New Plymouth District Council
Inglewood, Okato, and Marfell Park Landfills
Monitoring Programme
Annual Report
2018-2019

Technical Report 2019-49

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Executive summary

The New Plymouth District Council (NPDC) maintains two reinstated landfills, one at Inglewood and one at Okato. Both of these sites are now used as transfer stations and are held in reserve to accept refuse, if required, as a contingency. The Inglewood landfill is an active cleanfill site; located on King Road at Inglewood, in the Waiongana catchment. The Okato landfill is an active cleanfill and green waste disposal site; located on Hampton Road at Okato, in the Kaihihi catchment.

NPDC also maintains a closed landfill, Marfell Park (Marfell) landfill in the Huatoki catchment. This landfill does not accept any waste for disposal and has been fully reinstated.

This report for the period July 2018 to June 2019 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess NPDC'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.

NPDC holds seven resource consents in relation to these landfills, which include a total of 59 conditions setting out the requirements that they must satisfy. NPDC holds three consents to discharge leachate and stormwater into various streams, two consents to discharge contaminants onto and into land, and two consents to discharge emissions into the air.

During the monitoring period, NPDC demonstrated an overall good level of environmental performance.

The Council's monitoring programme for the year under review included seven inspections, one discharge sample, 14 receiving water samples, two biomonitoring surveys of receiving waters, and one ambient air quality analysis.

During the monitoring year there were two incidents logged by Council associated with NPDC's landfills covered in this report (one at Inglewood and one at Marfell).

Overall during the year, NPDC demonstrated a good level of environmental performance and a high level of administrative performance in relation to the Inglewood landfill consents as defined in Section 1.1.5. Although no significant environmental effects were found due to the operation of the site, the recent trend of increasing concentrations of nitrogen compounds prior to the remediation of the cap and the increasing trend in acid soluble manganese indicate that there may be the potential for environmental effects to emerge in the future.

During the year, NPDC demonstrated a high level of environmental performance and administrative performance in relation to the Okato landfill resource consents as defined in Section 1.1.5.

During the year, NPDC demonstrated a good level of environmental performance and a high level of administrative performance in relation to the Marfell landfill resource consents as defined in Section 1.1.5.

For reference, in the 2018-2019 year, consent holders were found to achieve a high level of environmental performance and compliance for 83% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 13% 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 is remained at a good or high level in the year under review.

This report includes recommendations for the 2019-2020 year, including a recommendation relating to an optional review of consents 4526-3, 4527-3, and 4902-2 in June 2020.

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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 2018 to June 2019 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by New Plymouth District Council (NPDC) for closed landfills in the district.

NPDC holds a consent to discharge leachate and contaminated stormwater from its closed landfill, Marfell Park (Marfell) landfill in the Huatoki catchment. This landfill does not accept waste for disposal to land and has been fully reinstated.

NPDC also hold consents to discharge solids to land, emissions to air, and leachate and contaminated stormwater to land and water, at two contingency landfills that currently operate as transfer stations and green waste and/or cleanfill disposal sites. These are Inglewood landfill (cleanfill) in the Waiongana catchment, and Okato landfill (cleanfill and green waste) in the Kaihihi catchment. The landfills are not routinely accepting refuse and these former activities have been fully reinstated. They do, however, retain all necessary consents to act as contingency sites if the regional landfill at Colson Road (recently closed) had to cease accepting waste, or there are transportation issues in the event of an emergency.

The Colson Road regional landfill was operational during the 2018-2019 period, closing to general waste in August 2019. The monitoring of this facility has been reported separately since the annual report covering the 1999-2000 monitoring period.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of of the consents held by NPDC that relate to the discharges of leachate and stormwater within these catchments and discharges of contaminants onto and into land and emissions to air for the Inglewood and Okato sites.

One of the intents of the *Resource Management Act 1991* (RMA) is that environmental management should be integrated across all media, so that a consent holder's use of water, air, and land should be considered from a single comprehensive environmental perspective. Accordingly, the Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report discusses the environmental effects of NPDC's use of water, land and air, and is the 29th combined annual report by the Council for the consent holder.

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 RMA and the Council's obligations;
- the Council's approach to monitoring sites though annual programmes;
- the resource consents held by NPDC for landfills/cleanfills in the Huatoki, Waiongana, and Kaihihi catchments;
- the nature of the monitoring programme in place for the period under review; and
- a summary of the status of these three landfill sites.

Each of the sites is then discussed in a separate section (Sections 2 to 4).

Sub-section 1 (for example Section 2.1) presents:

- a general description of the former landfill, current activities and discharges;
- an aerial photograph or map showing the location of the former landfill; and
- an outline of the matters covered by NPDC's permit(s) for the site

Sub-section 2 presents the results of monitoring of the NPDC's activities at each of the sites during the period under review, including scientific and technical data.

Sub-section 3 discusses the results, their interpretation, and their significance for the environment.

Sub-section 4 presents recommendations to be implemented in the 2019-2020 monitoring year.

Section 5 contains a summary of recommendations for the 2019-2020 period.

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' inasmuch 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 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 consent holder. 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).

1.1.5 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 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 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 2018-2019 year, consent holders were found to achieve a high level of environmental performance and compliance for 83% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 13% of the consents, a good level of environmental performance and compliance was achieved.[1]

1.2 Resource consents

NPDC holds seven resource consents in relation to its closed and contingency landfills, the details of which are summarised in the table below. Summaries of the conditions attached to each permit are set out in the 'Evaluation of performance' sections for each site.

Table 1 Summary of consents held by NPDC

Site	Consent No.	Purpose	Granted	Review	Expires
Inglewood	3954-2	To discharge up to a total of 4,752 m^3/day (55 litres/second) of leachate and stormwater from the Inglewood municipal landfill into an unnamed tributary of the Awai Stream, a tributary of the Mangaoraka Stream in the Waiongana catchment	Feb 2002	-	1 June 2020
	4526-3	To discharge contaminants, being landfill gas, and odours associated with a landfill, into the air from the Inglewood municipal landfill	Mar 2007	June 2020	1 June 2026
	4527-3	To discharge cleanfill and inert materials onto and into land at the Inglewood municipal landfill, and to discharge municipal refuse onto and into land at the Inglewood municipal landfill when, and only when, it cannot be discharged at the Colson Road municipal landfill	Mar 2007	June 2020	1 June 2026

[1] The Council has used these compliance grading criteria for 15 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

Site	Consent No.	Purpose	Granted	Review	Expires
Okato	3860-3	To discharge stormwater and leachate from the Okato municipal landfill into an unnamed tributary of the Kaihihi Stream	Sep 2013	June 2025	1 June 2031
	4528-3	To discharge emissions into the air from the contingency discharge of solid contaminants at the Okato municipal landfill	Sep 2013	June 2025	1 June 2031
	4529-3	To discharge cleanfill and green waste to land and to discharge general refuse on a contingency basis to land	Sep 2013	June 2025	1 June 2031
Marfell	4902-2	To discharge leachate from the Marfell former landfill site via groundwater into the Mangaotuku Stream	Oct 2014	June 2020	1 June 2032

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.

1.3 Monitoring programme

1.3.1 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 programmes for the NPDC landfill sites consisted of four primary components as outlined below and in Table 2. The Inglewood and Okato landfills, where cleanfill and/or green waste is still being discharged are monitored annually, while the closed Marfell site is monitored biennially.

1.3.2 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;
- in 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.

1.3.3 Site inspections

A total of seven inspections were carried out at the three sites during the monitoring period. With regard to consents for the discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being

collected by the Company were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.3.4 Chemical sampling

The Council took one discharge and 14 receiving water samples for physicochemical analysis during the monitoring year across all of the NPDC landfill sites covered in this report.

Ambient air quality monitoring was also carried out at the Inglewood landfill during one inspection.

1.3.5 Biomonitoring surveys

A biological survey was performed on two occasions at the Inglewood landfill in two unnamed tributaries of the Awai Stream.

Table 2 Summary of monitoring activities carried out at the NPDC landfills during the monitoring period

Landfill	Number of discharge samples	Number of receiving water samples	Number of inspections	Biomonitoring surveys	Ambient air surveys
Inglewood	0	9	4	2	1
Marfell	1	2	1	0	0
Okato	0	3	2	0	0
TOTAL	**1**	**14**	**7**	**2**	**1**

2 Inglewood landfill

2.1 Introduction

2.1.1 Site description

The Inglewood landfill opened in 1978 and operated as a municipal landfill for about 24 years.

The site had been constructed in the head of a gully in the Awai Stream catchment. As the gully was filled with refuse, cover material was progressively excavated from the side walls ahead of the fill. The underlying soil, cover and capping material at the site is clay (Taranaki Ash).

Solid waste from the Inglewood kerbside collection was disposed of at Colson Road from about 1999 and the Inglewood landfill was closed to general waste acceptance on 1 September 2006. During the period January 2005 to March 2006 solid waste from the Stratford District kerbside collection was disposed of at this site, and for three months from July 2005 to October 2005 solid waste normally disposed of at Colson Road, was disposed of here whilst remedial work was undertaken at Colson Road.

The site has continued to be used as a waste transfer station. Refuse is placed in bins for removal and disposal at the Colson Road landfill. The disposal of cleanfill is still permitted at the site, and the site has been identified as a contingency landfill in the event that refuse could not be disposed of at Colson Road.

Approximately 1.78 ha of the site has been used for landfilling. As required by the conditions of the consent, NPDC maintains a Landfill Closure Management Plan for the site that addresses monitoring and management of the site. NPDC staff also undertake regular inspections at the site, and the plan states that if any issues are identified they will be remediated appropriately.

The Inglewood Landfill Closure Plan states that it is suspected that when this landfill was originally developed there were no standard specifications for the siting and operation of landfills. As a result the site is not lined, nor does it have landfill gas or leachate collection systems in place.

Figure 1 shows the approximate extent of the fill and the general layout of the Inglewood landfill site. The discharge and receiving water monitoring site locations are shown in Figure 2.

Figure 1 Site layout at Inglewood contingency landfill

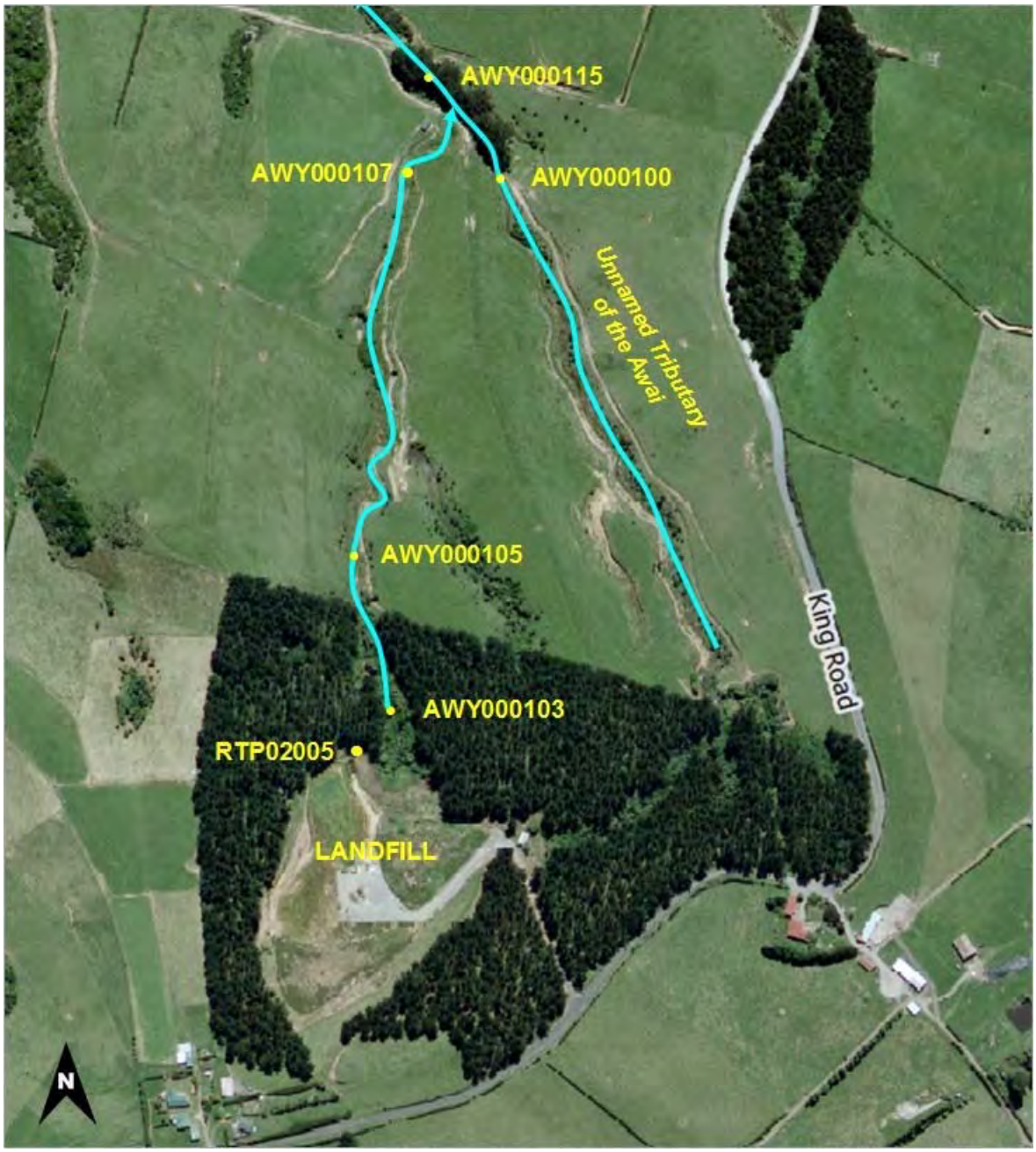

Figure 2 Inglewood landfill and receiving water sampling sites

2.2 Results

2.2.1 Site inspections

27 September 2018

The site was inspected in fine weather, scattered cloud and a fresh westerly. The cap was well vegetated, mainly with scrubby grass, with blackberry and gorse also observed in some areas. Some small pine trees were present on the cap, but were not seen to be compromising the integrity of the cap. There were no signs of cracking, slumping or erosion and no exposed refuse was observed. The cap and perimeter drains were dry with no sign of recent flow. It was noted that in some areas blackberry and gorse were growing in the drains, and in other areas general vegetation was found to be quite thick throughout the drains. This

may have the potential to obstruct flow in these drains. The leachate pond was low, and was not discharging. No odour was detected.

The site was securely fenced with the correct signage in place and visible. It was observed that in various places around the site that vegetation was taking over the fences. There was a pile of fresh green waste and home appliances dumped at the transfer station.

No dust or gases were noted after a gas survey was carried out. A logging operation was in process, removing the pine trees that surround the landfill.

23 January 2019

The site was inspected in fine weather with gusty south easterly wind conditions. Fine, dry weather conditions had prevailed in the days prior. The cap was well vegetated with no sign of recent grazing. Self-sown wildling pines were observed sprouting on the cap, and the consent holder was advised that these would require immediate removal. No erosion, slumping or cracking was observed on either the cap or batters, and there was no sign of exposed refuse.

The stormwater and leachate drains were dry with no sign of recent flow. All drains were clear of obstructions and free-flowing, although it was noted that regular weed control would be required due to re-vegetating gorse in the recently-logged area. The leachate pond was dry with no sign of recent discharge or sludge accumulations on the bottom of the pond.

The site was securely fenced and signposted. New permanent 5-wire fencing was being installed on the adjacent land following the completion of logging activities. The transfer station and greenwaste area were tidy with no unauthorised material observed. There were no odour or dust issues noted onsite.

29 March 2019

The site was inspected in overcast weather with a light south-easterly wind. Wet weather conditions had prevailed in the days prior. The cap was well vegetated with no sign of recent grazing. Self-sown wildling pines sprouting on the cap had not yet been removed and the consent holder was again advised that these required immediate removal. No erosion, slumping or cracking was observed on either the cap or batters, and there was no sign of exposed refuse.

The stormwater and leachate drains were damp with minimal sign of recent flow. All drains were clear of obstructions and free-flowing, although it was again noted that regular weed control would be required due to re-vegetating gorse over the cap and throughout the site. The leachate pond remained empty with cracking and vegetation growth on the bottom of the pond.

The site was securely fenced and signposted. The installation of permanent 5-wire fencing had been completed. The transfer station and greenwaste areas were tidy, with no unauthorised material noted. These areas did not appear to have been used recently and the site was unoccupied at the time of the inspection. There were no odour or dust issues noted onsite.

13 May 2019

The cap was intact and tidy. Self-sown wildling pines had recently been removed. It was noted that ongoing weed control would be required to maintain cap integrity and ensure free stormwater drainage from the cap area. The cap and batters were well-vegetated with no sign of slumping, ponding or exposed refuse. There was no sign of recent grazing or vermin damage throughout the site.

The stormwater perimeter drains were damp underfoot following recent rain. There were no obstructions to flow, however it was noted that re-establishing gorse pockets would require monitoring to ensure they do not compromise drainage. The leachate drains contained ponded rainwater, which was draining to the leachate pond. The pond itself was full, and discharging at a trickle flow that was clear and uncoloured.

The fencing, signage and site security was intact and permanent. The transfer station was operating and occupied at the time. This was tidy and well-managed, with no sign of unauthorised material onsite, and no odour or dust issues.

2.2.2 Results of stormwater/leachate monitoring

It has previously been found that the pond only discharges directly into the landfill tributary after heavy rain, as accumulated water in the pond tends to be lost to evaporation and seepage. This means that there is usually a significant amount of freeboard present at any given time.

During the year under review the pond was not discharging during any of the scheduled surface water sampling surveys and therefore no samples were collected. A summary of the historical data is presented in Table 3.

Table 3 Chemical analysis of samples taken from the Inglewood landfill leachate/stormwater pond (site RTP002005)

Parameter	Unit	23 January 2019*	29 March 2019*	Minimum	Maximum	Median	Number
Ammoniacal nitrogen	g/m³ N	-	-	0.01	73.3	6.66	27
Biochemical oxygen	g/m³	-	-	0.6	850	2.8	26
Conductivity @ 25°C	mS/m@	-	-	-	-	-	-
Nitrate/nitrite nitrogen	g/m³ N	-	-	<0.01	1.89	0.88	3
pH	pH	-	-	6.7	8.5	7.3	27
Temperature	Deg.C	-	-	4.8	18.3	13.7	26
Total nitrogen	g/m³ N	-	-	8.3	12.1	11.3	3
Turbidity	NTU	-	-	1.5	69	3.9	11
Un-ionised ammonia	g/m³	-	-	0.00005	0.04877	0.00215	16
Zinc Dissolved	g/m³	-	-	<0.005	0.63	0.009	27

* samples not collected as pond was dry

The autumn samples were collected after heavy rainfall in the 2013-2014, 2014-2015 and 2015-2016 years resulting in the ammoniacal nitrogen concentrations of the samples collected being elevated when compared to the 2009-2012 years (Figure 3).

The higher values of ammoniacal nitrogen obtained may have been the result of one or more of a number of factors including: the surrounding area, recent grazing, and/or additional stormwater infiltration causing increased leachate generation. Increased leachate generation is considered to be an unlikely cause as the cap was remediated during the 2014-2015 year, and has been found to be intact and well vegetated since that time.

At this stage there are no significant adverse effects being found in the receiving waters, however nitrate/nitrite nitrogen and total nitrogen analyses have been added to the suite of parameters determined. This has been done to aid with the interpretation of results and identifying any trends that may emerge.

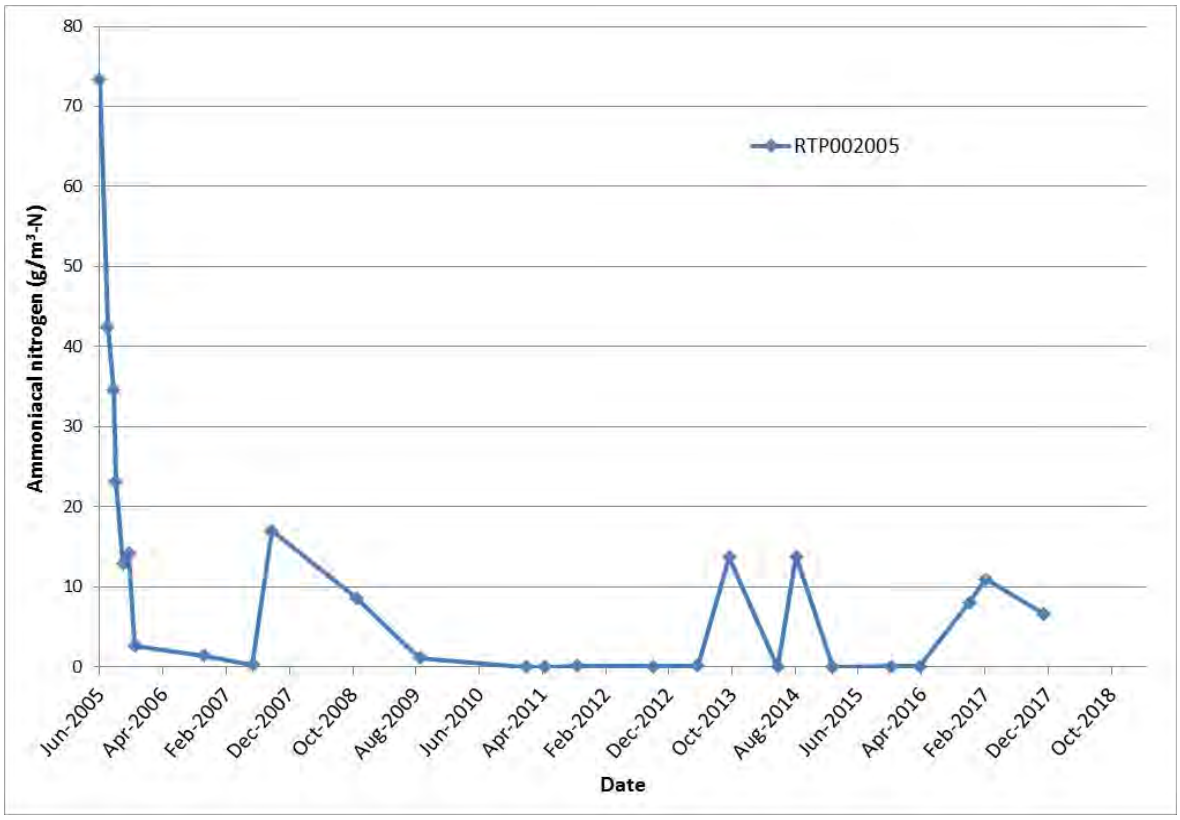

Figure 3 Ammoniacal nitrogen concentration of the Inglewood landfill stormwater/leachate (RTP002005) for monitoring to date

2.2.3 Results of receiving environment monitoring

2.2.3.1 Chemical analysis

Receiving water sampling was undertaken at sites AWY00103, AWY100105, AWY000100, AWY000107 and AWY000115 on two occasions (23 January and 29 March 2019). The locations of these monitoring sites are shown in Figure 2 and the results of the chemical analysis of the samples are presented in Tables 4 and 5.

Table 4 Chemical analysis of the Awai Stream tributaries sites on 23 January 2019

Parameter	Unit	AWY000103	AWY000105	AWY000107	AWY000100	AWY000115
		30 m d/s of landfill (culvert discharge)	130 m d/s of landfill	400 m d/s landfill face	u/s of confluence of landfill trib	d/s of confluence of landfill trib
Alkalinity	g/m^3 $CaCO_3$	-	75	68	51	24
BOD	g/m^3	-	< 2	< 2	< 2	< 2
Conductivity @ 25°C	mS/m	-	24.6	22.3	17.8	10.3
Dissolved oxygen	g/m^3	-	5.54	6.25	8.04	6.59
Dissolved reactive phosphorus	g/m^3-P	-	<0.004	< 0.004	< 0.004	< 0.004
Acid soluble iron	g/m^3	-	< 0.4	< 0.4	< 0.4	0.9
Acid soluble manganese	g/m^3	-	0.35	0.125	0.132	0.130

Parameter	Unit	AWY000103	AWY000105	AWY000107	AWY000100	AWY000115
		30 m d/s of landfill (culvert discharge)	130 m d/s of landfill	400 m d/s landfill face	u/s of confluence of landfill trib	d/s of confluence of landfill trib
Unionised ammonia	g/m^3	-	0.00018	<0.00007	0.00014	0.00007
Ammoniacal nitrogen	g/m^3-N	-	0.013	<0.010	0.020	0.018
Nitrate/nitrite nitrogen	g/m^3-N	-	1.54	0.93	0.67	0.22
pH	pH	-	7.5	7.2	7.4	7.0
Temperature	Deg C	-	20.6	18.9	16.7	17.5
Total nitrogen	g/m^3-N	-	1.84	1.30	0.85	0.36
Turbidity	NTU	-	0.53	3.0	1.3	2.3
Dissolved zinc	g/m^3	-	<0.0010	<0.0010	< 0.0010	<0.0010

Table 5 Chemical analysis of the Awai Stream tributaries sites on 29 March 2019

Parameter	Unit	AWY000103	AWY000105	AWY000107	AWY000100	AWY000115
		30 m d/s of landfill (culvert discharge)	130 m d/s of landfill	400 m d/s landfill face	u/s of confluence of landfill trib	d/s of confluence of landfill trib
Alkalinity	g/m^3 $CaCO_3$	63	57	63	23	38
BOD	g/m^3	< 2	< 2	< 2	< 2	< 2
Conductivity @ 25°C	mS/m	73.4	21.7	19.8	11.9	15.4
Dissolved oxygen	g/m^3	2.75	0.92	7.18	8.76	3.81
Dissolved reactive phosphorus	g/m^3-P	<0.004	<0.004	<0.004	< 0.004	< 0.004
Acid soluble iron	g/m^3	10.9	< 0.4	0.5	< 0.4	< 0.4
Acid soluble manganese	g/m^3	4.7	0.163	0.280	0.085	0.094
Unionised ammonia	g/m^3	0.109	0.00009	<0.00005	0.00007	0.00008
Ammoniacal nitrogen	g/m^3-N	31[(1)]	0.017	< 0.010	0.011	0.016
Nitrate/nitrite nitrogen	g/m^3-N	0.33	0.56	0.48	0.39	0.44
pH	pH	7.0	7.3	7.2	7.3	7.2
Temperature	Deg C	17.1	16.6	16.6	15.9	16.0
Total nitrogen	g/m^3-N	30[(1)]	0.79	0.67	0.63	0.64
Turbidity	NTU	159	0.7	0.6	1.7	2.0
Dissolved zinc	g/m^3	<0.0010	<0.0010	<0.0010	< 0.0010	<0.0010

(1) Data as reported by laboratory. Ammoniacal nitrogen must be less than total nitrogen by definition. The laboratory noted that the apparent discrepancy as reported was within the uncertainty of the analytical methods.

As with previous results, the discharge from the culvert below the landfill exhibits leachate contamination as indicated by the high levels of conductivity, alkalinity, iron, manganese, ammoniacal nitrogen and ammonia.

An unusually low dissolved oxygen concentration was recorded 130 m downstream of the landfill tributary during the March survey. It was noted at the time of sampling that the flow was slow and the stream was at a very low level which may account for this finding.

With the exception of nitrate/nitrite nitrogen (and the very low dissolved oxygen 29 March 2019), the levels of contaminants found 130 m downstream of the discharge (at site AWY000105) are far lower, indicating that the intervening wetland is effective at reducing contaminant levels. The higher nitrate/nitrite nitrogen at site AMY000105 when compared to AMY000103 is due to the oxidation of the ammoniacal nitrogen in the landfill tributary. However, it is noted that although the nitrate/nitrite nitrogen concentration had increased, the total nitrogen in the waterbody had decreased significantly compared to the upstream value at the time of the March 2019 survey.

Figure 4 shows the ammoniacal nitrogen results for the stormwater/leachate pond (RTP002005) and the landfill tributary below the culvert outlet (AWY000103). During the year under review there was no discharge occurring at the time of either survey. Historically the concentration is much lower in the pond than in the tributary, and continues to indicate that ammoniacal nitrogen is entering the landfill tributary via another route, potentially via shallow groundwater.

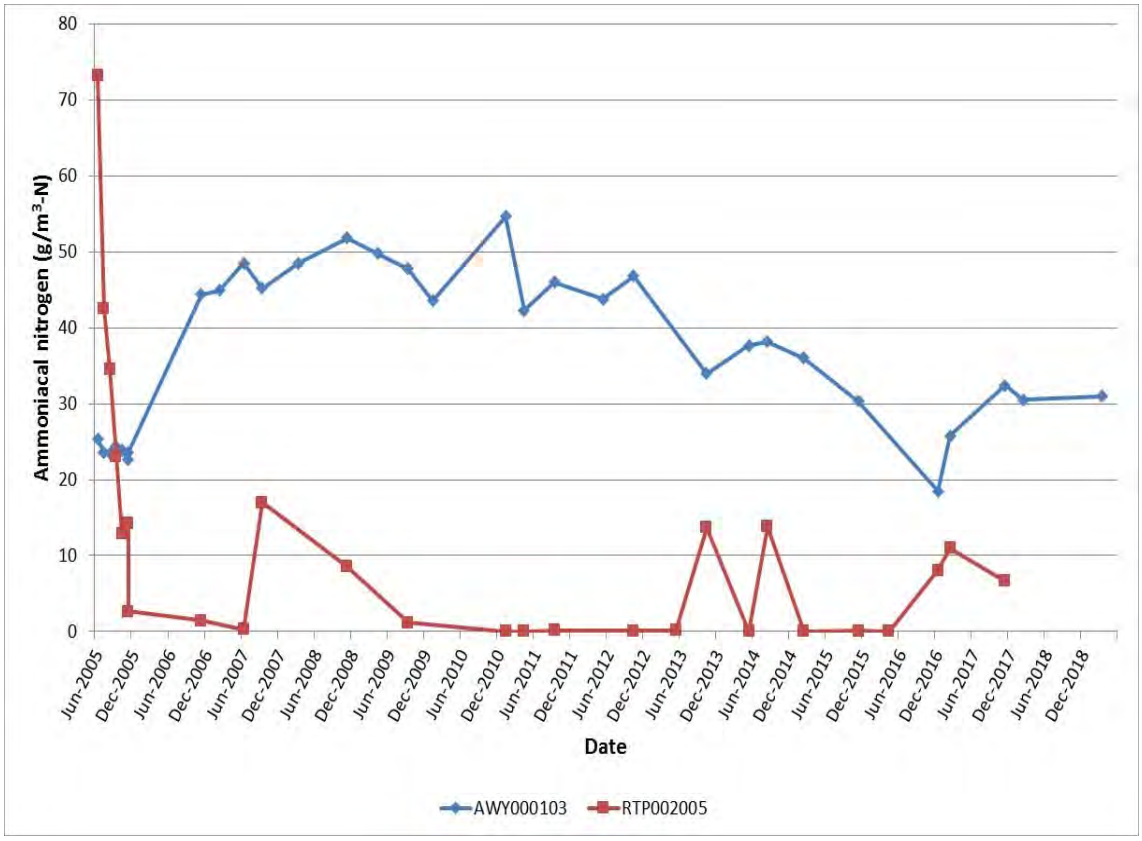

Figure 4 Ammoniacal nitrogen concentration between the Inglewood landfill stormwater/leachate (RTP002005) and the tributary below the culvert outlet (AWY000103)

It is also noted that at the culvert outlet the unionised ammoniacal nitrogen concentration has been consistently above the 0.025 g/m^3 guideline adopted by the Council to protect aquatic organisms from chronic effects. From a review of the historical results, it appears that there has been an emerging trend of increasing levels of this contaminant at this site. It is however noted that, for the most part, this is generally assimilated in the wetland area, and the concentrations found at the lower end of the landfill tributary (site AWY000105) are normally well below this guideline value (Figure 5).

The concentration range above which acute toxic effects may be seen for New Zealand native fish, for example a fish kill, is 0.75 to 2.35 g/m^3, and the levels of unionised ammonia found at all monitoring sites during the year under review were well below this concentration range. Although the unionised ammonia concentration was found to be above the 0.025 g/m^3 guideline at the lower end of the tributary on occasion, this has not happened in recent years.

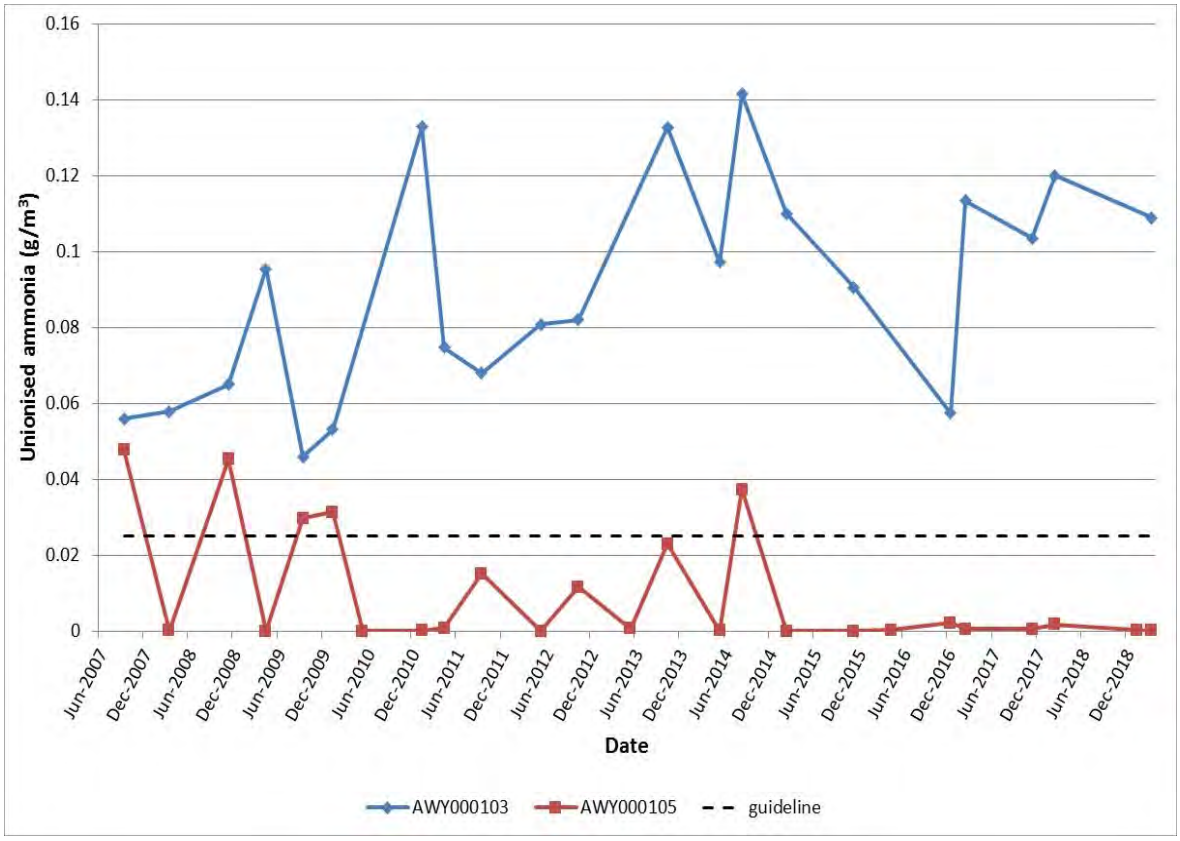

Figure 5 Unionised ammonia concentration in the landfill tributary below Inglewood landfill

Figure 6 shows that there has generally been little, if any, effect found on the unionised ammonia concentration of the larger (main) tributary (site AWY000115). Any changes that have been found have not been of environmental significance.

The main unnamed tributary that receives the discharge from the landfill tributary generally displays slight elevations in conductivity, pH, alkalinity and ammoniacal nitrogen and nitrite/nitrate nitrogen at AWY000115 when compared to the upstream site (AWY000100). These minor increases have been noted in previous monitoring years and have been considered most likely a result of the presence of the landfill and from inputs from stock grazing in the area immediately downstream of the landfill site.

A review of the historical data also shows that the difference in the nitrate/nitrite nitrogen concentrations between sites AWY000100 and AWY000115 appears to be increasing. However, in the three most recent water quality surveys the difference between the upstream and downstream sites has been minimal (Figure 7).

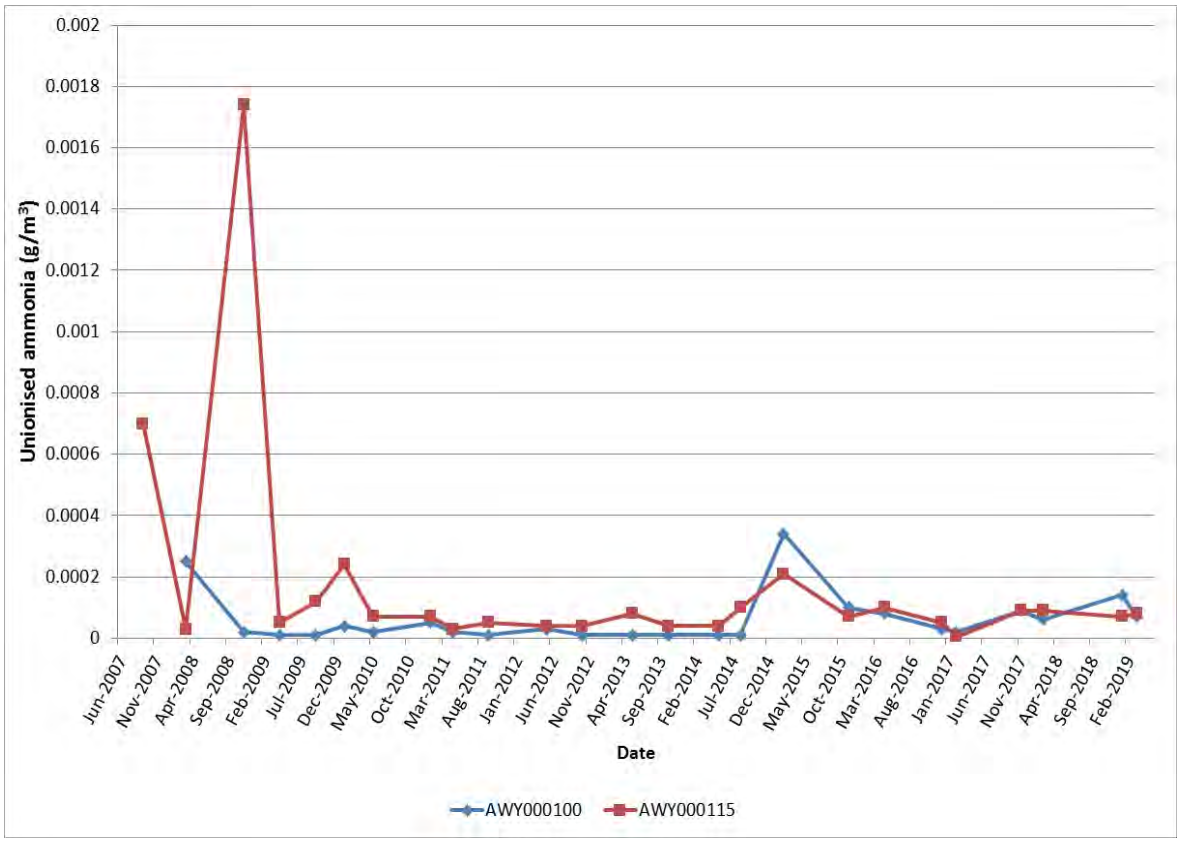

Figure 6 Unionised ammonia concentration in the main tributary below Inglewood landfill

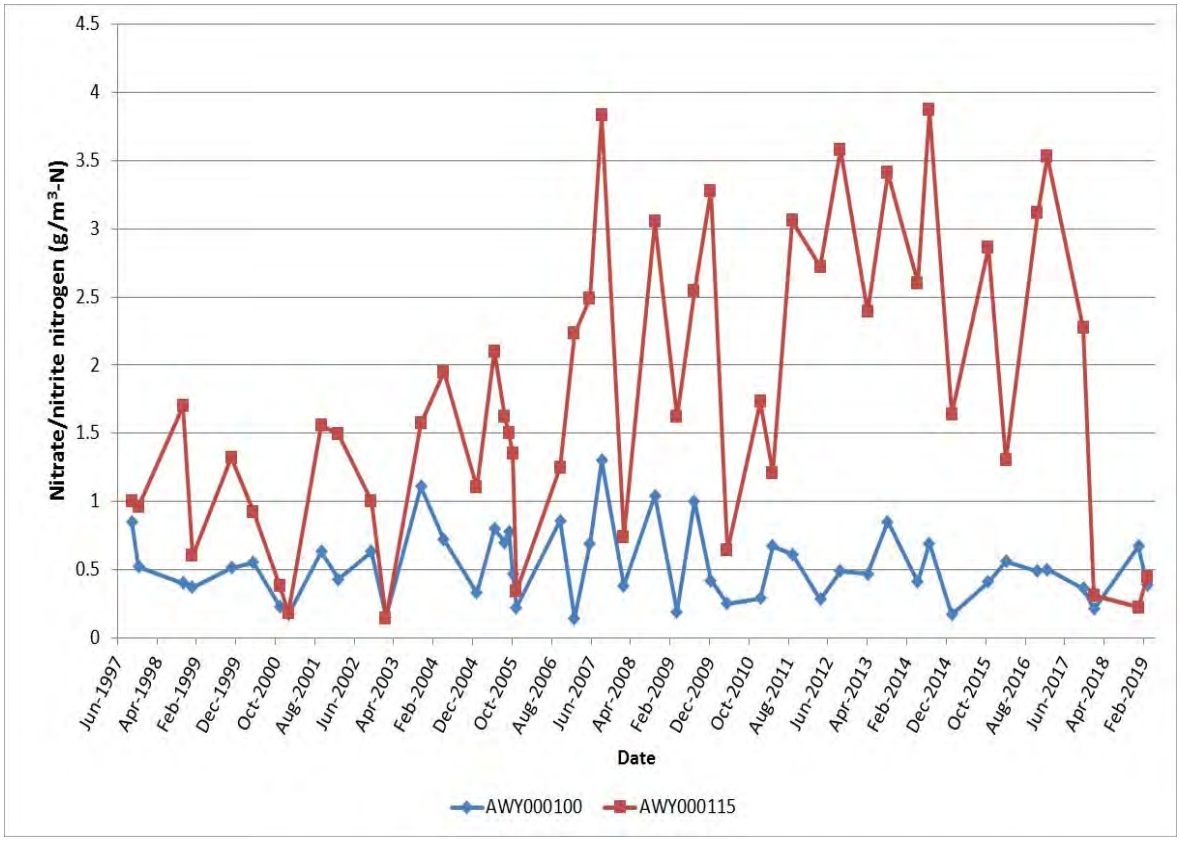

Figure 7 Nitrate/nitrite nitrogen results in the main tributary upstream and downstream of the Inglewood landfill tributary discharge

Due to the changes observed in recent years in the ammoniacal nitrogen and nitrate/nitrite concentrations at the various sites, total nitrogen has recently been included in the suite of analyses performed. The results obtained since this analysis was initiated in the 2016-2017 year are depicted in Figure 8, and show that:

- the nitrogen contained in the leachate/stormwater pond is significantly lower than at site AWY000103;
- the wetland below the culvert is effective at decreasing the total nitrogen loading in the landfill tributary, and that this continues to decrease prior to the confluence with the main tributary; and
- that since the February 2018 survey, total nitrogen concentration at all sites other than AWY000103 has remained low and similar to the upstream site.

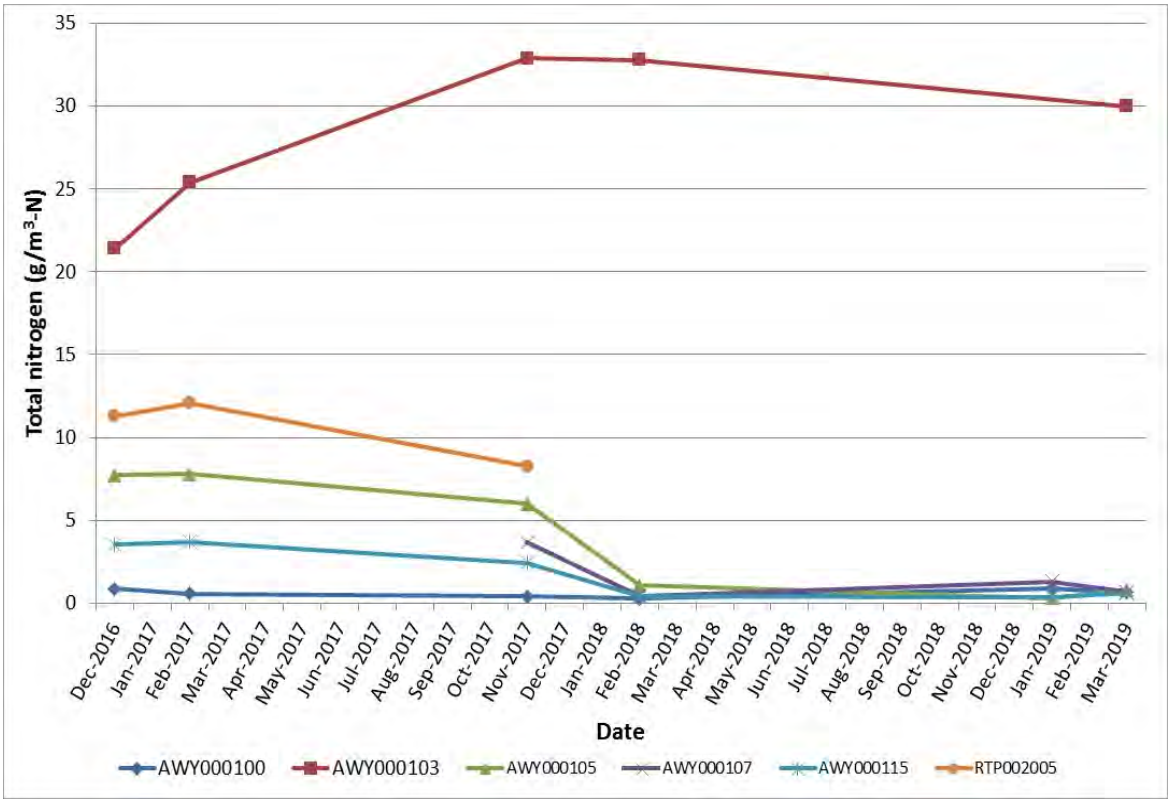

Figure 8 Total nitrogen concentration in the surface waters below the landfill

The current levels of contaminants found in the main tributary are not uncommon within agricultural areas and would therefore be considered a minor effect, at most, on the aquatic environment.

2.2.3.2 Biomonitoring

Macroinvertebrate sampling was undertaken on 24 October 2018 and 13 February 2019, at four sites in two tributaries of the Awai Stream (Table 6, Figure 2), using the 'vegetation sweep' and a combination of the 'vegetation sweep' and 'kick-sampling' techniques, both standard sampling techniques used by the Council.

Table 6 Biomonitoring sites in tributaries of the Awai Stream

Site number	Site code	Location
1a	AWY000105	Smaller tributary, 100 metres below tip face
1b	AWY000107	Smaller tributary, 400 metres below tip face
2	AWY000100	Larger tributary, above confluence with small tributary
3	AWY000115	Larger tributary, 80 metres below confluence with small tributary

This was undertaken to assess whether leachate discharges from Inglewood landfill had had any adverse effects on the macroinvertebrate communities of this stream. Samples were processed to provide number of taxa (richness), MCI and $SQMCI_s$ scores for each site.

Taxa richness is the most robust index when determining whether a macroinvertebrate community has been exposed to toxic discharges. Macroinvertebrates when exposed to toxic discharges may die and be swept downstream or may deliberately drift downstream as an avoidance mechanism (catastrophic drift). The MCI is a measure of the overall sensitivity of the macroinvertebrate community to organic pollution in stony streams. MCI is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_s$ takes into account relative abundances of taxa as well as sensitivity to pollution. Significant differences in taxa richness, MCI or $SQMCI_s$ between sites may indicate the degree of adverse effects (if any) of the discharge being monitored.

The surveys did not indicate that leachate from the Inglewood landfill had significantly affected the freshwater macroinvertebrate communities in these tributaries. These communities appear to be determined by the physical habitat conditions, particularly the flow conditions, soft/fine substrate and changes in macrophyte habitats available to the aquatic invertebrates.

The smaller, landfill drainage tributary sites exhibited an improvement in $SQMCI_s$ score in a downstream direction. The differences observed between the sites can probably be attributed to the difference in available habitat, with better habitat at site 1b (downstream). This site has progressively become choked with vegetation, but the wetted area is greater, and water speeds swifter.

A substantial difference was recorded in $SQMCI_s$ score between sites 2 and 3 in the larger tributary of the Awai Stream, which can be attributed to a number of slight changes in taxa abundances, the result of varying habitat condition.

No sites supported any undesirable biological growths.

The results of the surveys provide no indication that the discharge of leachate into the unnamed tributary of the Awai Stream was having a significant adverse effect on the macroinvertebrate communities in the tributaries monitored.

Copies of biomonitoring reports for this site are available from the Council upon request.

2.2.4 Air quality

Methane and hydrogen sulphide readings were taken at the landfill entrance gate, and at the culvert at the toe of the landfill, during one of the routine site inspections.

No methane was detected at either monitoring location during the period under review. No objectionable odours were noted on the site or beyond the site boundary during any of the inspections.

2.2.5 Investigations, interventions, and incidents

Table 7 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to the consent holder's activities during the 2018-2019 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 7 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
29/3/2019	During routine monitoring it was found that self-sown wildling pines were growing on the cap of the landfill in contravention of special condition 1 of Resource Consent 3954-2.	N	Letter of explanation requested	An explanation was received and accepted. The pines have been removed from the cap.

2.3 Discussion

2.3.1 Discussion of site performance

The landfill at Inglewood continues to act as a contingency landfill for NPDC, and is currently actively used for the disposal of cleanfill.

Overall, the site was well managed during the period under review with no erosion, slumping or cracking observed on either the cap or batters, and no sign of exposed refuse.

There were a couple of minor issues noted in regards to site management during the 2018-2019 monitoring period. Blackberry and gorse were noted growing in drains, and in other areas general vegetation was found to be quite thick throughout the drains. Re-vegetating gorse was also noted over the cap and throughout the site, along with self-sown wildling pines sprouting on the cap. NPDC was reminded that regular weed control was required to maintain cap integrity and ensure free stormwater drainage from the cap area. Air monitoring did not detect any methane or hydrogen sulphide emissions at the site, and no dust or odour issues were found.

There were no complaints received by Council in regard to the landfill during the period under review.

2.3.2 Environmental effects of exercise of consents

Water sampling undertaken during the year shows that the tributary immediately below the landfill continues to experience contamination from the landfill, however the levels of these contaminants are, on the whole, significantly attenuated in the landfill tributary 130 m downstream of the landfill.

Chemical monitoring shows that the larger tributary of the Awai Stream (downstream of the landfill tributary) appears to be impacted to only a minor degree, with the levels of contaminants being at an acceptable level in this tributary.

When viewing the long term data, alkalinity, ammoniacal nitrogen and nitrate/nitrite nitrogen concentrations in the discharge from the culvert (AWY000103) all appear to be declining from the peak that was reached following the use of this site for the three months of contingency filling in 2005 and closure of the site to general waste on 1 September 2006 (Figure 9, Figure 10 and Figure 11).

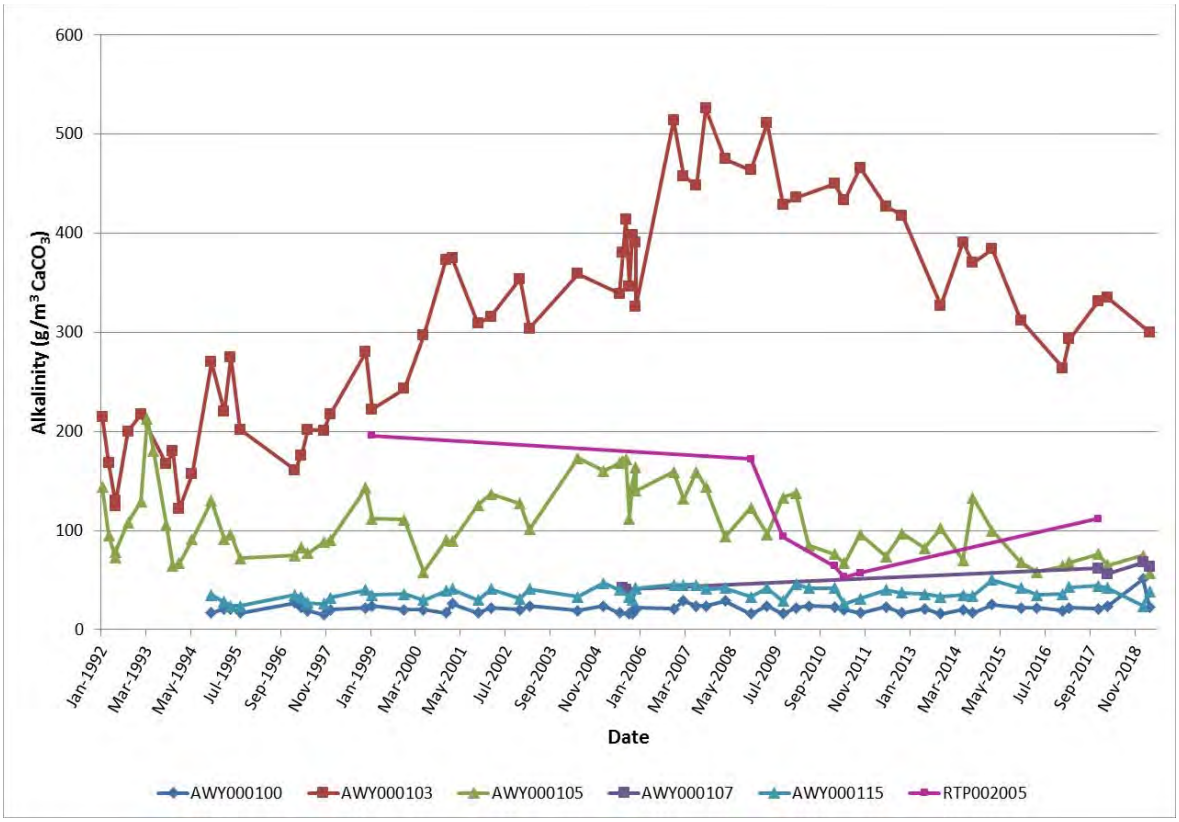

Figure 9 Alkalinity in the surface waters below the Inglewood landfill (1992 to date)

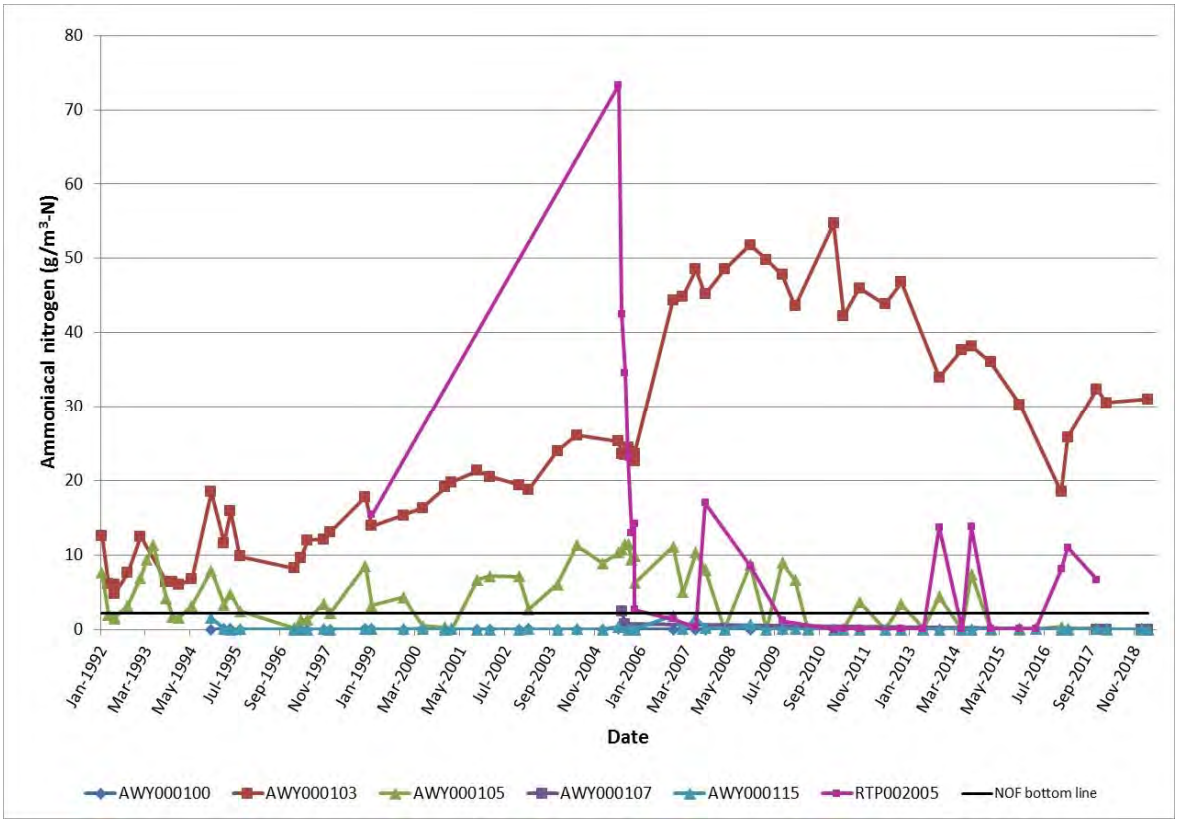

Figure 10 Ammoniacal nitrogen in the surface waters below the Inglewood landfill (1992 to date)

Although the ammoniacal nitrogen concentration is consistently above the National Objectives Framework (NOF) bottom line of 2.2 g/ m^3 (annual 95 percentile)[2] at the culvert outlet (AWY000103), the concentration at the wetland is decreasing, and the concentrations found in the main tributary are well below this level.

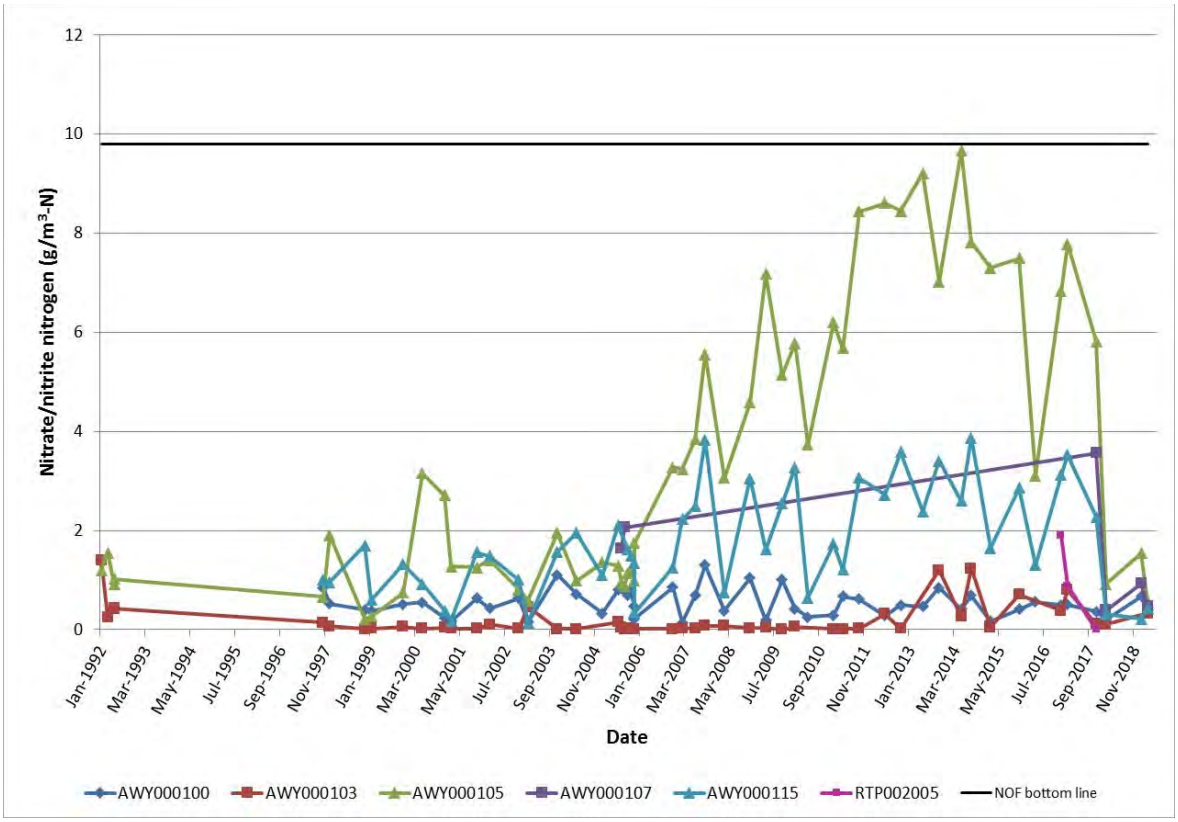

Figure 11 Nitrate/nitrite nitrogen in the surface waters below the Inglewood landfill (1992 to date)

The nitrate/nitrite nitrogen concentration is below the National Objectives Framework (NOF) bottom line of 9.8 g/ m^3 (annual 95 percentile) at all sites. At the end of the 2014-2015 year, it was noted that the ammoniacal nitrogen and unionised ammonia concentrations in the landfill tributary at the culvert appeared to be increasing and the difference in the nitrate/nitrogen concentrations between the upstream and downstream sites in the main tributary also appeared to be increasing. It was thought possible that the condition of the cap as found in the 2014-2015 year, with its increased permeability, may have contributed to the increasing trends seen in the nitrogen containing species in recent years. Although the long term trend now appears to be decreasing and this may have resolved with the remediation work undertaken on the cap during the 2014-2015 year, the limited total nitrogen data available (five surveys) still potentially indicated increasing concentrations of nitrogen containing species at the culvert outlet (Figure 8).

Council will continue to monitor the situation under the routine compliance monitoring programme, but may require further investigations if necessary. In time, addition of total nitrogen analysis of the samples to the programme may help with the interpretation of the receiving water results.

Historical data is also indicating a trend of increasing acid soluble manganese in the discharges from the site (Figure 12). However currently, with a few exceptions at site AWY000105, the tributaries beyond the wetland treatment system are below the ANZECC guideline for the protection of 80 % of species (3.6 g/m^3), with the landfill tributary well below the guideline for the protection of 99 % of species (1.2 g/m^3).

[2] Appendix 2 of the National Policy Statement for Freshwater Management (Ministry for the Environment 2014)

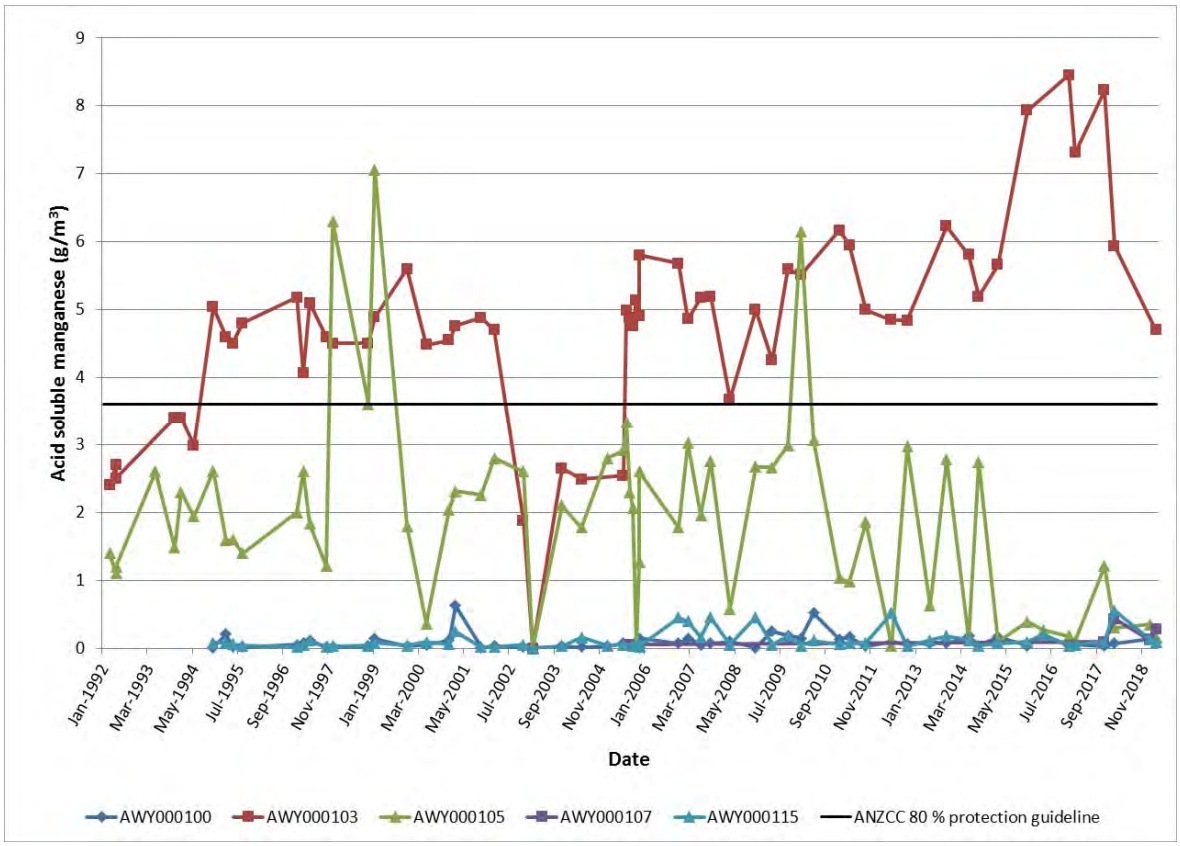

Figure 12 Acid soluble manganese in the surface waters below the Inglewood landfill (1992 to date)

Biomonitoring surveys undertaken during the 2018-2019 year indicated that there were no significant effects to aquatic life in either of the unnamed tributaries of the Awai Stream downstream of the landfill as a result of the discharges from the site.

Based on the results of this monitoring period the presence of the landfill has not been found to have had significant adverse effects on the water quality downstream of the site during the period under review.

The results from inspections and air quality monitoring show that the presence of the landfill is unlikely to have any significant effects in terms of emissions to air.

2.3.3 Evaluation of performance

A tabular summary of NPDC's compliance record for the year under review is set out in Tables 8-10.

Table 8 Summary of performance for Inglewood contingency landfill leachate consent 3954-2

Purpose*: To discharge up to a total of 4,752 m³/day (55 L/s) of leachate and stormwater from the Inglewood municipal landfill into an unnamed tributary of the Awai Stream, a tributary of the Mangaoraka Stream in the Waiongana catchment*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Prepare and maintain a site contingency plan	Review of documentation on file in relation to inspection finding. Latest plan dated November 2017	Yes
2. Prepare and maintain a landfill operations and management plan	Plan provided. Latest plan dated August 2017	Yes
3. Provide a landfill closure management plan by 1 June 2007	Plan previously provided	Yes

Purpose: *To discharge up to a total of 4,752 m^3/day (55 L/s) of leachate and stormwater from the Inglewood municipal landfill into an unnamed tributary of the Awai Stream, a tributary of the Mangaoraka Stream in the Waiongana catchment*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
4. One months' notice required by Council/ NPDC requesting/advising of changes to the operation and management or closure plans	Site inspection and review of plans on file. Latest plan dated August 2017 No changes had been requested by Council	Yes
5. Monitoring of ground and surface water on and near the site to Council's satisfaction	Surface water monitoring	Yes
6. Maintain all parts of all stormwater and leachate systems	Site inspection	Yes
7. No actual or likely adverse impact on aquatic life or receiving water quality	Biomonitoring and surface water sampling	Some contaminants increasing in landfill tributary and main tributary. However, no unacceptable changes found during the year under review
8. Optional review provision re environmental effects	No further opportunities for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Good**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 9 Summary of performance for Inglewood contingency landfill air discharge consent 4526-3

Purpose: *To discharge contaminants, being landfill gas, and odours associated with a landfill, into the air from the Inglewood municipal landfill*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adopt the best practicable option to prevent or minimise effects	Inspection and off site observations	Yes
2. Consent to be exercised in accordance with application documentation	Inspection and liaison with consent holder	Yes
3. One months' notice required by Council/ NPDC requesting/advising of changes to the operation and management or closure plans	Site inspection and review of plans on file. Latest plan dated August 2017 No changes had been requested by Council	Yes
4. Maintain and adhere to the landfill operations and management plan	Plan provided. Latest plan dated August 2017	Yes

Purpose: *To discharge contaminants, being landfill gas, and odours associated with a landfill, into the air from the Inglewood municipal landfill*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
5. The conditions of the consent prevail over any potential contradictions with the management plan	N/A	N/A
6. Offensive, objectionable, dangerous and noxious odours, dust or ambient levels of any other contaminant prohibited	Inspection and off site observations. Ambient air quality monitoring for methane and hydrogen sulphide	Yes
7. Burning prohibited	Site inspection	Yes
8. Significant adverse effects on any ecosystem is prohibited	Site inspection and off site observations	Yes
9. Specifies records to be kept by consent holder in the event of a complaint	Site inspection and liaison with consent holder. No complaints received by NPDC or the Council	Yes
10. Optional review provision re environmental effects	Next opportunity for review June 2020, recommendation attached	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 10 Summary of performance for Inglewood cleanfill and contingency landfill discharge to land consent 4527-3

Purpose: *To discharge cleanfill and inert materials onto and into land at the Inglewood municipal landfill, and to discharge municipal refuse onto and into land at the Inglewood municipal landfill when, and only when, it cannot be discharged at the Colson Road municipal landfill*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adopt best practicable option to prevent or minimise adverse environmental effects	Site inspections	**Mostly. Pines growing on cap. Excess vegetation in drains**
2. The activity shall be undertaken in accordance with the application documents	Site inspection	Yes
3. Notification of changes to landfill management plan	Inspection and review of plans on file.	Yes
4. Maintain and adhere to management plan	Site inspections	**Mostly. Pines growing on cap. Excess vegetation in drains**
5. Consent conditions to prevail over management plan	Review of inspection findings in relation to documentation on file	Yes

Purpose: *To discharge cleanfill and inert materials onto and into land at the Inglewood municipal landfill, and to discharge municipal refuse onto and into land at the Inglewood municipal landfill when, and only when, it cannot be discharged at the Colson Road municipal landfill*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
6. Liquid waste shall not be accepted at the landfill	Site inspection – transfer station and cleanfilling activities only during the year under review	Yes
7. Acceptable cleanfill criteria	Site inspection	Yes
8. Unacceptable cleanfill criteria	Site inspection	Yes
9. Discharge shall not result in contaminants directly entering water	Site inspection and sampling	Yes
10. Install leachate retention structures	Site inspection	Yes
11. Install stormwater systems	Site inspection	Yes
12. Optional review provision re environmental effects	Next opportunity for review June 2020, recommendation attached	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Good**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 11 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2010-2011	3954-2, 4526-2, 4527-3	3	-	-	-
2011-2012	3954-2, 4526-2, 4527-3	3	-	-	-
2012-2013	3954-2, 4526-2, 4527-3	3	-	-	-
2013-2014	3954-2, 4526-2, 4527-3	3	-	-	-
2014-2015	3954-2, 4526-3	2	-	-	-
	4527-3	-	1	-	-
2015-2016	3954-2, 4526-3	2	-	-	-
	4527-3	-	1	-	-
2016-2017	4526-3	1	-	-	-
	3954-2, 4527-3	-	2	-	-
2017-2018	4526-3	1	-	-	-
	3954-2, 4527-3	-	2	-	-
Totals		18	6	0	0

Overall during the year, NPDC demonstrated a good level of environmental performance and a high level of administrative performance in relation to the Inglewood landfill consents as defined in Section 1.1.5. There was one unauthorised incident during the period under review relating to wildling pines growing on the cap and this was dealt with in a timely manner by NPDC.

Although no significant environmental effects were found due to the operation of the site, the recent trend of increasing concentrations of nitrogen compounds prior to the remediation of the cap and the increasing trend in acid soluble manganese indicate that there may be the potential for environmental effects to emerge in the future.

2.3.4 Recommendation from the 2017-2018 Annual Report

In the 2017-2018 Annual Report, it was recommended:

1. THAT monitoring of consented activities at the Inglewood landfill in the 2018-2019 year remain unchanged from that undertaken in 2017-2018.
2. THAT should there be issues with environmental or administrative performance in 2017-2018, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

These recommendations were implemented.

2.3.5 Alterations to monitoring programmes for 2019-2020

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.

It is proposed that for 2019-2020, monitoring of the Inglewood landfill remains unchanged from that of 2018-2019.

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 2019-2020.

2.3.6 Exercise of optional review of consent

Resource consents 4526-3 and 4527-3 provide for an optional review of the consent in June 2020. Conditions 10 and 12, respectively, allow the Council to review the consent, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of the consents.

Based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued.

2.4 Recommendations

1. THAT monitoring of consented activities at the Inglewood landfill in the 2019-2020 year remain unchanged from that undertaken in 2018-2019.
2. THAT should there be issues with environmental or administrative performance in 2019-2020, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

3 Marfell Park landfill

3.1 Introduction

3.1.1 Site description

The landfill at Marfell closed in 1982. Due to effects caused by leachate discharging into the Mangaotuku Stream, NPDC applied for consent to discharge leachate in 1996. In 1998 NPDC captured the main leachate flow and directed it to the trade waste system. Various investigations have taken place at the site during previous monitoring periods, some undertaken by Council and others by consultants. The findings of these investigations are in earlier Council Annual Reports and other documents listed in the bibliography.

The discharge from the site now is predominantly stormwater. Presently the site is a park with sports field and playground. The BMX track previously located on the site was removed during the monitoring year.

Figure 13 An aerial view showing the former landfill at Marfell Park and associated sampling sites

3.2 Results

3.2.1 Inspection

2 October 2018

The Marfell Park former landfill was inspected in overcast, showery conditions. The cap was found to be in good condition, with a good covering of grass. The inspection was conducted following a period of wet weather and the cap was slightly damp in places, with one area of noticeable ponding. No vehicle tracks were noted. No slumping or exposed refuse was observed on the cap or batters.

The stormwater drains were clear and tidy, with only a small amount of leaf litter present. The drains were dry. The leachate discharge was estimated at 2 L/s. Iron oxide was observed in and around the discharge point and there was also a very pungent industrial/landfill odour.

Fences were intact and correct signage was in place. No vehicle access was observed. The BMX track had been flattened and this had exposed two PVC drains that appeared to be discharging landfill leachate overland (refer to section 3.2.3 below). No dust or odour issues were noted on or around the cap.

3.2.2 Receiving water and discharge sampling

Samples were collected on one occasion during the 2018-2019 monitoring year. The results are presented below in Table 12.

The discharge is a mixture of stormwater and spring water that drains from the area surrounding the landfill. The bulk of the leachate from the filled area is captured and piped to trade waste.

Table 12 Results of sampling undertaken at Marfell Park landfill on 2 October 2018

Parameter	Unit	MGK000176	STW001123	MGK000178	*Consent limit (downstream)*
		10m u/s discharge	discharge	20 m d/s discharge	
Alkalinity	g/m^3 $CaCO_3$	33	230	45	-
Conductivity @ 25°C	mS/m	15.7	53.8	18.2	-
Acid soluble iron	g/m^3	0.4	19.8	1.7	-
Unionised ammonia	g/m^3-N	0.00019	0.025	0.0067	**0.025**
Ammoniacal nitrogen	g/m^3-N	0.027	11.9	0.73	**0.9**
pH	pH	7.5	6.9	7.5	**6.0-9.0**
Temperature	Deg C	13.6	16.0	13.6	
Dissolved zinc	g/m^3	0.0016	0.0042	0.0021	**0.05**

In addition, the stormwater sample was assessed for a full range of semi-volatile organic compounds. All results were below the level of detection.

The results of the discharge monitoring indicate that some low level contamination is occurring from the landfill. With the exception of ammoniacal nitrogen, the receiving water shows very little change in water quality between the upstream and downstream sites. Although the ammoniacal nitrogen of the stream was found to have increased by more than a factor of ten, the ammoniacal concentration of the stream remained at an acceptable level, and the unionised ammonia concentration in the stream remained relatively low. This has been a consistent finding over the last several years of monitoring.

Based on these results and those gathered in previous monitoring periods the discharges from the closed Marfell landfill are having only a minor effect on the receiving water.

3.2.3 Investigations, interventions, and incidents

Table 13 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to the consent holder's activities during the 2018-2019 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 13 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
2/10/2018	During routine monitoring it was found that surface drains from the recently dismantled BMX track had been exposed causing discharge over land.	N	Letter of explanation requested	Samples were taken and analysis showed that no leachate was present in the discharge. An explanation from NPDC was received and accepted. NPDC are working to remove the pipes to safeguard the cap integrity.

3.3 Discussion

3.3.1 Evaluation of performance

A tabular summary of NPDC's compliance record for the year under review is set out in Table 14.

Table 14 Summary of performance for Marfell Park closed landfill leachate consent 4902-2

Purpose: *To discharge up to 2 L/s of leachate from the Marfell Park former landfill site via groundwater into the Mangaotuku Stream in the Huatoki Catchment*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adopt best practice to prevent or minimise any adverse effects on the environment	Inspections and sampling	Mostly – one instance where stormwater was found to be discharging across cap
2. Maintain cap and drains on site to minimise ponding, stormwater infiltration, ensure stormwater diversion and drainage, and prevent iron oxide on outlet structure entering the stream	Inspections and sampling	Mostly – one instance where stormwater was found to be discharging across cap
3. Site to be operated in accordance with management plan that details how the site will be managed to ensure consent compliance. Plan required by 21 January 2014	Plan received. Inspections and liaison with consent holder	Yes
4. The discharge shall not cause specified parameter concentrations to be outside prescribed limits in the Mangaotuku Stream	Water sampling	Yes
5. Prohibits certain effects in the stream beyond reasonable mixing	Inspections and water sampling	Yes

Purpose: *To discharge up to 2 L/s of leachate from the Marfell Park former landfill site via groundwater into the Mangaotuku Stream in the Huatoki Catchment*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
6. Provision of review of consent conditions	Next opportunity for review June 2020, recommendation attached	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**Good**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 15 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2010-2011	4902-1	1	-	-	-
2011-2012	4902-1	Not monitored			
2012-2013	4902-1	1	-	-	-
2013-2014	4902-1	Not monitored			
2014-2015	4902-1	1	-	-	-
2015-2016	4902-2	Not monitored			
2016-2017	4902-2	1	-	-	-
2017-2018	4902-2	Not monitored			
Totals		4	0	0	0

During the year, NPDC demonstrated an overall good level of environmental performance and a high level of administrative performance with their Marfell landfill resource consent as defined in Section 1.1.4.

3.3.2 Recommendation from the 2017-2018 Annual Report

In the 2017-2018 Annual Report, it was recommended:

1. THAT the biennial monitoring of discharges at the Marfell landfill continues unchanged and that the programme next be implemented in the 2018-2019 period.
2. THAT should there be issues with environmental or administrative performance in 2017-2018, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

These recommendations were implemented.

3.3.3 Alterations to monitoring programmes for 2019-2020

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.

It is proposed that the biennial monitoring of discharges at the Marfell landfill continues unchanged with the programme next being implemented in 2020-2021.

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 2019-2020.

3.3.4 Exercise of optional review of consent

Resource consent 4902-2 provides for an optional review of the consent in June 2020. Condition 6 allows the Council to review the consent, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of the consents.

Based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued.

3.4 Recommendation

1. THAT the biennial monitoring of discharges at the Marfell landfill continues unchanged and that the programme next be implemented in the 2020-2021 period.
2. THAT should there be issues with environmental or administrative performance in 2019-2020, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

4 Okato landfill

4.1 Introduction

4.1.1 Site description

The Okato landfill stopped accepting general waste for discharge to land in 2005. The landfill was capped and the site became a transfer station. The NPDC also continued to exercise consent 4529-3 (discharge of contaminants to land) for the purpose of accepting and discharging green waste and cleanfill. All other refuse accepted at the site is transferred to New Plymouth for disposal or recycling. The site is also designated as a contingency landfill in the event that Colson Road landfill and/or Inglewood landfill became unusable or inaccessible.

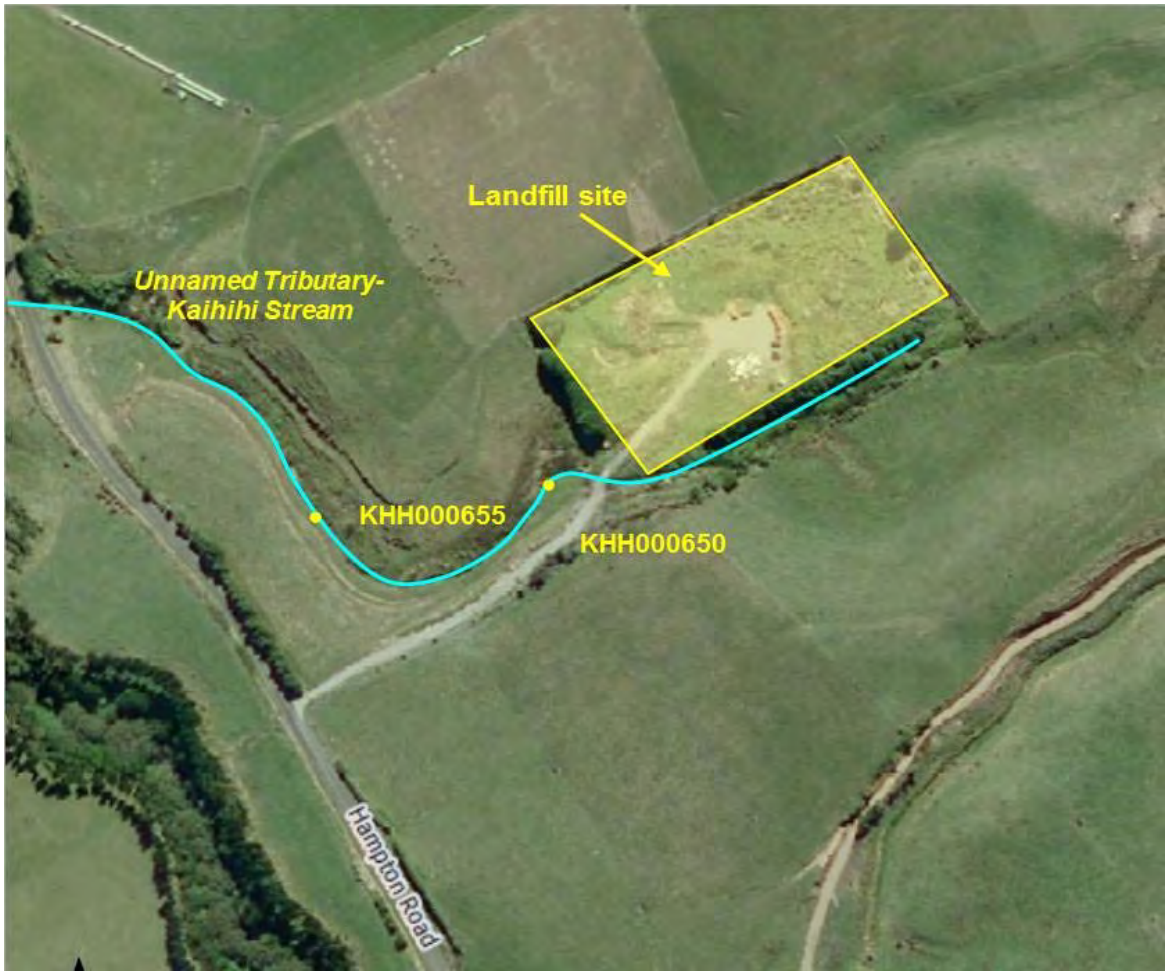

Figure 14 Okato landfill and sampling sites

4.2 Results

4.2.1 Inspections

2 October 2018

The inspection was carried out in warm conditions following a period of wet weather. The cap was intact and well vegetated, with no ponding. Neither the cap nor batters showed any signs of slumping, cracking or exposed refuse. The stormwater drains were free flowing with a small amount of surface water following recent wet weather. Some vegetation was observed growing in drains, enough to slow the flow of water, but otherwise negligible.

The fencing and site security was intact and permanent. Site signage was tidy and visible. The transfer station was operational at the time of inspection. This was tidy, with no unauthorised material observed in the cleanfill or greenwaste areas. There was a mild rubbish odour on site.

17 April 2019

An inspection was conducted in fine conditions with a light south-easterly breeze. The cap and batters were well vegetated and intact, with recent weed control apparent. There was no sign of slumping, cracking, or exposed refuse. The stormwater drains were tidy and had been recently cleared of vegetative growth. The downstream drain had recently been re-contoured to reduce ponding and improve drainage. Stagnant water was ponded in the drain following wet weather the previous day.

The site was secure with permanent fencing and no sign of cattle access was noted. The site was unoccupied at the time of inspection. The waste transfer station was tidy and well-maintained. No unauthorised material was observed in the cleanfill and greenwaste areas. There were no odour or dust issues.

4.2.2 Results of surface water sampling

Samples were collected from the tributary of the Kaihihi Stream below the landfill on two occasions, 2 October 2018 and 17 April 2019. The sites are shown in Figure 14 and the results are presented in Table 16 below.

Table 16 Chemical analysis of a tributary of the Kaihihi Stream in relation to the Okato landfill

Parameter	Unit	2 October 2018		17 April 2019	
		KHH000650	KHH000655	KHH000650	KHH000655*
		30 m d/s of landfill	200 m d/s of landfill	30 m d/s of landfill	200 m d/s of landfill
Alkalinity	g/m^3 $CaCO_3$	102	86	102	-
Conductivity @ 25°C	mS/m	36.2	32.6	37.0	-
Dissolved reactive phosphorus	g/m^3-P	<0.004	<0.004	0.005	-
Acid soluble iron	g/m^3	28	4.1	2.8	-
Unionised ammonia	g/m^3	<0.00004	<0.00006	0.00147	-
Ammoniacal nitrogen	g/m^3-N	<0.010	<0.010	0.098	-
Nitrate/nitrite nitrogen	g/m^3-N	2.1	1.3	0.110	-
pH	pH	7.1	7.4	7.6	-
Temperature	Deg C	15.1	14.6	20.0	-
Dissolved zinc	g/m^3	0.0010	<0.0010	0.0024	-

* a sample was not collected from KHH000655 as it was dry

As with previous monitoring results there is no indication that the presence of the landfill is having any significant adverse effects on the environment. The levels of ammonia and other indicator contaminants immediately below the landfilled area are low, indicating only low levels of leachate contamination.

4.2.3 Air quality

Objectionable odour and dust nuisance were checked for during each inspection undertaken in the 2018-2019 monitoring year. There were no problems in regard to dust or odour during any of the inspections for the period under review.

4.2.4 Investigations, interventions, and incidents

In the 2018-2019 period, it was not necessary for the Council to undertake significant additional investigations and interventions, or record incidents, in association with NPDC's conditions in resource consents or provisions in Regional Plans in relation to the consent holder's activities at the Okato landfill.

4.3 Discussion

4.3.1 Discussion of site performance

Overall, the site was well managed during the 2018-2019 period. There were no issues in regards to cap condition, stormwater or leachate control. It was considered that there was good control over the site and its operation during the monitoring period.

4.3.2 Environmental effects of exercise of consents

The landfill will carry on generating leachate, some of which will continue to enter the stream below the site via ground and spring water. Physicochemical analysis of the unnamed tributary indicates that the landfill is having no significant adverse effect on water quality at this site.

There were no issues of concern during the 2018-2019 monitoring period. No odour or dust problems were observed at or beyond the boundary of the site.

4.3.3 Evaluation of performance

A tabular summary of NPDC's compliance record for the year under review is set out in Tables 17-19.

Table 17 Summary of performance for Okato contingency landfill leachate consent 3860-3

Purpose*: To discharge stormwater and leachate from the Okato municipal landfill into an unnamed tributary of the Kaihihi Stream*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Best practicable option	Site inspection	Yes
2. Discharges in accordance with management plan	Site inspection	Yes
3. Install and maintain stormwater diversion drains	Site inspection	Yes
4. Surface runoff and leachate directed to leachate stormwater/collection drain	Site inspection	Yes
5. All leachate generated from a contingency discharge to be directed to a lined pit and removed from site	No contingency discharge during monitoring period	N/A
6. Consent lapse September 2018 if not exercised	N/A	N/A

Purpose: *To discharge stormwater and leachate from the Okato municipal landfill into an unnamed tributary of the Kaihihi Stream*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
7. Optional review provision re environmental effects	Next review opportunity June 2025	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 18 Summary of performance for Okato contingency landfill air discharge consent 4528-3

Purpose: *To discharge emissions into the air from the contingency discharge of solid contaminants at the Okato municipal landfill*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Discharge to occur on contingency basis only	Consent not exercised	N/A
2. Optional review provision re environmental effects	Consent not exercised	N/A
3. Discharge not to result in offensive or objectionable odours at or beyond the boundary	Consent not exercised	N/A
4. Limits on deposited and suspended dust	Consent not exercised	N/A
5. Lapse of consent	N/A	N/A
6. Optional review provision re environmental effects	Next review opportunity June 2025	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**N/A**
Overall assessment of administrative performance in respect of this consent		**N/A**

N/A = not applicable

Table 19 Summary of performance for Okato contingency landfill discharge to land consent 4529-3

Purpose: *To discharge cleanfill and green waste to land and to discharge general refuse on a contingency basis to land*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Discharges to occur within existing landfill footprint	Site inspection	Yes
2. Best practicable option to prevent or minimise environmental effects	Site inspection	Yes
3. Consent holder to install stormwater diversion drains	Site inspection	Yes

Purpose: *To discharge cleanfill and green waste to land and to discharge general refuse on a contingency basis to land*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
4. Existing landfill cap to remain undisturbed	Site inspection	Yes
5. Areas used for discharge of cleanfill and green waste to be stabilised and revegetated prior to surrender or expiry	Consent still being exercised	N/A
6. Cleanfill may be discharged at any time in accordance with Management Plan	Site inspection	Yes
7. Allowable cleanfill materials	Site inspection	Yes
8. Materials not to be discharged	Site inspection	Yes
9. Written approval required where uncertainty of acceptability of waste	Site inspection	Yes
10. Green waste may be discharged at any time in accordance with Management Plan	Site inspection	Yes
11. Discharge of general refuse on a contingency basis only	No discharge to landfill during the monitoring period	N/A
12. Notification of contingency discharge	No discharge to landfill during the monitoring period	N/A
13. Contingency discharge to be capped and revegetated	No discharge to landfill during the monitoring period	N/A
14. Consent lapse September 2018	Consent exercised	N/A
15. Optional review of consent	Next review opportunity June 2025	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 20 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2010-2011	3860-2, 4528-2, 4529-2	3	-	-	-
2011-2012	3860-2, 4528-2, 4529-2	3	-	-	-
2012-2013	3860-2, 4528-2, 4529-2	3	-	-	-
2013-2014	3860-3, 4529-3	2	-	-	-
	4528-3	N/A	-	-	-

Year	Consent no	High	Good	Improvement req	Poor
2014-2015	3860-3, 4529-3	2	-	-	-
	4528-3	N/A	-	-	-
2015-2016	3860-3, 4529-3	2	-	-	-
	4528-3	N/A	-	-	-
2016-2017	3860-3, 4528-3	2	-	-	-
	4528-3	N/A	-	-	-
2017-2018	3860-3, 4529-3	2	-	-	-
	4528-3	N/A	-	-	-
Totals		3	0	0	0

During the year, NPDC demonstrated a high level of environmental performance and a high level of administrative performance in relation to the Okato landfill resource consents as defined in Section 1.1.5.

4.3.4 Recommendation from the 2017-2018 Annual Report

In the 2017-2018 Annual Report, it was recommended:

1. THAT monitoring of consented activities at Okato landfill in the 2018-2019 year continue at the same level as in 2017-2018.
2. THAT should there be issues with environmental or administrative performance in 2017-2018, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
3. THAT the option for a review of resource consents 3860-3, 4528-3 and 4529-3 in June 2019, as set out in conditions of the consents, not be exercised, on the grounds that the current conditions are adequate to deal with any adverse effects on the environment arising from the exercise of the consents.

These recommendations were implemented.

4.3.5 Alterations to monitoring programmes for 2019-2020

In designing and implementing the monitoring programmes for air and 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 emitting to the atmosphere/discharging to the environment.

It is proposed that for 2019-2020 the monitoring of discharges at the Okato landfill continue unchanged.

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 2019-2020.

4.4 Recommendation

1. THAT monitoring of consented activities at Okato landfill in the 2019-2020 year continue at the same level as in 2018-2019.
2. THAT should there be issues with environmental or administrative performance in 2019-2020, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

5 Summary of recommendations

The following is a summary of the recommendations for each landfill as presented in the individual sections of this report.

1. THAT monitoring of consented activities at the Inglewood landfill in the 2019-2020 year remain unchanged from that undertaken in 2018-2019.
2. THAT the biennial monitoring of discharges at the Marfell landfill continues unchanged and that the programme next be implemented in the 2020-2021 period.
3. THAT monitoring of consented activities at the Okato landfill in the 2019-2020 year continue at the same level as in 2018-2019.
4. THAT the option for a review of resource consents 4526-3, 4527-3, and 4902-2 in June 2020, as set out in conditions of the consents, not be exercised, on the grounds that the current conditions are adequate to deal with any adverse effects on the environment arising from the exercise of the consents.
5. THAT should there be issues with environmental or administrative performance at any of the sites in 2019-2020, 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:

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.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 20°C and expressed in mS/m.
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
g/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.
L/s	Litres per second.
m^2	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.
mS/m	Millisiemens per metre.
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.
NH_4	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH_3	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
NNN	Nitrate and nitrite nitrogen, normally expressed in terms of the mass of nitrogen (N).
TN	Total nitrogen, 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).

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.
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	*Resource Management Act 1991* 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.
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.

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Appendix I

Resource consents held by NPDC

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

Site	Consent No.	Purpose	Granted	Review	Expires
Inglewood	3954-2	To discharge up to a total of 4,752 m^3/day (55 litres/second) of leachate and stormwater from the Inglewood municipal landfill into an unnamed tributary of the Awai Stream, a tributary of the Mangaoraka Stream in the Waiongana catchment	Feb 2002	-	1 June 2020
	4526-3	To discharge contaminants, being landfill gas, and odours associated with a landfill, into the air from the Inglewood municipal landfill	Mar 2007	June 2020	1 June 2026
	4527-3	To discharge cleanfill and inert materials onto and into land at the Inglewood municipal landfill, and to discharge municipal refuse onto and into land at the Inglewood municipal landfill when, and only when, it cannot be discharged at the Colson Road municipal landfill	Mar 2007	June 2020	1 June 2026
Okato	3860-3	To discharge stormwater and leachate from the Okato municipal landfill into an unnamed tributary of the Kaihihi Stream	Sep 2013	June 2025	1 June 2031
	4528-3	To discharge emissions into the air from the contingency discharge of solid contaminants at the Okato municipal landfill	Sep 2013	June 2025	1 June 2031
	4529-3	To discharge cleanfill and green waste to land and to discharge general refuse on a contingency basis to land	Sep 2013	June 2025	1 June 2031
Marfell	4902-2	To discharge leachate from the Marfell former landfill site via groundwater into the Mangaotuku Stream	Oct 2014	June 2020	1 June 2032

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.

Inglewood

Discharge Permit

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

Name of Consent Holder:	New Plymouth District Council Private Bag 2025 NEW PLYMOUTH
Consent Granted Date:	18 February 2002

Conditions of Consent

Consent Granted:	To discharge up to a total of 4,752 cubic metres/day (55 litres/second) of leachate and stormwater from the Inglewood Municipal Landfill into an unnamed tributary of the Awai Stream, a tributary of the Mangaoraka Stream in the Waiongana Catchment at or about GR: Q19:124-296
Expiry Date:	1 June 2020
Review Date(s):	June 2008, June 2014
Site Location:	Inglewood Municipal Landfill, 277 King Road, Inglewood
Legal Description:	Lot 1 DP 16116 Blk XI Paritutu SD
Catchment:	Waiongana
Tributary:	Mangaoraka Awai

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General conditions

a) That on receipt of a requirement from the Chief Executive, Taranaki Regional Council (hereinafter the Chief Executive), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. Within three months of granting of this consent the consent holder shall prepare and maintain a site contingency plan to the satisfaction of the Chief Executive, Taranaki Regional Council, outlining measures and procedures undertaken to prevent spillage or accidental discharge of contaminants and procedures carried out should such a spillage or discharge occur. This shall be reviewed by the Council on an annual basis.

2. Within three months of granting of this consent the consent holder shall prepare and maintain a landfill operations and management plan to the satisfaction of the Chief Executive, Taranaki Regional Council, and shall adhere to such a plan in so far as they concern the exercise of this consent at all times.

3. The consent holder shall provide a landfill closure management plan to the satisfaction of the Chief Executive, Taranaki Regional Council, by 1 June 2007 or 3 months prior to the closure of the landfill should this occur before 1 June 2007; such plan to address site security, litter control, vegetation cover, stormwater diversion, leachate control, site contouring, and cover placement and compaction, in addition to any other matters relevant to the exercise of this consent.

4. The consent holder shall advise the Taranaki Regional Council one month prior to any changes being made to the operation and management plan or landfill closure management plan. Should the Taranaki Regional Council wish to review either of these plans, one month’s notice shall be provided to the consent holder.

5. The monitoring of the site and adjacent surface and groundwaters shall be to the satisfaction of the Chief Executive, Taranaki Regional Council

6. The leachate and stormwater diversion, collection, treatment and discharge systems shall be maintained to the satisfaction of the Chief Executive, Taranaki Regional Council

7. Any discharge shall not, in the opinion of the Chief Executive, Taranaki Regional Council, cause nor be likely to cause any significant adverse effects on aquatic life or receiving water quality.

8. 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.

Signed at Stratford on 18 February 2002

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	New Plymouth District Council Private Bag 2025 NEW PLYMOUTH 4600
Consent Granted Date:	20 March 2007

Conditions of Consent

Consent Granted:	To discharge contaminants, being landfill gas, and odours associated with a landfill, into the air from the Inglewood Municipal Landfill at or about GR: Q19:120-295
Expiry Date:	1 June 2026
Review Date(s):	June 2014, June 2020
Site Location:	Inglewood Municipal Landfill, 277 King Road, Inglewood
Legal Description:	Lot 1 DP 16116 Blk XI Paritutu SD

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of applications 4475, 1611 and 94/118. In the case of any contradiction between the documentation submitted in support of applications 4475, 1611 and 94/118 and the conditions of this consent, the conditions of this consent shall prevail.

3. The consent holder shall advise the Taranaki Regional Council one month prior to any changes being made to the landfill management plan, and/or landfill closure management plan. Should the Taranaki Regional Council wish to review any of these plans, one month's notice shall be provided to the consent holder.

4. The consent holder shall maintain the landfill management plan to the satisfaction of the Chief Executive, Taranaki Regional Council, and shall adhere to such a plan in so far as it concerns the exercise of this consent at all times.

5. In case of any contradiction between the landfill management plan and the conditions of this consent, the conditions of this consent shall prevail.

6. The discharge of contaminants into the air from the landfill operation shall not result in any of the following - offensive or objectionable odours; offensive or objectionable dust; or dangerous or noxious ambient concentrations of any airborne contaminant - as determined by at least one enforcement officer of the Taranaki Regional Council, at or beyond the boundary of the site.

7. No material is to be burnt at the landfill site.

8. The discharges authorised by this consent shall not give rise to any significant adverse ecological effects on any ecosystem, including but not limited to, habitats, plants, animals, microflora and microfauna.

9. The consent holder shall keep a record of any complaints received relating to discharges to air with respect to the landfill activity. The complaints record shall include the following where possible:

   a) name and address of complainant;
   b) nature of complaint;
   c) date and time of the complaint and alleged event;
   d) weather conditions at the time of the event; and
   e) any action taken in response to the complaint.

10. 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 2014 and/or June 2020, 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.

Signed at Stratford on 20 March 2007

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	New Plymouth District Council Private Bag 2025 NEW PLYMOUTH 4600
Consent Granted Date:	20 March 2007

Conditions of Consent

Consent Granted:	To discharge cleanfill and inert materials onto and into land at the Inglewood Municipal Landfill at or about GR: Q19:120-295, and to discharge municipal refuse onto and into land at the Inglewood Municipal Landfill when, and only when, it cannot be discharged at the Colson Road Municipal Landfill
Expiry Date:	1 June 2026
Review Date(s):	June 2014, June 2020
Site Location:	Inglewood Municipal Landfill, 277 King Road, Inglewood
Legal Description:	Lot 1 DP 16116 Blk XI Paritutu SD
Catchment:	Waiongana
Tributary:	Awai Mangaoraka

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of applications 4476, 1613 and 94/119. In the case of any contradiction between the documentation submitted in support of applications 4476, 1613 and 94/119 and the conditions of this consent, the conditions of this consent shall prevail.

3. The consent holder shall advise the Taranaki Regional Council one month prior to any changes being made to the landfill management plan, and/or landfill closure management plan. Should the Taranaki Regional Council wish to review any of these plans, one month's notice shall be provided to the consent holder.

4. The consent holder shall maintain the landfill management plan to the satisfaction of the Chief Executive, Taranaki Regional Council, and shall adhere to such a plan in so far as it concerns the exercise of this consent at all times.

5. In case of any contradiction between the landfill management plan and the conditions of this consent, the conditions of this consent shall prevail.

6. Waste, including liquid and sludges, with a solids content of 20% or less, shall not be accepted at the landfill.

7. For the purposes of this consent, "clean fill and inert materials" are defined as materials consisting of any solid concrete, cement or cement wastes, bricks, mortar, tiles (clay, ceramic or concrete), non-tanalised timber, porcelain, glass, gravels, boulders, shingles, fibreglass, plastics, sand, soils and clays, and/or tree stumps and roots, whether singly or in combination or mixture, or any other material that when placed onto and into land will not render that land or any vegetation grown on that land toxic to vegetation or animals consuming vegetation.

8. For the purposes of this consent, "clean fill and inert materials" excludes: food wastes, paper and cardboard, grass clippings, vegetative wastes other than tree stumps and roots, textiles, steel, galvanised metals, construction materials containing paint or fillers or sealers or their containers, oils or greases or any liquids or sludges or their containers, any industrial process by-products other than as permitted under condition 7, any poisons or solvents or their containers, batteries, general domestic refuse not otherwise described, or any wastes with the potential to render land or any vegetation grown on the land toxic to vegetation or to animals consuming such vegetation.

9. The discharge to land shall not result in any contaminant entering surface water.

10. Silt and leachate retention structures shall be installed and maintained to the satisfaction of the Chief Executive, Taranaki Regional Council.

11. The consent holder shall install and maintain stormwater diversion drains to minimise stormwater movement across, or ponding on the site, to the satisfaction of the Chief Executive, Taranaki Regional Council.

12. 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 2014 and/or June 2020, 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.

Signed at Stratford on 20 March 2007

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Okato

Discharge Permit

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

Name of Consent Holder:	New Plymouth District Council Private Bag 2025 NEW PLYMOUTH 4342
Decision Date:	13 September 2013
Commencement Date:	13 September 2013

Conditions of Consent

Consent Granted:	To discharge stormwater and leachate from the Okato Municipal Landfill into an unnamed tributary of the Kaihihi Stream
Expiry Date:	1 June 2031
Review Date(s):	June 2019, June 2025
Site Location:	Okato Municipal Landfill, Hampton Road, Okato
Legal Description:	Lot 1 DP 13150 Blk I Cape SD (Discharge site)
Grid Reference (NZTM)	1674817E-5663981N
Catchment:	Kaihihi

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act.

Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

2. All discharges permitted under this consent shall be undertaken in accordance with the "Okato Landfill Contingency Disposal Management Plan" as supplied with the application (5831).

3. The consent holder shall install and maintain all stormwater diversion drains to minimise stormwater entering or flowing across the discharge area.

4. During routine operations all surface runoff and leachate from the previously filled area of the landfill shall be directed to the leachate stormwater/ collection drain.

5. During and after any contingency discharge of general refuse (as permitted under consent 4529-2), all leachate generated from the new fill shall be directed to a lined pond and removed from the site.

6. This consent shall lapse on 30 September 2018, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

7. 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 2019 and/or June 2025 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.

Signed at Stratford on 13 September 2013

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	New Plymouth District Council Private Bag 2025 NEW PLYMOUTH 4342
Decision Date:	13 September 2013
Commencement Date:	13 September 2013

Conditions of Consent

Consent Granted:	To discharge emissions into the air from the contingency discharge of solid contaminants at the Okato Municipal Landfill
Expiry Date:	1 June 2031
Review Date(s):	June 2019, June 2025
Site Location:	Okato Municipal Landfill, Hampton Road, Okato
Legal Description:	Lot 1 DP 13150 Blk I Wairau SD (Discharge source & site)
Grid Reference (NZTM)	1674817E-5663981N

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act.

Special conditions

1. The discharge of general refuse at the site shall only occur on a contingency basis and in accordance with the Okato Landfill Contingency Disposal Management Plan as submitted with application 5832.

2. The consent holder shall at all times adopt the best practicable option or options [as defined in section 2 of the Resource Management Act 1991] to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site.

3. That the discharge of contaminants into the air shall not result in offensive or objectionable odours or dangerous or noxious ambient concentrations of any airborne contaminant that, in the opinion of at least one enforcement officer of the Taranaki Regional Council, is offensive or objectionable at or beyond the boundary of the site.

4. The discharges authorised by this consent shall not give rise to suspended or deposited dust at or beyond the boundary of the site that is offensive or objectionable. For the purpose of this condition, discharges in excess of the following limits are deemed to be offensive or objectionable:

   a) dust deposition rate 0.13 $g/m^2/day$; and/or
   b) suspended dust level 3 mg/m^3.

5. That this consent shall lapse on 1 June 2031, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

6. 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 2019 and or June 2025, 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.

Signed at Stratford on 13 September 2013

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	New Plymouth District Council Private Bag 2025 NEW PLYMOUTH 4342
Decision Date:	13 September 2013
Commencement Date:	13 September 2013

Conditions of Consent

Consent Granted:	To discharge cleanfill and greenwaste to land and to discharge general refuse on a contingency basis to land
Expiry Date:	1 June 2031
Review Date(s):	June 2019, June 2025
Site Location:	Okato Municipal Landfill, Hampton Road, Okato
Legal Description:	Lot 1 DP 13150 Blk I Wairau SD (Discharge source & site)
Grid Reference (NZTM)	1674817E-5663981N
Catchment:	Kaihihi

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act.

Special conditions

1. All discharges permitted by this consent shall occur within the existing landfill footprint as shown by the red dotted line on the attached plan (appendix 1).

2. The consent holder shall at all times adopt the best practicable option or options [as defined in section 2 of the Resource Management Act 1991] to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site.

3. The consent holder shall install and maintain stormwater diversion drains to minimise stormwater entering or flowing across the discharge area.

4. The existing landfill cap shall at all times be maintained in its existing condition and shall not be disturbed during any activities permitted by this consent.

5. Prior to the expiry or surrender of this consent all areas used to discharge greenwaste and/or cleanfill shall be stabilised and re-vegetated to minimise erosion, sedimentation and stormwater infiltration.

Cleanfill

6. Cleanfill as defined by special conditions seven and eight may be discharged at any time and shall be undertaken in accordance with the Okato Landfill Contingency Disposal Management Plan as submitted with application 5833.

7. The contaminants to be discharged shall be limited to cleanfill and/or inert materials. For the purposes of this condition, "clean fill and inert materials" are defined as materials consisting of any concrete, cement or cement wastes, bricks, mortar, tiles [clay, ceramic or concrete], non-tanalised timber, porcelain, glass, gravels, boulders, shingles, fibreglass, plastics, sand, soils and clays, and/or tree stumps and roots, whether singly or in combination or mixture, or any other material [subject to condition 8] that when placed onto and into land will not render that land or any vegetation grown on that land toxic to vegetation or animals consuming vegetation.

8. The discharge of the following contaminants shall not occur: food wastes, paper and cardboard, grass clippings, garden wastes including but not limited to wastes containing foliage or other vegetation [other than tree stumps and roots as permitted under condition 7], textiles, steel, galvanised metals, construction materials containing paint or fillers or sealers or their containers, oils or greases or any liquids or sludges or their containers, any industrial process by-products other than as permitted under condition 7, any poisons or solvents or their containers, batteries, general domestic refuse not otherwise described, or any wastes with the potential to render land or any vegetation grown on the land toxic to vegetation or to animals consuming such vegetation.

9. If the consent holder is uncertain as to the acceptability or not of a certain material the consent holder shall obtain written approval from the Consents Manager, Taranaki Regional Council, prior to its discharge.

Greenwaste

10. Green waste may be discharged at any time and shall be undertaken in accordance with the Okato Landfill Contingency Disposal Management Plan as submitted with application 5833.

Contingency Landfilling

11. The discharge of general refuse at the site shall only occur on a contingency basis and in accordance with the Okato Landfill Contingency Disposal Management Plan as submitted with application 5833.

12. In the event that contingency filling is required, the consent holder shall notify Council within 48 hours via email at worksnotification@trc.govt.nz . The notification shall include, reasons for using the site, likely volume of material to be discharged and likely duration of the contingency discharge.
13. Upon completion of any contingency discharge, the discharged refuse shall be capped and re-vegetated to the specifications set out in section 4.10.3 of the Okato Landfill Contingency Disposal Management plan as submitted with application 5833.

14. This consent shall lapse on 30 September 2018, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991

15. 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 2019 and or June 2025, 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.

Signed at Stratford on 13 September 2013

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Appendix 1

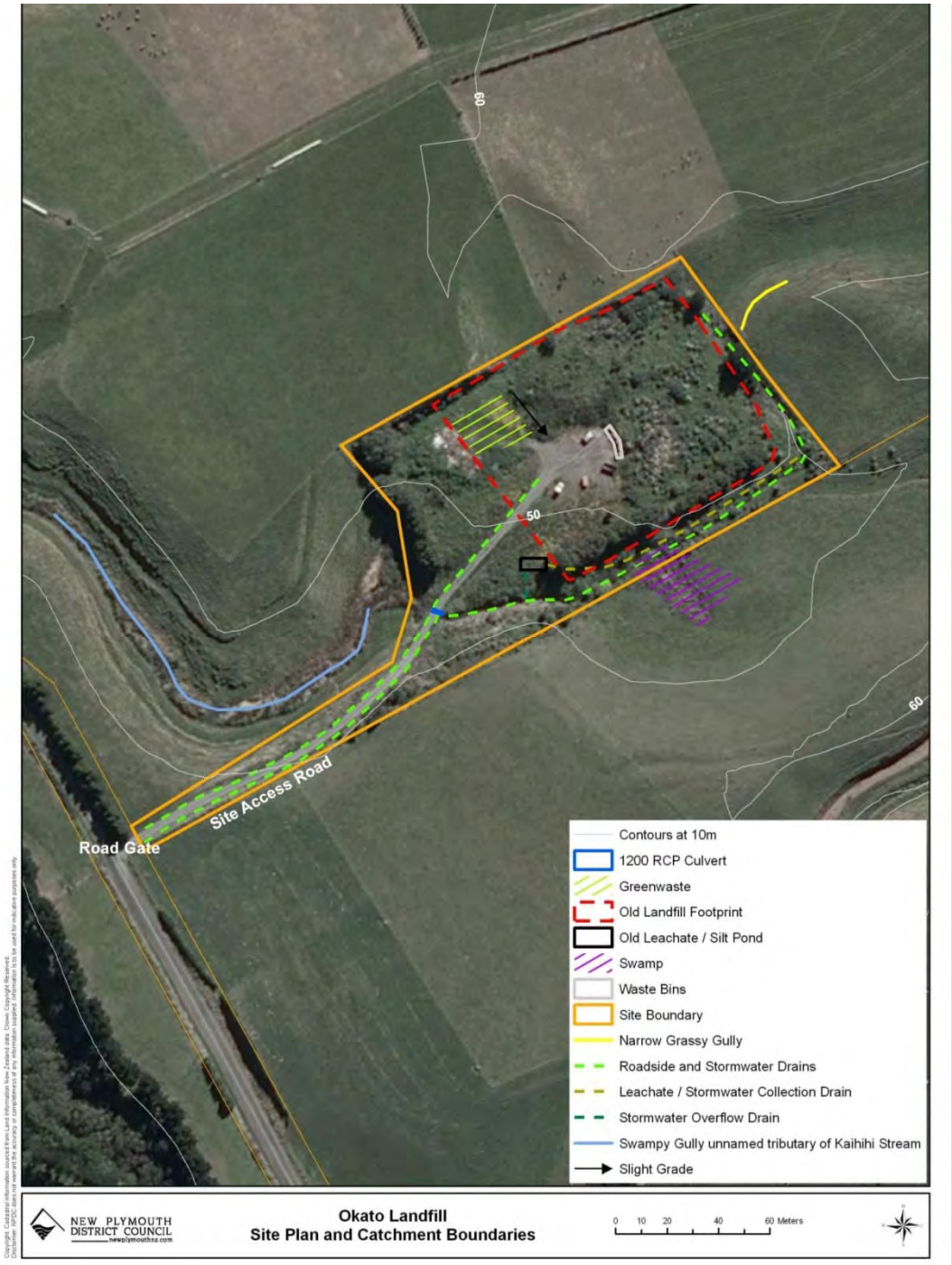

Figure 1 Aerial plan of Okato landfill site

Marfell Park

Discharge Permit

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

Name of Consent Holder:	New Plymouth District Council Private Bag 2025 New Plymouth 4342
Decision Date:	21 October 2014
Commencement Date:	21 October 2014

Conditions of Consent

Consent Granted:	To discharge leachate from the Marfell Park former landfill site via groundwater into the Mangaotuku Stream
Expiry Date:	01 June 2032
Review Date(s):	June 2020, June 2026
Site Location:	Marfell Park, Grenville Street, New Plymouth
Legal Description:	Lot 4 DP 9485 (Discharge point) Lot 1 DP 9295 Lot 1 DP 15742 (Discharge source)
Grid Reference (NZTM)	1690275E-5674646N
Catchment:	Huatoki
Tributary:	Mangaotuku

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

2. The landfill cap and associated stormwater structures shall be maintained in a manner that;

    a) Minimises ponding to prevent stormwater infiltration into the filled area;
    b) Ensures stormwater is adequately diverted and/or drained away from the land fill cap; and
    c) Ensures iron oxide deposits on the outfall structure do not directly enter the Mangaotuku Stream.

3. The site shall be operated in accordance with a 'Management Plan' prepared by the consent holder within 3 months of granting of this consent, and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The plan shall detail how the site will be managed to achieve compliance with the conditions of this consent and shall include but not be limited to:

    a) maintenance of the landfill cap to minimise ponding and stormwater infiltration;
    b) maintenance and management of the stormwater drains on and around the landfill to ensure stormwater is adequately diverted and/or drained away from the land fill cap; and
    c) monitoring and management of iron oxide deposits on the outfall structure to ensure iron oxide deposits do not enter the water way.

4. After reasonable mixing the receiving waters downstream of the discharge shall meet the following standards;

    a) unionised ammonia concentration less than 0.025 g/m^3;
    b) ammoniacal nitrogen level concentration less than 0.9 g/m^3;
    c) pH within the range of 6.0 and 9.0; and
    d) dissolved zinc concentration less than or equal to 0.05 g/m^3.

5. The discharge shall not cause the following effects in the receiving waters after reasonable mixing;

    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 of objectionable odour;
    d) the rendering of fresh water unsuitable for consumption by farm animals;
    e) any significant adverse effects on aquatic life.

6. 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 2020 and/or June 2026 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.

Signed at Stratford on 21 October 2014

For and on behalf of
Taranaki Regional Council

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B G Chamberlain
Chief Executive