

**Remediation New Zealand Ltd**  
**Waitara Road Facility**  
Monitoring Programme  
Annual Report  
2020-2021

Technical Report 2021-80



Working with people | caring for Taranaki



Taranaki Regional Council  
Private Bag 713  
Stratford

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## Executive summary

Remediation NZ Ltd (the Company) operates a greenwaste collection, composting and compost finishing facility. In addition to worm beds, which create vermicompost. It is situated at 96 Waitara Road, Brixton, in the Waiongana catchment.

**During the monitoring period, the Company demonstrated an overall improvement required level of environmental performance.**

This grading is based on the abatement notice, consent breaches and the site stormwater not currently within consent specification.

This report for the period July 2020 to June 2021 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of the Company's activities.

The Company holds one resource consent, which include a total of 11 conditions setting out the requirements that the Company must satisfy. The Company holds one consent to discharge stormwater onto and into land and into the unnamed tributary of the Waiongana Stream.

The Council's monitoring programme for the year under review included three inspections, and three water samples collected for physicochemical analysis,

The monitoring showed that on the two occasions the stormwater discharge was analysed, it was in breach of consent for suspended solid concentration. It also held elevated ammoniacal nitrogen, oxygen demand and *E.coli*, this is not best practice.

A measurable concentration of two pesticides (fungicides - propiconazole and tebuconazole) were also recorded, in concentrations greater than the NZEP environmental exposure limit (EEL). In another discharge from the site, a trace concentration of a third pesticide (herbicide- terbuthylazine) was also detected.

An abatement notice was issued requiring the Company to undertake works to the maintenance, management and infrastructure of the stormwater treatment and disposal system to ensure compliance of Resource Consent 5892-2.

Works were undertaken by the Company which demonstrated some improvement, both visually around the site, but also chemically in the discharge. However the results were not sufficient enough to gain compliance with the consent and or abatement notice. The Council agreed to allow the Company more time to mitigate the issue, as some improvement had been observed.

A suitably qualified consultant was engaged in the form of PDP. A memorandum was provided to the Company with recommendations from PDP. Currently the Company are developing a time line to have these undertaken. Compliance with the original abatement notice will be reassessed in December 2021.

The presence of two azole base fungicides (propiconazole and tebuconazole) within the discharge does raise a few questions. It is known that the sister site to Waitara Road, is Uruti. The facility at Uruti had been found to be accepting LOSP treated sawdust for a period of 15 years.

Whether the detection of these two fungicides are associated with the Uruti site or are coming through the greenwaste which is composted prior to the incorporation of inputs derived from Uruti remains to be concluded. This is an area which will need to be investigated further in the upcoming monitoring period.

There were two unauthorised incidents recording non-compliance in respect of this consent holder during the period under review.

During the year, the Company demonstrated an improvement required level of environmental and good level of administrative performance with the resource consents.

The rationale for the grading was the elevated suspended solids and contaminants within the stormwater discharge, which resulted in an abatement notice and the subsequent incomplete site improvements.

For reference, in the 2020-2021 year, consent holders were found to achieve a high level of environmental performance and compliance for 86% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 11% of the consents, a good level of environmental performance and compliance was achieved.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the consent holder's performance has deteriorated in the year under review.

This report includes recommendations for the 2021-2022 year.



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# 1 Introduction

## 1.1 Compliance monitoring programme reports and the Resource Management Act 1991

### 1.1.1 Introduction

This report is for the period July 2020 to June 2021 by the Council describing the monitoring programme associated with a resource consent held by Remediation New Zealand Ltd, hereafter referred to as the Company. The Company operates a greenwaste collection, composting and compost finishing facility, in addition to worm beds, which create vermicompost. It is situated at 96 Waitara Road, Brixton, in the Waiongana catchment.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by the Company that relate to abstractions and discharges of water in the Waiongana catchment. This is the 1<sup>st</sup> annual report to be prepared by the Council to cover the Company's stormwater water discharges and their effects.

### 1.1.2 Structure of this report

**Section 1** of this report is a background section. It sets out general information about:

- consent compliance monitoring under the Resource Management Act 1991 (RMA) and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by the Company in the Waiongana catchment;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted in the Company's site/catchment.

**Section 2** presents the results of monitoring during the period under review, including scientific and technical data.

**Section 3** discusses the results, their interpretations, and their significance for the environment.

**Section 4** presents recommendations to be implemented in the 2021-2022 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

### 1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

- a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
- b. physical effects on the locality, including landscape, amenity and visual effects;
- c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
- d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
- e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' in as much as is appropriate for each

activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

#### 1.1.4 Evaluation of environmental and administrative performance

Besides discussing the various details of the performance and extent of compliance by the Company, this report also assigns them a rating for their environmental and administrative performance during the period under review.

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

##### Environmental Performance

**High:** No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

**Good:** Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

**Improvement required:** Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

**Poor:** Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

#### Administrative performance

**High:** The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

**Good:** Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

**Improvement required:** Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

**Poor:** Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

For reference, in the 2020-2021 year, consent holders were found to achieve a high level of environmental performance and compliance for 86% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 11% of the consents, a good level of environmental performance and compliance was achieved.<sup>1</sup>

## 1.2 Process description

The Company currently operates an existing vermiculture business from the Waitara Road facility. The site also has a processing facility which blends and refines the finished products.

Greenwaste is collected from a number of section maintenance/lawnmower contractors, and then shredded onsite. Some of the greenwaste is composted within the site grounds, while the majority is sent to the other Company site located in in Uruti.

Composted material supplied from the Uruti site is applied to worm windrows at an average depth of 15-20 mm, with the worms working the top 100 mm and consuming the applied material over a period of 5 to 7 days. Aeration of the windrows is achieved using a metal arm with long 'teeth' mounted on a tractor. The covered windrows are 3 m wide with a 2 m metallised access track between each windrow. Once the applied material has been converted into vermicast, this is then harvested and packaged for distribution as a fertiliser.

Raw materials used to make the Revital Fertiliser products, including chicken manure, are stored within onsite sheds. Mixing of fertiliser blends is carried out within the large shed, which occurs immediately prior to dispatch of the product. The shed is also used for bagging the products.

The blended compost is loaded out via covered trucks. A loading ramp is situated to the northeast of the large storage shed. A vehicle washdown facility is provided between the storage sheds.

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<sup>1</sup> The Council has used these compliance grading criteria for more than 17 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018



Figure 1 RNZ Waitara Road Facility map

#### Stormwater consent

To date, any surface stormwater from the windrows has been directed to open grassed drains along the property boundary. Stormwater from the concrete mixing pad is directed to a sump and holding tank and subsequently pumped back onto the windrows. Stormwater from roofed catchments is directed to holding tanks, also for pumping back onto windrows. Stormwater from the concrete apron in front of the lime, rock and phosphate shed is directed via pipe to an open drain.

Any offsite discharges are via the open drain which runs through the neighbouring property before discharging into an unnamed tributary of the Waiongana Stream, approximately 2.5 km from the subject site.

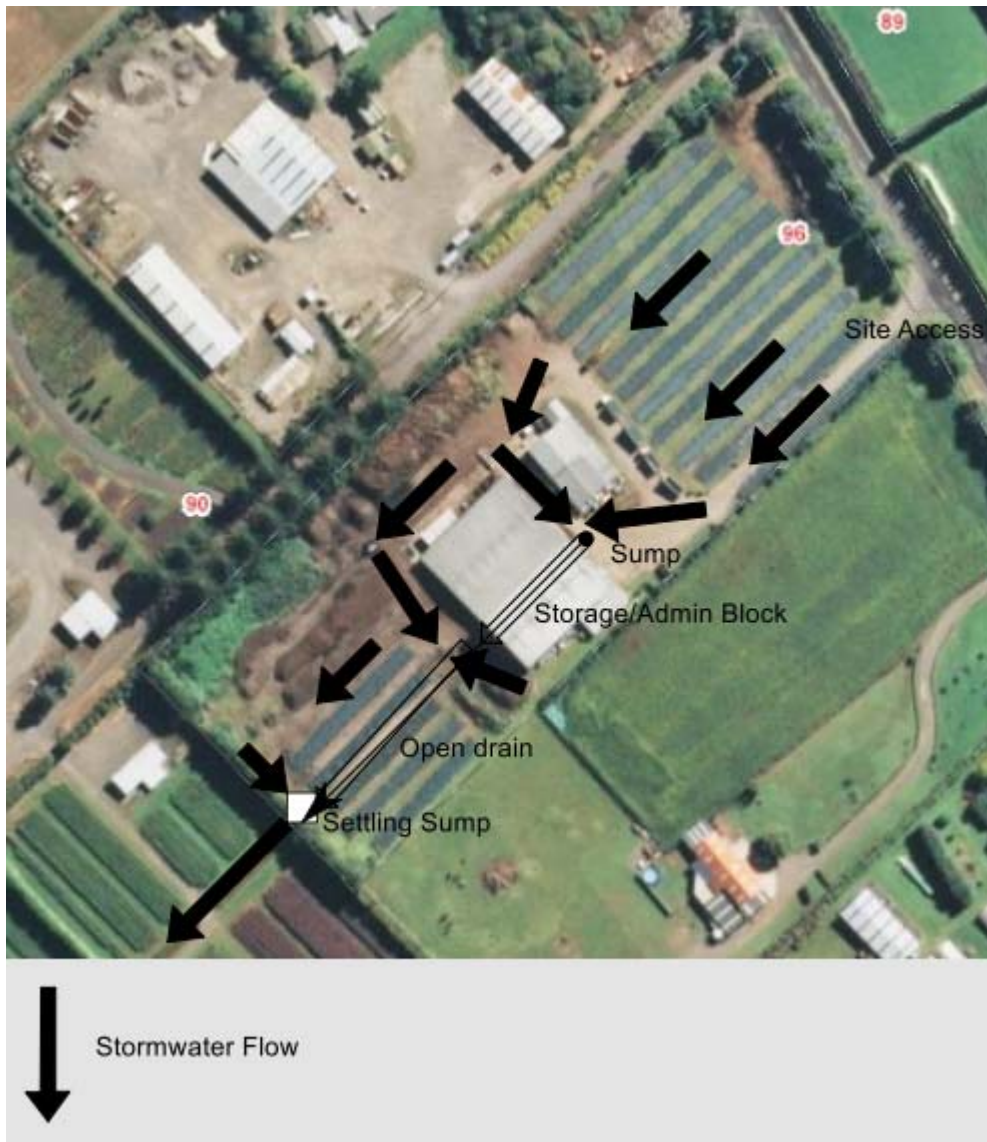


Figure 2 Consent 5892-2 stormwater flow direction

### 1.3 Resource consents

The Company holds one resource consent, the details of which are summarised in the table below. Summaries of the conditions attached to the consent are set out in Section 3 of this report.

A summary of the various consent types issued by the Council is included in Appendix I, as are copies of all permits held by the Company during the period under review.

Table 1 Resource consent held by the Company

Consent number	Purpose	Granted	Review	Expires
<i>Water discharge permits</i>				
<b>5892-2</b>	To discharge stormwater from worm farming operations onto and into land and into an unnamed tributary of the Waiongana Stream	September 2006	June 2014	June 2020 S.124 Protection while application to renew the consent is processed

## 1.4 Monitoring programme

### 1.4.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The monitoring programme for the Company site consisted of three primary components.

### 1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

### 1.4.3 Site inspections

The Company site was visited three times during the monitoring period. With regard to consent for the discharge of stormwater, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. The neighbourhood was also surveyed for environmental effects.

### 1.4.4 Chemical sampling

The Council collected three samples from the Waitara Road facility this monitoring period. Two were collected from the stormwater monitoring point, IND005106. One additional sample was also collected from a discharge which was occurring slightly up gradient from the main facility discharge. The samples were assessed against the following parameters:

- Free Ammonia as N
- Turbidity ISO
- pH
- Total Suspended Solids
- Sample Temperature
- Total Potassium
- Total Ammoniacal-N
- Dissolved Reactive Phosphorus
- Dissolved C-Biochemical Oxygen Demand (CBOD5)
- Escherichia coli
- Organonitro&phosphorus (ONP) Pesticides Screen in MR Water Liq/liq
  - Propiconazole



- Tebuconazole
- Terbutylazine

Please note in the case of ONP testing, 88 parameters were tested for. Only the three compounds listed were detected above the laboratory defined limit of detection (LOD)<sup>2</sup>.

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<sup>2</sup> The limit of detection (LOD) is defined as the lowest concentration of an analyte in a sample that can be consistently detected with a stated probability (typically at 95% certainty).

## 2 Results

### 2.1 Water

#### 2.1.1 Inspections

07 May 2021

The following was noted. A visual inspection was undertaken as part of routine compliance monitoring, during fine weather. At the time a slight easterly breeze was observed. The worm beds were in the process of being re-stacked for winter. No leachate was observed discharging from the beds.

There was no evidence of spilt material on the concrete pad between the sheds. The stormwater sediment pit was full at the time of inspection. Material was also noted to be flowing out of one of the sheds towards the sediment trap. It was communicated that this was cleaned out post inspection. Further maintenance was proposed to take place the following week, in order to prevent material from discharging directly into the sediment trap.

At the time, no discharge to water was occurring. Very little odour was detected onsite, and no offensive or objectionable odour was detected offsite at the time of the inspection.

17 May 2021

An inspection was undertaken as part of routine compliance monitoring. It was conducted after a period of very heavy rainfall. On observation all the worm beds were all covered. There was evidence of spilt material and sediment on the pad between the sheds. The stormwater sediment trap had been recently cleaned out but still had some remaining sediment.

The material which was noted to be flowing out of one of the sheds towards the sediment trap during the last inspection had largely been cleared away. Deposition of product was noted in the sediment trap, and along the drain, and in the final treatment pond.

At the time, a discharge from the site into the neighbour's drain was occurring. The discharge was very turbid and slightly odorous. A further discharge from the site, directly upstream, was also occurring. A sample was taken from the normal discharge point along with the discharge immediately above it.

A slight odour was detected on site. No offensive or objectionable odour was detected offsite at the time of the inspection. An abatement notice may be issued and the compliance rating would be pending sample results.

16 June 2021

Inspection was undertaken as part of routine compliance monitoring, after a period of very heavy rain overnight. The worm beds were all covered. There was evidence of a large amount of spilt material and tracked sediment on the pad between, and to the side of the sheds.

The stormwater sediment trap had been recently cleaned out. The discharge from the hard stand area, between the sheds, into the sediment trap was very dark in colour. Material was no longer flowing out of one of the sheds towards the sediment trap. Bunding and a wind fence had been put in place.

Dark tannin coloured water was seeping out from this shed and into the sediment trap. The drain had been cleaned out. A discharge from the site into the neighbour's drain was occurring. The discharge was significantly less turbid than the last inspection. However, the final treatment pond was very dark in colour.

The discharge which was noted during the last inspection, immediately upstream of the normal discharge location, was no longer occurring. No samples were taken during this inspection, as the abatement notice (EAC-24106<sup>3</sup>) issued after the previous inspection had a compliance date of 15 July 2021.

A slight odour was detected on site, however, no offensive or objectionable odour was detected offsite at the time of the inspection. All visually assessed conditions were found compliant during the inspection. It was noted though, that improvements were needed to be undertaken to the stormwater treatment system.

## 2.1.2 Results of the discharge monitoring

In this monitoring period the Council collected two samples from the Company stormwater discharge point (IND005016). In addition, a sample was collected from a discharging pipe, up gradient from the stormwater discharge (Table 2). It should be noted that the sample collected 17 August 2021 was technically outside of the scope of the monitoring period (1 July 2020-30 June 2021), however, it was included due to the enforcement associated with abatement notice EAC -24106.

Table 2 Stormwater discharge results IND005106 20-21 monitoring period

Stormwater discharge 5892-2	Sample Name:	Consent 5892-2 con 6	IND005016	Pipe next to IND005106	IND005106
	Date		17-May-21	17-May-21	17-Aug-21
Parameter	Time		10:40	10:20	11:31
Free Ammonia as N	g/m <sup>3</sup>		0.043	0.05	0.0102
Turbidity ISO	FNU		1,000	590	650
pH	pH Units	6.5-8.5	7.3	7.4	7.3
Total Suspended Solids	g/m <sup>3</sup>	100	<u>960</u>	<u>840</u>	<u>1,320</u>
Sample Temperature	°C		14.3	14	12.1
Total Potassium	g/m <sup>3</sup>		129	120	61
Total Ammoniacal-N	g/m <sup>3</sup>		8.1	8.4	2.3
Dissolved Reactive Phosphorus	g/m <sup>3</sup>		1.53	1.55	0.32
Dissolved C-Biochemical Oxygen Demand (CBOD <sup>5</sup> )	g O <sub>2</sub> /m <sup>3</sup>		34	39	12.8
<i>Escherichia coli</i>	MPN / 100mL		> 24,200	> 24,200	900,000
<b>Organonitro&amp;phosphorus Pesticides Screen in MR Water Liq/liq</b>					
Propiconazole	g/m <sup>3</sup>	0.0001*	0.0008	0.0008	-
Tebuconazole	g/m <sup>3</sup>	0.00024*	0.0007	0.0007	-
Terbuthylazine	g/m <sup>3</sup>		< 0.0002	0.0004	-
*Environmental exposure limit (EEL Freshwater) NZ Environmental Protection Agency (NZEPA) <sup>4</sup>					

<sup>3</sup> Action 1. Undertake works to the maintenance, management and infrastructure of the stormwater treatment and disposal system to ensure compliance of Resource Consent 5892-2.

<sup>4</sup> 'Environmental exposure limit means the limit on the concentration of a substance (or any element or compound making up the substance) with ecotoxic properties in an environmental medium as set in accordance with this section or EPA notices'. HSNO 1996 Section 77B exposure limits for substances with toxic or ecotoxic properties. Par 6

In terms of the specific condition relating to the discharge analytical characteristics, condition 6 stipulates the requirement for the following:

- The pH of the discharge must range between 6.5-8.5 pH. The three samples assessed were compliant with this, ranging 7.3-7.4 pH.
- Total suspended solids must not exceed 100 g/m<sup>3</sup>. All three samples were non-compliant with this condition, ranging 840-1,320 g/m<sup>3</sup>. This included the follow up abatement notice sampling round (17 August 2021), which held a higher concentration than the initial sample collected from IND005106, on the 17 May 2021.

In addition to the consent discharge analyte characteristics, the discharge also held the following analytes:

- Free ammonia ranged 0.0102-0.05 g/m<sup>3</sup>. There was reduction in concentration for this analyte between the two sample rounds.
- Turbidity ranged 590-1,000 FNU. In terms of IND005106, there was reduction in this parameter between the two sample rounds.
- pH remained relatively stable between both monitoring rounds.
- Temperature ranged 12.1-14.3°C between the two rounds.
- Total potassium ranged 61-129 g/m<sup>3</sup>, with a significant reduction in potassium observed between the two sample rounds.
- Total ammoniacal nitrogen ranged 2.3-8.4 g/m<sup>3</sup>, with a reduction in this analyte between the two sample rounds.
- Dissolved reactive phosphorus (DRP) ranged 0.32-1.55 g/m<sup>3</sup>, with a reduction in concentration observed between both sample rounds.
- Dissolved carbonaceous biochemical oxygen demand ranged 12.8-39 g O<sub>2</sub>/m<sup>3</sup>. There was a reduction in this analyte between both sample rounds, however even the reduced concentration was still elevated for oxygen demand. At the concentrations recorded, sewage fungus can occur in water courses.
- *E.coli* was significantly elevated in all samples. The 17 August 2021 may have sampled a faeces of some description, hence the significantly elevated result. Chicken litter is held on the property. As such, this may account for the elevations recorded.
- A screen of organonitro and phosphorus pesticides were run on the May 2021 samples. Three compounds were identified.
- Propiconazole, a fungicide, with two results of 0.0008 g/m<sup>3</sup>. The New Zealand Environmental Protection Authority (NZEPA) has set an environmental exposure limit (EEL) of 0.0001 g/m<sup>3</sup>. The concentration recorded exceeded this limit.
- Tebuconazole, also a fungicide, with two results at 0.007 g/m<sup>3</sup>. The New Zealand Environmental Protection Authority (NZEPA) has set an environmental exposure limit (EEL) of 0.00024 g/m<sup>3</sup>. The concentration recorded exceeded this limit.
- Terbutylazine, a herbicide, with one result of 0.004 g/m<sup>3</sup>. Noted that this compound was not recorded above the LOD in IND005106. Field observations by Council staff noted a crop was being grown in the paddock adjacent to Company site. This may account for the herbicide.

### Stormwater discussion

The initial samples collected in May 2021 held analytes which were significantly elevated. The Company were abated to undertake works to the maintenance, management and infrastructure of the stormwater treatment and disposal system to ensure compliance of Resource Consent 5892-2.

The follow up sample round in August 2021 indicated that the stormwater system still held elevated contaminants. There was however improvement when compared to the initial May 2021 round. Works had been undertaken by the Company to improve the system. While these had led to some improvements in

contaminant concentrations analysed in the discharge, in the case of suspended solids, the concentration was not improved. Further improvements were required.

While the developments had not satisfied the abatement requirement by the date determined by it, the Council were willing to allow the Company further time to work on the stormwater system, as some improvement had been recognised from the work done, both from a visual and analytical perspective.

The Company contracted a suitably qualified consultant in the form of Pattle Delamore and Partners (PDP). PDP performed a review of the stormwater and provided a memorandum to the Company (26 October 2021). This memorandum contained eight recommendations to the Company.

The Company are in the process of establishing a timetable to undertake the recommendations. The Council will undertake a follow up inspection and sample collection in December 2021. This will determine whether the abatement notice been complied with.

## 2.2 Incidents, investigations, and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the Company. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

Table 3 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to the Company activities during the 2020-2021 period. This table presents details of all events that required further investigation or intervention regardless of whether these were found to be compliant or not.

Table 3 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
17 May 2021	Significantly elevated contaminants in stormwater discharge	N	Abatement notice issued	System modified, though additional works required to gain compliance Suitably qualified consultant engaged Recommendations to be put into effect Compliance to be checked in December 2021

## 3 Discussion

### 3.1 Discussion of site performance

Site performance, in regard to the stormwater discharge consent, has been fully discussed in the stormwater section of this report.

Overall stormwater management was observed to require a significant reassessment by the Company. Inspections noted stormwater entraining with product (chicken litter) and then draining from a storage shed into the stormwater system. This was not best practice for stormwater quality management.

Stormwater entrained in composting areas was also entering the stormwater system. Including roof water. No segregation existed between active areas on the site, clean stormwater and the discharge.

An abatement notice was issued, requiring the Company to undertake works to the maintenance, management and infrastructure of the stormwater treatment and disposal system to ensure compliance of Resource Consent 5892-2.

Works were undertaken by the Company which demonstrated some improvement, both visually around the site, but also chemically in the discharge. However the results were not sufficient enough to gain compliance with the consent and or abatement notice. The Council were willing to allow the Company more time to mitigate the issue, as some improvement had been observed.

A suitably qualified consultant was engaged in the form of PDP. A memorandum was provided to the Company with recommendations from PDP. Currently the Company are developing a time line to have these undertaken. Compliance with the original abatement notice will be reassessed in December 2021.

The facility management plan which includes stormwater should be updated by the Company, to account for the developments undertaken in this period, as well as any recommendations actioned by the Company.

### 3.2 Environmental effects of exercise of consent

The main environmental effects are associated with the elevated contaminants in the stormwater discharge. The discharge exits off the property, whereby it flows into a drain. This only occurs under significant rainfall. Inspections this monitoring period were targeted for during or just after heavy rain, in order to gain a worst case perspective of the stormwater system under load.

The off property discharge which enters a drain, flows along a neighbouring property (former Duncan and Davey horticulture, now Jekel Trustee Limited). The flow in the drain then disappears, either by ground soakage to land or by pipe underground, within the general vicinity of an unnamed tributary of the Waiongana Stream.

The concentrations of contaminants within the discharge suggest a potential for sewage fungus formation in any receiving waters. No sewage fungus was recorded in the drain. The elevated contaminants within the discharge can lead to eutrophication of a water course, if they were a sustained discharge. This discharge appears to be sporadic based on the Council Officer's inspections. However, the potential remains.

In terms of the consent, non-compliance was recorded on two occasions for the associated suspended solids within the discharge, being greater than 100 g/m<sup>3</sup>. *E.coli* was significantly elevated on both sampling occasions, which suggests entrainment of chicken litter with the stormwater discharge. The effectiveness of the recommendations put forward by the suitably qualified consultant will be assessed in December 2021.

The presence of two azole base fungicides within the discharge does raise a few questions. It is known that the sister site to Waitara Road, is Uruti. The facility at Uruti had been found to be accepting light organic solvent preserved (LOSP) sawdust for a period of 15 years. Whether the detection of these two fungicides is

associated with the Uruti site or whether they are present in the greenwaste<sup>5</sup> which is composted prior to the addition of Uruti inputs remains to be concluded. This is an area which will need to be investigated further in the upcoming monitoring period.

### 3.3 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Tables 4 & 5.

Table 4 Summary of performance for consent 5892-2

<b>Purpose 5892-2.0: To discharge stormwater from the worm farming operations onto and into land and into an unnamed tributary of the Waiongana Stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Exercise of consent in accordance with information provided in application	Site inspections	- Yes
2. Best practicable option as described by S2 of RMA	Site inspections	- No - Stormwater entraining in chicken litter stored on site - No stormwater segregation - Ponding of stormwater observed - Elevated contaminants in discharge - Abatement notice issued
3. Stormwater management plan	Received 14 November 2016	- Yes - A revision of this stormwater management plan is required to account for the updated stormwater system
4. Records of source, nature and volume of wastes	Yes	- Yes - Provided with main Uruti information
5. No contamination of ground or surface water	Site inspections	- Discharge discharges into an open drain; not possible to determine if surface water is impacted.
6. Maintenance of stormwater treatment system and concentration limits	Site inspections	- Maintenance on going - Significant work was required - Some works undertaken and improvements have been made - Further improvements required - Recommendation provided - Reassessment in December 2021
7. Post mixing zone stormwater effects	Sampling	- Not assessed - Samples were not collected during the period under review as the drain disappears under ground

<sup>5</sup> Information conveyed verbally by the Waitara Road Site Manager was these two fungicides (propiconazole and tebuconazole) are routinely recorded in greenwaste samples undertaken by the Company.

Purpose 5892-2.0: To discharge stormwater from the worm farming operations onto and into land and into an unnamed tributary of the Waiongana Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
8. Windrows covered except when discharging	Inspections	- Yes - Inspection indicated that windrows were covered, except during feeding or harvesting
9. Alterations to processes and operations	Inspections	- Update of the stormwater system conveyed through communications and inspection
10. Reinstatement of site	Not required currently	- Not assessed
11. Optional review of consent	No review due this period	- Consent under renewal process
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>Good</b>
Overall administrative compliance with this consent		<b>Good</b>

Table 5 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2013-2014	5892-2	1			
2014-2015	5892-2	1			
2015-2016	5892-2	1			
2016-2017	5892-2	1			
2018-2019	5892-2			1	
2019-2020	5892-2	1			
Totals		5	0	1	0

During the year, the Company demonstrated an improvement required level of environmental and good level of administrative performance with the resource consents as defined in Section 1.1.4.

### 3.4 Recommendations from the 2019-2020 Annual Report

In the 2019-2020 Annual Report, it was recommended:

1. It is proposed that for 2020-2021 monitoring period that the monitoring of the consented activities at the facility located on the Waitara Road, Brixton, continue at the same level as that undertaken in the 2019-2020 monitoring period.

This was undertaken with the inclusion of organonitro and phosphorus (ONP) pesticides screening of one of the discharge sample rounds.

### 3.5 Alterations to monitoring programmes for 2021-2022

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;



- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

Planned changes for 2021-2022 monitoring programme include the addition of ONP pesticides screening to the stormwater discharge monitoring at Waitara Road facility. Additional inspections may be required if compliance is not achieved with the abatement notice in December 2021.

Further investigations as to the source of the pesticides detected in the stormwater samples will be undertaken to determine if they are related to material originating from the Uruti facility or are being brought in by the green waste accepted and partially composted on site.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2021-2022.

## 4 Recommendations

1. THAT in the first instance, monitoring of consented activities at Waitara Road facility in the 2021-2022 year be amended from that undertaken in 2020-2021, as set out below.
2. Additional inspections will be required if compliance is not achieved with the abatement notice in December 2021.
3. Organonitro and phosphorus pesticide screen to be added to all stormwater samples.
4. Further investigations as to the source of the pesticides detected in the stormwater sample will be undertaken to determine if they are related to the Uruti facility or are being brought in by the green waste accepted and partially composted on site.
5. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

## Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

Al*	Aluminium.
As*	Arsenic.
Biomonitoring	Assessing the health of the environment using aquatic organisms.
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODF	Biochemical oxygen demand of a filtered sample.
Bund	A wall around a tank to contain its contents in the case of a leak.
CBOD	Carbonaceous biochemical oxygen demand. A measure of the presence of degradable organic matter, excluding the biological conversion of ammonia to nitrate.
cfu	Colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample.
COD	Chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in $\mu\text{S}/\text{cm}$ .
Cu*	Copper.
Cumec	A volumetric measure of flow- 1 cubic metre per second ( $1 \text{ m}^3\text{s}^{-1}$ ).
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
<i>E.coli</i>	<i>Escherichia coli</i> , an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
EEL	Environmental exposure limit means the limit on the concentration of a substance (or any element or compound making up the substance) with ecotoxic properties in an environmental medium as set in accordance with this section or EPA notices.
Ent	Enterococci, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre of sample.
F	Fluoride.
FC	Faecal coliforms, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
FNU	Formazin nephelometric units, a measure of the turbidity of water
Fresh	Elevated flow in a stream, such as after heavy rainfall.
$\text{g}/\text{m}^2/\text{day}$	grams/metre <sup>2</sup> /day.
$\text{g}/\text{m}^3$	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a

	consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident register	The incident register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
ISO	ISO refers to its units as formazin nephelometric units (FNU). It is used to determine the concentration of suspended particles in the sample of water by measuring the incident light scattered at right angles from the sample.
L/s	Litres per second.
m <sup>2</sup>	Square Metres.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
MPN	Most Probable Number. A method used to estimate the concentration of viable microorganisms in a sample.
µS/cm	Microsiemens per centimetre.
NH <sub>4</sub>	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH <sub>3</sub>	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
NO <sub>3</sub>	Nitrate, normally expressed in terms of the mass of nitrogen (N).
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
O&G	Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons).
Pb*	Lead.
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1.0</sub>	Relatively fine airborne particles (less than 10 or 2.5 or 1.0 micrometre diameter, respectively).
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	<i>Resource Management Act 1991</i> and including all subsequent amendments.
SS	Suspended solids.

SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU or FNU.
Zn*	Zinc.

\*an abbreviation for a metal or other analyte may be followed by the letters 'As', to denote the amount of metal recoverable in acidic conditions. This is taken as indicating the total amount of metal that might be solubilised under extreme environmental conditions. The abbreviation may alternatively be followed by the letter 'D', denoting the amount of the metal present in dissolved form rather than in particulate or solid form.

For further information on analytical methods, contact a Science Services Manager.

## Bibliography and references

Ministry for the Environment. 2018. Best Practice Guidelines for Compliance, Monitoring and Enforcement under the Resource Management Act 1991. Wellington: Ministry for the Environment.

Remediation NZ LTD Brixton Site Management Plan May 2017 review P-720-005-A.

Taranaki Regional Council 2020: Remediation NZ Ltd Uruti Waitara Road Monitoring Programme Annual Report 2019-2020 Technical Report 2020-84. Taranaki Regional Council, Stratford.

Taranaki Regional Council 2019: Remediation NZ Ltd Uruti Waitara and Pennington Road Monitoring Programme Annual Report 2018-2019 Technical Report 2019-50. Taranaki Regional Council, Stratford.

Taranaki Regional Council 2018: Remediation NZ Ltd Uruti Waitara and Pennington Road Monitoring Programme Annual Report 2017-2018 Technical Report 2018-79. Taranaki Regional Council, Stratford.

# Appendix I

## Resource consents held by RNZ New Zealand Ltd Waitara Road Facility

(For a copy of the signed resource consent  
please contact the TRC Consents department)

### Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

### Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

### Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

### Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

### Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

### Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.



**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder:            Remediation (NZ) Limited  
   P O Box 8045  
   NEW PLYMOUTH 4342

Consent Granted            7 September 2006  
Date:

**Conditions of Consent**

Consent Granted:            To discharge stormwater from worm farming operations  
   onto and into land and into an unnamed tributary of the  
   Waiongana Stream at or about (NZTM)  
   1705949E-5679907N

Expiry Date:                1 June 2020

Review Date(s):            June 2008, June 2014

Site Location:              96 Waitara Road, Brixton, Waitara

Legal Description:         Lot 1 DP 19670 Blk III Paritutu SD

Catchment:                 Waiongana

### General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### Special conditions

1. This consent shall be exercised generally in accordance with the information submitted in support of applications 1559 and 4037. In the case of any contradiction between the documentation submitted in support of applications 1559 and 4037 and the conditions of this consent, the conditions of this consent shall prevail.
2. At all times the consent holder shall adopt the best practicable option, as defined in section 2 of the Act, to prevent or minimise any actual or likely adverse effect on the environment associated with worm farming activities and the discharge of stormwater onto and into land.
3. Within three months of granting of this consent the consent holder shall prepare and maintain a stormwater management plan to the satisfaction of the Chief Executive, Taranaki Regional Council. This plan shall be updated as required by any significant changes to plant processes.
4. The consent holder shall keep and make available to the Chief Executive, Taranaki Regional Council, upon request, records of the nature and volume of all wastes received at the site; such records to be kept for at least 12 months.
5. The exercise of this consent shall not result in any contamination of groundwater or surface water, other than as provided for in special condition 6 of this consent.
6. The stormwater treatment system shall be maintained to the satisfaction of the Chief Executive, Taranaki Regional Council.

The following concentrations shall not be exceeded within the discharge effluent:

Component	Concentration
pH (range)	6.5-8.5
suspended solids	100 gm <sup>-3</sup>

## Consent 5892-2

This condition shall apply prior to any stormwater prior to leaving the site into the neighbouring drain, at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

7. After allowing for reasonable mixing, with a mixing zone extending seven times the width of the receiving waters downstream of the discharge point, the discharge shall not give rise to any of the following effects in the receiving waters of the unnamed tributary:
  - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
  - b) any conspicuous change in the colour or visual clarity;
  - c) any emission or objectionable odour;
  - d) the rendering of fresh water unsuitable for consumption by farm animals;
  - e) any significant adverse effects on aquatic life.
8. The consent holder shall ensure that except when discharging, windrows shall be covered at all times.
9. Prior to undertaking any alterations to the processes or operations which significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act 1991.
10. The Chief Executive, Taranaki Regional Council, shall be advised in writing at least 48 hours prior to the reinstatement of the site and the reinstatement shall be carried out so as to minimise effects on stormwater quality, and to meet the criteria of Tables 4.11, 4.14 & 4.20 of the Ministry for the Environment (1999) document 'Guidelines for Assessing & Managing Petroleum Hydrocarbon Contaminated sites in N.Z.'.
11. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2008 and/or June 2014, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 22 September 2008

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**