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# Peach Island Proposed Quarry: Groundwater and Clean Fill Management Plan

- Prepared for  
CJ Industries
  
- March 2023

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CJ INDUSTRIES - PEACH ISLAND PROPOSED QUARRY: GROUNDWATER AND CLEAN FILL  
MANAGEMENT PLAN

## Quality Control Sheet

TITLE Peach Island Proposed Quarry: Groundwater and Clean Fill Management Plan

CLIENT CJ Industries

VERSION Final Draft

ISSUE DATE 13 March 2023

JOB REFERENCE C04627800

SOURCE FILE(S) C04627800R002\_GW\_Management\_Plan\_Final-Draft\_March2023.docx

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## 1.0 Introduction

This report sets out the measures and procedures for groundwater protection that must be applied to manage the excavation of gravel aggregate by CJ Industries (the “site operator”) at their proposed Peach Island quarry site (the “clean fill site”) and backfilling of the excavations with clean fill material, as authorised by consents RM200488 and RM220578.

Clean fill refers to material placed at a depth of more than 1 metre (below the subsoil and topsoil). Subsoil and topsoil are addressed in the Soil Management Plan.

## 2.0 Purpose: Consent Compliance and Key Performance Indicators

The purpose of this Groundwater and Clean Fill Management Plan is to ensure that the clean fill site will be managed to comply with consent conditions related to the clean filling activities and discharge of contaminants to land, specifically in respect of achieving groundwater quality outcomes.

The key performance indicators to ensure that the site activities are managed are:

- Ensuring that excavations do not expose groundwater in excavations.
- Ensuring that all backfill material is strictly managed to ensure it meets the definition of ‘clean fill’ under WasteMINZ guidelines (2022) but also excludes any manmade hard fill material (i.e., concrete, bricks, tiles etc).
- Minimising any change to the physical and chemical properties of groundwater as result of the land use and discharge activities associated with clean fill activities (as defined by the groundwater chemistry monitoring requirements).
- Ensuring that under no circumstances will the land use and discharge activities associated with clean fill activities result in groundwater quality exceeding the acceptable values in the Water Services (Drinking Water Standards for New Zealand) Regulations 2022 in downgradient water supply bores.

The following sections of this report detail the procedures to achieve these outcomes.

Each section sets out an **Explanation of Risk** followed by the associated **Management Requirements**.

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### 3.0 Clean Fill Materials

#### Explanation of Risk

The use of inappropriate fill materials carries risks for groundwater quality.

Given that the excavation depths will vary depending on groundwater level conditions at the clean fill site, it is expected that material used to back fill areas of the clean fill excavated during periods of low groundwater levels will become inundated by groundwater during periods of high groundwater levels. Therefore, it is important that suitable controls are placed on the material being used to back fill the excavation pits to avoid contamination of shallow groundwater.

The WasteMINZ document Technical Guidelines for Disposal to Land (2022) (WasteMINZ 2022) defines differing Classes of landfill and the technical constraints (i.e., hydrogeology, hydrology, ecology, etc.) on the Class of landfill considered acceptable for a particular location. The key hydrogeological technical constraint for the siting of different Classes of landfill is whether the underlying aquifer system beneath the proposed landfill is used for drinking-water purposes. Only Class 5 Clean fills are allowed to be sited over aquifers used for drinking-water purposes. Therefore, since the shallow groundwater aquifer system in the Peach Island area is used for private drinking-water supply purposes, the proposed Peach Island clean fill site is therefore defined as a Class 5 Clean fill.

WasteMINZ 2022 provides guidance on material that is acceptable for backfilling a Class 5 landfill. The primary protection against adverse changes in groundwater chemistry that could impact downgradient groundwater drinking-water supplies is to ensure that the material used as back fill at the Peach Island clean fill site is uncontaminated. A summary of acceptable and unacceptable material for clean fill purposes at Peach Island is provided in Table 1 of Appendix A: Clean Fill Procurement SOP.

#### Management requirement

1. Clean fill deposited at Peach Island must comply with Table 1 of Appendix A: Clean Full Procurement SOP

### 4.0 Proposed Clean Fill Management System

#### Explanation of risk

Management of clean fill before it reaches Peach Island (how it is sourced, stored, inspected, tested and transported) is important to ensure the clean fill meets the specified requirements.

It is also essential to have sufficient clean fill on site to backfill excavations, including in the case of rising groundwater. This is to ensure that groundwater is not accidentally exposed within an excavation at the Peach Island clean fill site.

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### Management requirement

1. Clean fill must be managed (sourced, stored, inspected, tested and transported) in accordance with Appendix A: Clean Fill Procurement SOP.
2. Any excavation into the range of groundwater fluctuation must only occur when there is sufficient clean fill material available to rapidly backfill the excavation.
3. At least 1 m of material must be maintained between the base of the working gravel extraction pit and the groundwater level beneath that excavation at the time of the gravel extraction, except as described in 4 or 5.
4. Deeper excavations to between 0.3 and 1 m above groundwater level may occur, but:
  - a. Only during stable weather conditions, which means:
    - i. Decreasing or stable groundwater level trends, based on the groundwater level monitoring requirements described in the consent conditions of RM200488; and
    - ii. Decreasing or stable flow within the Motueka River as measured at the TDC Woodmans Bend flow recorder site.
  - b. Must immediately cease, and backfilling must occur if any of the following occur:
    - i. Tasman District Council issue any flood warnings for the Motueka River catchment.
    - ii. Any weather warnings are issued for the Nelson/Tasman region that might be expected to cause groundwater levels at the clean fill site to rise.
    - iii. When groundwater level monitoring described in the consent conditions of RM200488 display an increasing trend.
  - c. Such excavations must be backfilled to at least 1 m above groundwater level on the same day as extraction.
5. Temporary test pits that expose groundwater can be undertaken to confirm the groundwater level elevation beneath an excavation provided the temporary test pit is back filled to 0.3 m above groundwater level within 30 minutes of exposing groundwater. These temporary test pits may only occur during stable weather conditions.
6. Management Requirements 3,4 and 5 are also shown in Table 1 below. The placement of clean fill material and excavation methodology at the clean fill site must comply with Table 1 below.

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**Table 1: Summary of fill placement / excavation methodology**

Activity <sup>1</sup>	Authorised Depth range	Authorised Type of fill	Time constraint	Other constraints
Temporary test pit or excavation below base of working depth that does not encounter groundwater within 1 m of working depth.	Ground surface to 1 m above groundwater level <sup>2</sup>	Clean fill material <sup>3</sup>	No constraint as long as groundwater level is at least 1 m below working depth <sup>4</sup>	Area of excavation controlled by volume of available fill material. There must be sufficient material to back fill to at least 1 m above groundwater level
Excavation that encounters groundwater within 1 m of working depth.	1 m to 0.3 m above groundwater level	Clean fill material <sup>3</sup>	Backfilled on same day as extraction of material	Area of excavation controlled by volume of fill material. There must be sufficient material available to back fill to at least 1 m above groundwater level. Excavations can only occur during stable weather conditions and must cease if there are any flood or weather warnings or increasing groundwater levels.
Temporary test pit that encounters groundwater	0.3 m above groundwater level to groundwater level	Material removed from this test pit excavation	Backfilled within 30 minutes	

**Notes:**

- <sup>1</sup>Physical groundwater checks within an excavation to be undertaken in addition to assessment from groundwater level data/groundwater contours from onsite piezometers.
- <sup>2</sup>Taking into account site restoration requirements.
- <sup>3</sup>Natural clean fill material defined in Table 1 of Appendix A: Clean Fill Procurement SOP
- <sup>4</sup>Working depth defined as the elevation of the base of an excavation on that particular day.



## 5.0 Groundwater Level Monitoring and Excavation Controls

### Explanation of risk

A key risk to groundwater arises from exposure of groundwater within the excavation pit prior to the pit being backfilled with clean fill material. Groundwater level monitoring and excavation controls are provided in consent conditions of RM200488.

### Management Requirements

1. Excavation of gravel aggregate must not result in uncontrolled exposure of groundwater at the surface (i.e., groundwater exposed in the bottom of the gravel extraction pit) except for small, temporary test pits to check on the occurrence of groundwater.
2. To assess groundwater levels at the clean fill site, continuous groundwater level monitoring (i.e. automated measurements collected every hour) must be undertaken in dedicated monitoring bores at the perimeter of the clean fill site. The consent holder must check groundwater level using this information daily when excavation is occurring. Groundwater levels beneath an excavation must be confirmed via temporary test pitting.

## 6.0 Response and Mitigation to a Spill

### Explanation of risk

Groundwater can become contaminated from spills of liquids such as diesel or machinery oil. This risk can be avoided by appropriate handling of hazardous liquids.

### Management requirements

1. Staff operating in the excavation pit area(s) must be trained in the appropriate way to respond to a spill.
2. A spill kit must be available close to the excavation pit area(s).
3. In the event of a spill of machinery oil (including hydraulic oil) or fuel from excavation machinery, all works shall cease and measures must be taken to limit the extent of the spill. Any contaminated strata or spill response material must be excavated and removed from the site and disposed of at an appropriate disposal facility (subject to approval of the disposal facility).
4. If any spill greater than 20 litres occurs, the site operator must immediately notify the Tasman District Council Pollution Incident contact number. Based on the magnitude and type of the spill, and in consultation with TDC, the consent holder shall undertake groundwater quality monitoring of downgradient monitoring bores and drinking water supply bores in accordance with the consent conditions for RM220578.

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## 7.0 Groundwater Quality Monitoring

### Explanation of risk

Removal of the naturally deposited strata and backfilling with clean fill material at the Peach Island clean fill site is expected to result in some level of change in groundwater chemistry. The level of change is not precisely known, but is not expected to be greater than the proposed water quality trigger concentrations provided in the consent conditions RM220578. The main control on groundwater chemistry changes is the quality of the clean fill material used to backfill excavations, as outlined in Section 3.0. However, the purpose of the groundwater quality monitoring is to detect any unanticipated changes in groundwater chemistry before they reach a level that will adversely affect downgradient groundwater users.

### Management requirements

1. Groundwater quality must be monitored in accordance with the consent conditions of RM220578.

## 8.0 Water Quality Complaints

### Management requirements

1. The Consent Holder must maintain a complaints register.

The Consent Holder must record and investigate any complaint of bad taste, odour or illness reported in downgradient bores used for water supply purposes within 500 m of the clean fill. Investigation and records must include:

- a. The location where the issue that resulted in the complaint was experienced.
- b. The date and time when the issue that resulted in the complaint was experienced.
- c. A description of the excavating and clean filling activities that were being undertaken prior to the complaint being experienced.
- d. A description of trends in water quality data undertaken in accordance with the consent conditions in RM220578.
- e. The most likely cause of the issue that resulted in the complaint.
- f. Any corrective actions undertaken by the consent holder to avoid, remedy, or mitigate any contribution the clean filling activities are likely to have made to the situation that caused the complaint.

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2. This record shall be provided upon request to the Manager, RMA Compliance and Enforcement, Tasman District Council following any investigation into a complaint.

## 9.0 Reporting Requirements

1. An annual monitoring report will be prepared for the period of 1 July to 30 June and provided to the Tasman District Council: Attention – Monitoring and Compliance, by 30 September each year.
2. The annual monitoring report shall include but not be limited to:
  - a. Results of groundwater quality monitoring as required by the consent conditions in RM220578 and include:
    - i. A discussion of any groundwater quality trends.
    - ii. Any mitigation actions undertaken in response to any groundwater quality trends.
    - iii. A description of how effective any mitigation actions were in addressing any water quality trends.
    - iv. Any exceedance of the contaminant trigger concentrations.
    - v. Any mitigation actions taken in response to the exceedances.
    - vi. A description of the drinking water quality results from bores used for domestic supply/irrigation purposes located downgradient of the clean fill site, if this data is available.
  - b. Groundwater level data as required by the consent conditions in RM200488 including:
    - i. A copy of the telemetered groundwater level data measured at the site.
    - ii. A copy of the excavation elevation data

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## 10.0 References

Waste Management Institute New Zealand (WasteMINZ). 2022. Technical Guidelines for Disposal to Land. Revision 3. October 2022.



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## Appendix A: Clean Fill Procurement SOP

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## Appendix A - Clean Fill Procurement SOP

Standard Operating Procedures for sourcing, inspection/testing, and transport of clean fill for use at Peach Island.

The purpose of this SOP is to set out operating procedures that will be applied by CJ Industries (CJI) to ensure that all clean fill destined for Peach Island is “clean fill” that meets the requirements of the Groundwater and Clean Fill Management Plan (“GCMP”).

### 1.0 Clean Fill Acceptance Criteria

below provides a summary of acceptable and unacceptable material for clean fill purposes at Peach Island.

Table 1: Summary of Clean fill Acceptance Criteria <sup>1</sup>		
Source	Acceptable Material	Unacceptable Material
Materials sourced onsite.	<ul style="list-style-type: none"> <li>Uncontaminated natural material such as soil, clay, rock and gravel.</li> <li>Maximum biodegradable materials (i.e., vegetative matter) to be no more than 2% by volume per load of incidental and is limited to incidental organic materials.</li> </ul>	<ul style="list-style-type: none"> <li>Contaminated soil, clay, rock and gravel.</li> <li>Materials containing more than 2% by volume per load of biodegradable organic matter, including peat, loams and topsoils with high organic content.</li> <li>Manufactured materials including concrete, bricks, tiles, etc.</li> </ul>
Materials sourced offsite	<ul style="list-style-type: none"> <li>Uncontaminated natural material such as soil, clay, rock and gravel. Compliance with this definition will be achieved by testing a representative composite sample of imported fill material to demonstrate that total soil contaminant concentrations do not exceed regional soil background concentration limits.</li> <li>Maximum biodegradable materials (i.e., vegetative matter) to be no more than 2% by volume per load of incidental and is limited to incidental organic materials.</li> </ul>	<ul style="list-style-type: none"> <li>Contaminated soil, clay, rock and gravel.</li> <li>Any material sourced from any site listed on the Tasman District Council Hazardous Activities and Industries List (HAIL) register (as defined by the Ministry for the Environment) or any site where the Clean fill Operator has a reasonable expectation of HAIL activities occurring, even if it is not listed on TDC’s HAIL register and for both these categories of sites, the HAIL activity is known to have been occurring before the date the clean fill material is received.</li> <li>Materials containing more than 2% by volume per load of biodegradable</li> </ul>



**Table 1: Summary of Clean fill Acceptance Criteria<sup>1</sup>**

Source	Acceptable Material	Unacceptable Material
		<p>organic matter, including peat, loams and topsoils with high organic content.</p> <ul style="list-style-type: none"> <li>Manufactured materials including concrete, bricks, tiles, etc.</li> </ul>
<p>Note: <sup>1</sup>The clean fill acceptance criteria provided in this table shall be applied to all material placed at depths greater than 1 m below ground level. The Soil Management Plan applies to topsoil and sub soil.</p>		

Furthermore, any material, that is understood to comply with the Table 1 definition, but displays visual or olfactory evidence of contamination, will be rejected.

## 2.0 Clean Fill Management Procedures

### On site sourced material

The Suitably Qualified and Experienced Practitioner (i.e., SQEP<sup>1</sup>) will inspect and undertake representative sampling of the overburden for laboratory testing at the source, in accordance with Section 4.0: Sampling Methodology if the material displays any visual or olfactory evidence of contamination (i.e. accidental discovery of manmade hardfill, visible staining, odours, etc). If the inspection and testing find that the material does not meet the clean fill acceptance criteria in , the material will be transferred to an approved disposal site, at the advice from the SQEP.

### Offsite sourced material

There are three procedures depending on offsite clean fill source category as follows:

- A: overburden from quarries controlled by CJL.
- B: from selected and approved construction sites, slips or other clean fill material not controlled by CJL.
- C: as for B, but where the material is taken to a CJL site for testing.

#### **A. Procedure where clean fill is overburden from CJ Industries (CJL) Quarries**

*Note: Overburden is virgin natural material of a consistent composition, and no other materials are brought onto these controlled sites, so contamination of this material is very unlikely with the main potential for contaminants being organic matter such as sticks and branches. Site operating procedures ~~also~~ exist to prevent material contamination.*

1. The SQEP will inspect and undertake representative sampling of the overburden for laboratory testing at each quarry source, in accordance with Section 4.0: Sampling Methodology. If the inspection and laboratory testing demonstrate that the overburden meets the clean fill acceptance criteria in , the overburden is acceptable for transfer to Peach Island, subject to the additional procedures below.

<sup>1</sup> Guidance for what is expected of a SQEP is provided in the *Users' Guide: NES for Assessing and Managing Contaminants in Soil to Protect Human Health* (MfE, 2012)



2. The Quarry Manager at the source site must check for and remove visible organic matter. Where this is not practical, material containing organic matter will be rejected.
3. Clean Fill from approved quarries, that comply with this category A, will be carted directly to Peach Island only by CJI truck and trailers.
4. The Quarry Manager at the source site must check that truck and trailer trays are clean before loading.
5. The following information will be recorded in the truck docket book:
  - a. Date and time.
  - b. Source of clean fill.
  - c. Description of clean fill.
  - d. Approximate quantity of clean fill.
  - e. Reference for Laboratory Sampling results and details of the SQEP who oversaw the sampling and inspection.
  - f. Truck ID.
  - g. Name of Quarry Manager.
6. At Peach Island, a copy of the truck docket book entry and laboratory results will be provided to the clean fill Site Manager.
7. The clean fill will be visually inspected by the clean fill Site Manager to assess the following:
  - a. Clean fill that is visibly wet, has the appearance of mud, or does not readily break apart due to the presence of moisture will be laid aside and not inspected until dry.
  - b. Clean fill displaying any visual or olfactory evidence of contamination (i.e. manmade hardfill, visible staining, odours, etc) will be rejected.
8. Random chemical testing must be carried out on imported clean fill from 1 in every 500 m<sup>3</sup> of fill material.
9. The clean fill must be deposited as directed by the clean fill Site Manager.

#### **B. Procedure where clean fill is from other selected and approved sources**

1. Where CJI is notified of the availability of clean fill, CJI will make an initial decision as to whether they will continue due diligence on the clean fill based on:
  - a. Supplier (of clean fill) suitability.
  - b. Supplier prepared to sign CJI terms and conditions of acceptance.
  - c. Whether the clean fill is required (whether there is capacity to take it).
2. As per Section 4.0: Sampling Methodology, the SQEP will check whether the material comes from a known or possible HAIL site. If so, material will not be used for clean fill (will be directed to an approved disposal site).
3. CJI will carry out a visual inspection, including pothole tests if appropriate, to check the source is likely to be suitable.
4. The material will be excavated and stockpiled either on site, or in the vicinity of the site. In either case, the site or the stockpile must be surrounded by a temporary security fence (see **Figure 1** below) or other suitable method providing CJI with physical control of the stockpile, and stockpiles will be separated from each other (see **Figure 2** below).
5. No additional material will be added to a stockpile after inspection and testing.
6. The SQEP will inspect and undertake representative sampling of the stockpile material for laboratory testing in accordance with Section 4.0: Sampling Methodology. If the inspection and the laboratory testing demonstrate that the material meets the clean fill acceptance criteria in \_\_\_\_\_, the material is acceptable for transfer to Peach Island, subject to the



additional procedures below. If the material does not meet the requirements, the material will be rejected.

7. Acceptable clean fill will be transported to Peach Island by CJI vehicles only.
10. The following information will be recorded in the truck docket book:
  - a. Date and time.
  - b. Source of clean fill.
  - c. Description of clean fill.
  - d. Approximate quantity of clean fill.
  - e. Reference for laboratory results and details of the SQEP who oversaw the sampling and inspection.
  - f. Truck ID.
8. At Peach Island, a copy of the truck docket book entry and laboratory results for the load will be provided to the Site Manager.
11. The clean fill will be visually inspected by the Site Manager to assess the following:
  - c. Clean fill that is visibly wet, has the appearance of mud, or does not readily break apart due to the presence of moisture will be laid aside and not inspected until dry.
  - d. Clean fill displaying any visual or olfactory evidence of contamination (i.e. manmade hardfill, visible staining, odours, etc) will be rejected.
12. Random chemical testing must be carried out on imported clean fill from 1 in every 500 m<sup>3</sup> of fill material.
13. The clean fill must be deposited as directed by the clean fill Site Manager.

**C. as for B, but where the material is taken to a CJI site for testing**

*Note: In some circumstances (e.g. where quantities are small, or source material is on a site that is unable to be secured, or stockpiles are unable to be stored onsite while testing occurs), material will be transported to a CJI controlled site prior to testing occurring. In such cases this procedure applies.*

1. The material will be transported from the source site to a pre-test storage site, which will be in a fenced CJI controlled yard (e.g. Hau Road or Lower Queen Street) or another of CJI's sites ("CJI Yard").
2. The following information will be recorded in the truck docket book:
  - a. Date and time of transfer to CJI Yard.
  - b. Source of clean fill.
  - c. Description of clean fill.
  - d. Approximate quantity of clean fill.
  - e. Truck ID.
  - f. Name of writer.
3. At the CJI Yard the material will be stored and tested as set out below:
  - a. Each stockpile will be from a single source.
  - b. There may be several stockpiles. Stockpiles will be separated as shown in **Figure 2** below.
  - c. The stockpile will be inspected by an approved person, and will be approved, rejected or held, pending sampling and testing. No additional material will be added to the stockpile after inspection and testing.
  - d. The SQEP will inspect and undertake representative sampling of the stockpile material for laboratory testing in accordance with Section 4.0: Sampling Methodology. If the inspection and laboratory testing demonstrate that the material meets the clean fill



acceptance criteria in \_\_\_\_\_, the material is acceptable for transfer to Peach Island, subject to the additional procedures below. If the material does not meet the requirements, the material will be rejected.

4. Approved clean fill will be transported to Peach Island by CJI vehicles only. The following information will be recorded in the truck docket book:
    - a. Date and time of transfer from CJI Yard to Peach Island.
    - b. Source of clean fill.
    - c. Description of clean fill.
    - d. Approximate quantity of clean fill.
    - e. Reference for laboratory results and details of the SQEP who oversaw the sampling and inspection.
    - f. Truck ID.
    - g. Name of writer.
  5. At Peach Island, a copy of the truck docket book entry and laboratory results for the load will be provided to the Site Manager.
  6. The clean fill will be visually inspected by the Site Manager to assess the following:
    - a. Clean fill that is visibly wet, has the appearance of mud, or does not readily break apart due to the presence of moisture will be laid aside and not inspected until dry.
    - b. Clean fill displaying any visual or olfactory evidence of contamination (i.e. manmade hardfill, visible staining, odours, etc) will be rejected.
  7. The clean fill will be deposited as directed by the Site Manager.
- In all cases, rejected material will be returned to source or directed to an approved disposal facility.



Figure 1: Temporary site fencing.

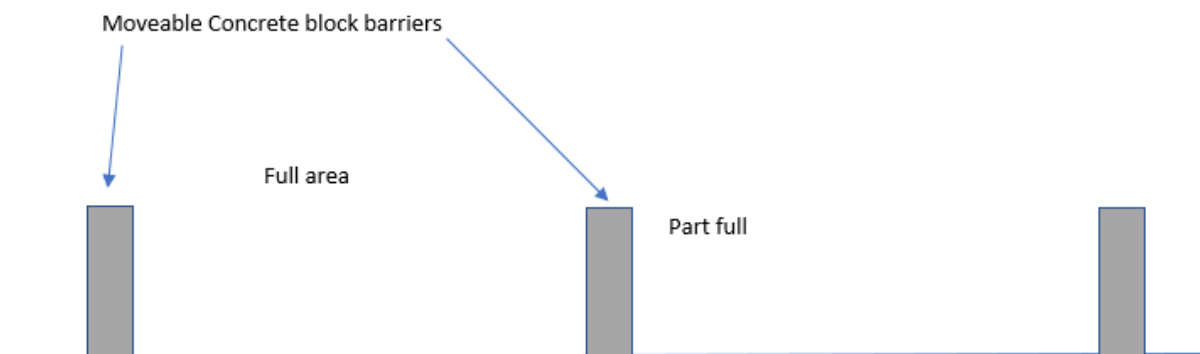


Figure 2: Example of clean Fill storage prior to testing and rejection or transfer to gravel pit site.





### 3.0 Additional Clean Fill Assessment

In addition to the requirements in 2.0: Clean Fill Management Procedures, random chemical testing of clean fill material placed within an excavation at the Peach Island clean fill site shall be undertaken at least once every 12 months. Sampling and testing shall be undertaken in accordance with Section 4.0: Sampling Methodology.

### 4.0 Sampling Methodology

All validation sampling for clean fill from all sources shall be carried out as follows:

- Clean fill sampling will be undertaken by a SQEP for site contamination.
- Quality assurance, quality control and field sampling procedures (including sampling parameters and frequency) shall be implemented by the SQEP as guided by the Ministry for the Environment (MfE) *Contaminated Land management Guideline No.5: Site investigation and analysis of soils* (CLMG No.5) 2004 (revised 2021) and any relevant references to which CLMG No.5 refers for implementation of field sampling programmes.
- Material sourced on site may require further investigation (i.e., due to accidental discovery of visual and olfactory evidence of contamination such as buried anthropogenic waste). In the event of an accidental discovery, the SQEP will be notified and will advise upon inspection, laboratory testing and management of any such material encountered. CJ will follow the recommendations of the SQEP.
- Analytical parameters analysed for offsite clean fill sources sites A, B, and C shall be informed by due diligence undertaken by the SQEP on a case-by-case basis for each of the three offsite source sites. At a minimum:
  - Material from source sites in category A will be tested for a suite of seven priority heavy metals (i.e., arsenic, cadmium, chromium, copper, lead, nickel and zinc). The SQEP may advise analysis of additional analytical parameters (e.g., based on potential contamination sources identified on adjacent site, if relevant).
  - Material from source sites in category B and C will be tested in the first instance for heavy metals (as for source site A above). The SQEP will evaluate the nature of the historical and current land uses (abbreviated preliminary site investigation) for evidence of HAIL<sup>2</sup> activities associated with clean fill source sites under source sites B and C to inform additional analyses required. **Note** – the NES Users Guide (MfE, 2012) includes information about relevant contaminants of concern generally known to be associated with specific HAIL activities.
- All analysis of samples collected shall be undertaken (under chain of custody) by an IANZ accredited analytical laboratory that is certified to undertake the required analyses.

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<sup>2</sup> MfE (2012) - The Hazardous Activities and Industries List (HAIL) is a compilation of activities and industries that are considered likely to cause land contamination resulting from hazardous substance use, storage or disposal. The HAIL is intended to identify most situations in New Zealand where hazardous substances could cause, and in many cases have caused, land contamination.



- All results returned from the analytical laboratory shall be interpreted and reported by the SQEP, including evaluation of clean fill material compliance against relevant background concentrations<sup>3</sup> as defined in Cavanagh (2015<sup>4</sup>).

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<sup>3</sup> Relevant regional soil background concentration limits are the 99th percentile values provided in Table 5 of Cavanagh (2015).

<sup>4</sup> Cavanagh, J. 2015. Background concentrations of trace elements and options for managing soil quality in the Tasman and Nelson Districts. Landcare Research. June 2015.