalist in an international awards programme for outstanding environmental achievements.

The report also says:

“Mayhew (2023) also proposed the development of a national policy statement (NPS), or **equivalent direction in the National Planning Framework**, to guide outcomes and expectations for decision-making on contaminated land and surplus soils and fill. This would enable the ‘principles’ associated with the sustainable management of surplus soils and fill to be clearly identified, including support and direction that recognises the beneficial attributes of the soil as a resource, and promotes its reuse where possible in preference to removal and disposal.”

WasteMINZ

A joint WasteMINZ–Geotechnical Society working group produced a practice note on surplus soil management in September 2024: [the WasteMINZ guidelines webpage](#). Identified barriers to reuse of surplus soil include: regulatory uncertainty and risk aversion to contamination, leading to a preference for virgin materials (in cleanfills).

[Technical Guidelines for Disposal to Land](#) (Revision 3, WasteMINZ 2022) is available on the MfE website, and specifies clean fill or **Class 5 landfill waste acceptance criteria** based on background concentration, using examples for key inorganic elements in Auckland and Wellington.

WasteMINZ white paper (2024)

In its paper titled “Reclaiming Resources: Optimising Soil Reuse in Infrastructure and Development”, WasteMINZ proposes as solutions:

“The framework [to optimise soil reuse] would include **guidance** on what alternatives to landfilling are available – for example, soil mixing/blending, encapsulation, transfer of fit-for-purpose soils from donor to receipt sites; exploring what types of site can be used for soil reuse; identifying if soil transfer hubs are relevant tools to allow access to surplus soil materials for all types of users in all regions, as both suppliers and receivers of surplus soil material; and, the centralised controls and management required for this process and these sites.”

WasteMINZ is consistent with Landcare Research in its view that surplus soil is being unnecessarily disposed to landfill:

Based on the authors’ collective experience, **much of that soil would likely have been safe**, in that it would not have posed a risk of harm to human health and/or the environment (i.e. when compared with relevant contaminated land guideline criteria)³ and therefore could, and should, have been reused instead.

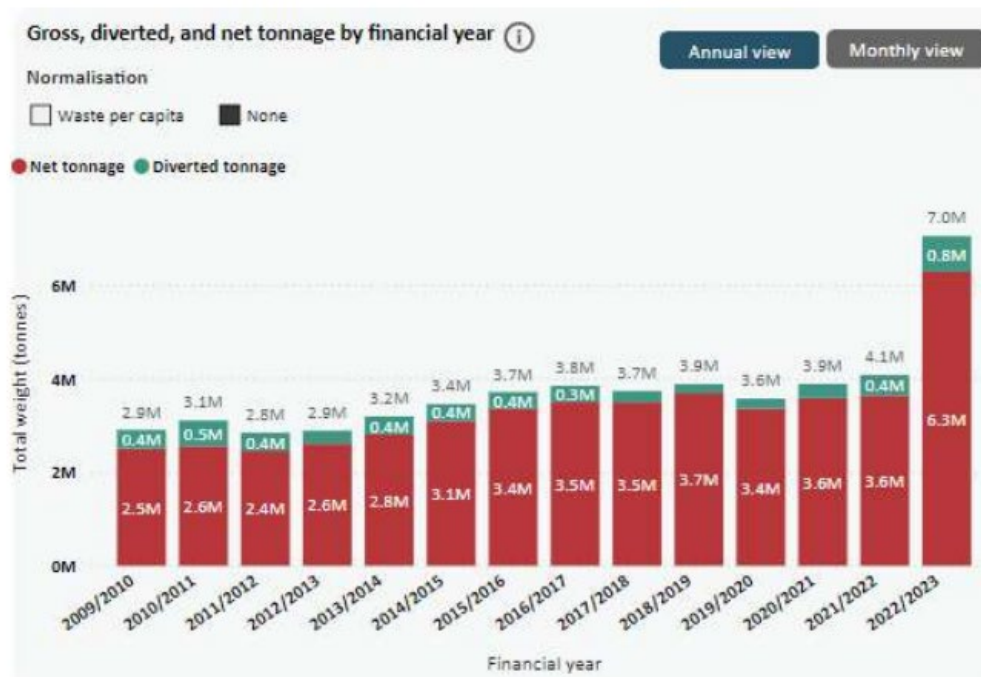
The Technical Guidelines for Disposal to Land bases the waste acceptance criteria (WAC) for Class 5 cleanfill sites on ‘natural background’, meaning soil containing contaminants even marginally above natural background cannot be considered cleanfill. Unfortunately, this enables the perception that ‘if it’s not cleanfill, it must be contaminated’, and further ‘if it’s above natural background, it must be contaminated’.

WasteMINZ also says regional plans that contain an overly narrow interpretation of s5 (9), NES-CS:

Many regional plans also have rules that directly or indirectly reference cleanfill and/or background, particularly in the context of earthworks, or discharges of solid contaminants to land, which are relevant to soil reuse. For instance, some regional **rules state that any soil discharged to land cannot ‘increase contaminant concentrations’**, even if it is shown to be suitable for the intended use at the receiving site.

WasteMINZ prepared the below diagram, which reveals a large recent increase in surplus soil disposal to landfill:

Chart 2: Gross, diverted and net tonnage by financial year⁸



Parliamentary Commissioner for the Environment (PCE)

[Urban ground truths | Parliamentary Commissioner of Environment](#)

In March 2024 the PCE released a report titled “Valuing soil and subsoil in urban development”. The report quotes MfE:

“we are currently **wasting large volumes of soil** by trucking it to landfills as waste during development projects, or when we manage and remediate contaminated land.”

It notes elevated cadmium levels in soils arising from the application of superphosphate fertiliser. This will shift the soil above a background concentration, and define it as contaminated, even though this soil was suitable for agriculture. The PCE provides a problem definition on page 21:

“Concern was raised that excessive soil removal in some instances is being driven by **councils interpreting the NES-CS in an overly conservative way**. Some councils require consent for every instance where soil containing contaminants above background level is moved beyond a site boundary, regardless of whether it is HAIL land or not. Others allow some movement of soil to adjoining sites to occur without consent. Some developers see this approach – combined with low landfill costs – as influential in the decision to ‘dig and dump’ soils that are above background contamination levels but do not necessarily pose appreciable risk.”

The PCE report referred to the work Landcare Research has done in this space, cited and discussed above.

NZTA guidance

[Whenua parakino – contaminated land guidance](#)

The May 2023 guidelines produced by NZ Transport Agency Waka Kotahi contains 16 references to cleanfill, which state:

“Any soil taken away from the site must be disposed to a licensed facility. If soil contaminant concentrations are above natural background levels of contaminants, soil cannot currently be disposed to a cleanfill.”

“Most sites that have been developed for roading purposes will not contain high levels of contaminants ... Cleanfill disposal is the cheapest off-site disposal option, and usually requires no additional consents or approvals.”

“The most common method for managing surplus contaminated soil is to transport the soil to a disposal facility ... Although this is generally the most popular option, it is increasingly at odds with Waka Kotahi sustainability goals and objectives.”



ANNEX: CONGESTION AT FILLS, FLY TIPPING

Below are photos of traffic congestion at fills, due to lack of supply of fill sites, and of fly tipping, the illegal dumping of construction waste:



Trucks queue on a day of rain to enter the sole viable site for cleanfill disposal in Wellington, mid-2023



Aggregate and soil dumped at the side of the road by a fly-tipper





Fly tipping of soil near Tawa in Wellington

