



Enquiries Ian Florence
Telephone (07) 40466727
Your reference
Our reference CNS 1294

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

24 October 2007

Chief Executive Officer
Mareeba Shire Council
PO Box 154
Mareeba QLD 4880

Dear Sir/Madam

Mareeba Landfill – Compliance with EPA Permit Number IPDE00493906A11

I write with reference to our correspondence of the 30 July 2007 and Mareeba Shire Council's response dated 10 September 2007 in relation to various compliance issues at the Mareeba Shire Council landfill facility, Mareeba.

In order to allay the concerns of the Environmental Protection Agency (EPA) in relation to the final construction and operation of the landfill and compliance with the associated Permit conditions, the Mareeba Shire is required to submit the auditor's report as required in Condition G16 of Permit Number IPDE00493906A11. Conditions G14 – G17 requires that a Third Party Environmental Audit be conducted within 28 days of commencement of the activity and that the resultant report be submitted to the EPA within 28 days of the inspection. At the time of writing no such report has been received by the EPA. Accordingly a copy of this report shall be forwarded to this office by the **8 November 2007**.

In respect to the Mareeba Shire Council's response regarding the reprocessing of waste from the existing landfill:

- The condition was included in the EPA's initial draft of the Permit, however at the request of the Mareeba Shire Council it was removed from the final issued Permit.
- It was removed as the requirement was clearly included in Mareeba Shire Council's approved Environmental Management Program (EPA Number MAN5133).
- This EMP was submitted by the Mareeba Shire Council to address significant ongoing non-compliances identified by the EPA at the existing landfill site.
- The Mareeba Shire Council gave a written undertaking in this EMP to reprocess 10,000t of waste into the new cell **annually** from completion of the new landfill cell, and not at a time of Council's choosing.
- Reports on the progress of works required by the EPA's approval Certificate (MAN1533) due in February and April 2007 have not been provided.

Please be advised that wilful non-compliance with an approved Environmental Management Program is viewed as a serious offence and carries a maximum penalty of 1,665 penalty units or 2 years imprisonment.

With reference to those issues identified above the EPA would like to invite you or the Manager Civil Works to this office for a meeting to discuss the Permit Conditions, EMP and Site Based Management Plan pertaining to the operation of the Mareeba landfill site.

For further information regarding this matter or to arrange a meeting please contact Ian Florence on (07) 4046 6602.

Yours faithfully

sch4p4(6) Personal information

Chris Buckingham

Principal Environmental Officer

RTI DL RELEASE - EHP

6.2.07

8-FEB-2007 02:40PM FROM-

T-074 P.001/004 F-400

Attn: ~~Kim BARRY~~ Florence
3ME2007/1589
404 66 606

PLEASE FIND ATTACHED INFORMATION

REGARDING LANDFILLS AT MARTEBA

THANKS

✓ CARMS

CNS 1294.4
CNS 200 7/2725

HELEN VICKERS

RTI DL RELEASE - EHP

CONTAMINATED
AND SECTION

8 - FEB 2007

Release



Att: Morgan Abney

T-074 P-002/004 F-488
Mareeba Shire Council
P.O. Box 154
65 Rankin Street
Mareeba Qld 4880
Telephone (07) 4030 3900
Facsimile (07) 4092 3323
Email ceo@msc.qld.gov.au
Web www.msc.qld.gov.au

Project Office, LRAP
Funding and Infrastructure Branch
Department of Local Government, Planning,
Sport and Recreation
PO Box 15031
City East QLD 4002

RECEIVED

18 DEC 2006

Ref: W8/4 POF:BLF:blf

13 December 2006

Dear Sir/Madam

LANDFILL REMEDIATION ASSESSMENT PROGRAM (LRAP)

Please find enclosed Council's application under the Landfill Remediation Assessment Program.

As outlined in the LRAP guidelines, only sites which have ceased operation and are no longer receiving waste are eligible for funding. Council's landfill site (for which the remediation works are planned) is currently in operation, however this will cease by the end of January 2007. After discussions with your office regarding the timeframes associated with the assessment of applications, it was confirmed Council's submission would be considered.

Ongoing remediation works will continue with the fencing of the boundary surrounding the site and the planting of a buffer zone to reduce the amount of wind blown litter to the surrounding properties.

As part of the ongoing works, a leachate collection and disposal system is being put into place within the new engineered cell. Once this cell is complete and the new licence takes control in January 2007, the rubbish from the existing cell will be reprocessed into the new cell under the new licence.

Studies on landfill gas production and removal techniques will have to be reported on for the safe reprocessing of the decommissioned cell.

Further studies shall include but not be limited to:

- Gas production and extraction
- Site History
- Ground Water Sampling (Quality, Direction of Flow)
- Leachate Production and Treatment
- Soil Logging and Testing

Should you have any queries with regard to the matters raised, please direct them to Patrick O'Flaherty on 07 4030 3984.

Yours faithfully

sch4p4(6) Personal information

Patrick O'Flaherty
MANAGER WATER & WASTEWATER

*Mareeba Shire - a great place to live.
Mareeba - biggest town on the Tablelands of the Cairns Hinterland.*

Landfill Remediation Assessment Program (LRAP) Application

1 Local Governing Body Details

Council, Mareeba shire Council
Contact Person, Patrick O'Flaherty
Address P.O Box 154 Mareeba Qld
Telephone 07 4030 3984
Email, pro@msc.qld.gov.au
2 Council Statistics

Title, Manager Water & Waste
Postcode, 4880
Facsimile 07 4092 5138

Population of Local Governing Body 18,000
Number of Rateable Properties 8,230
Total General Rates Revenue 2005/2006 \$8,299,579
Number of Properties with Garbage Service 3,443
Garbage Charge Revenue 2005/2006 \$1,936,266 (Gross)

3 Prioritisation (Landfills for which subsidy is being requested in this round)

Site Name/Address/ Lot Number	Council Designated Priority	Any Previous Investigations Y/N	Date Landfill Closed	Is it listed on Environmental Management Registrar List? Y/N	Estimated Cost of Project	Status of Landfill Operation (Council Operated, Private, or Illegal/unknown)
Mareeba Landfill 517 Vaughan St Mareeba	One (1)	Yes	2007	No	35k	Council Operated

sch4p4(6) Personal information

Mayor/Chairperson

Date

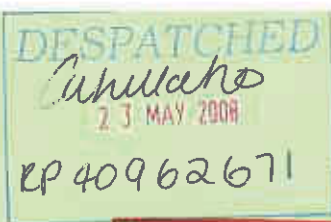
14/12/06

Chief Executive Officer/Council Clerk

Date



Queensland Government
Department of Land, Environment and Planning



**Queensland
Government**

Enquiries Chris Buckingham
Telephone (07) 4046 6736
Your reference
Our reference CNS6564

CNS 6564.2

CNS 200 8/5350

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

23 May 2008

✓ **CARMS**

Chief Executive Officer
Tablelands Regional Council
PO Box 3
MALANDA QLD 4885

Attn: Steven Ripper

Dear Sir

Mareeba Landfill Audit

A copy of the third party audit report for the operations at the Mareeba Landfill was received from the Tablelands regional Councils consultants Maunsell on 30 April 2008.

This audit report was required to be prepared as a condition of the site's development approval and has identified a significant number of non-compliances and potential non-compliances. The number of operation and reporting non-compliances indicate that the management of the landfill requires considerable improvement.

I request that by 20 June 2008, Council provide advice to EPA on what actions are being proposed to resolve the non-compliances and a time frame for these actions.

Should you have any queries in relation to this matter, please contact Chris Buckingham on 4046 6736

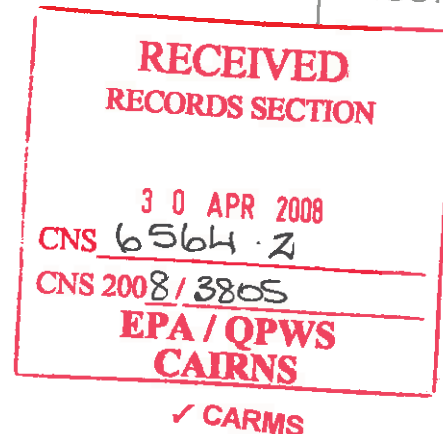
Yours faithfully

sch4p4(6) Personal information

Ingrid Fomiatti Minnesma
District Manager
Environmental Services

Maunsell Australia Pty Ltd
124 Spence Street, PO Box 5971, Cairns QLD 4870, Australia
T +61 7 4051 8866 F +61 7 4051 7871 www.maunsell.com.au

The Manager
Environmental Protection Agency
PO Box 2066
CAIRNS QLD 4870



29 April 2008

Attention: Ian Florence

Dear Sir

Mareeba Landfill Audit Report

Please find enclosed a copy of the EPA Permit Compliance Audit Report for the Mareeba landfill.

Should you have any queries, please contact either David Wenig on 03 9653 8572 or Michael Arri at this office

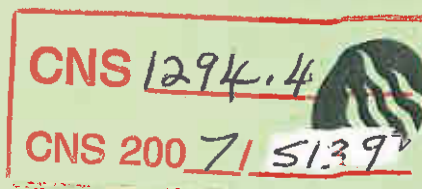
Yours Faithfully

sch4p4(6) Personal information

Michael Arri
Office Manager

RTI DL RELEASE - EHP

✓ CARMS



**Queensland
Government**

Enquiries Ingrid Forniatti Minnesma
Telephone (07) 40466724
Your reference
Our reference CNS1294

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

28 March 2007

Chief Executive Officer
Mareeba Shire Council
PO Box 154
MAREEBA QLD 4880



Attn: Patrick O'Flaherty

Dear Patrick

I refer to the Development Approval issued to Mareeba Shire Council on 21 March 2007 for the Mareeba Landfill and wish to advise that an administrative error on page 3 has been amended.

I have enclosed an amended Development Approval that super sedes the initial decision for approval.

Should you have any questions in relation to this matter please call Chris Buckingham on 4046 6736.

Yours faithfully

sch4p4(6) Personal information

Ingrid Forniatti Minnesma
District Manager
Cairns District, Northern Region
Environmental Protection Agency

Page 1 of 1

5B Sheridan Street Cairns
Queensland 4870 Australia
PO Box 2066 CAIRNS
Queensland 4870 Australia
Telephone 07 4046 6602
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ABN 87 221 158 786

✓ CARMS

CNS 1294.4

CNS 200 7/2724



Queensland
Government

Enquiries Ingrid Fomiatti Minnesma
Telephone (07) 40466724
Your reference
Our reference CNS1294

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

21 March 2007

Mr Noel Briggs
Mareeba Shire Council
PO Box 154
MAREEBA QLD 4880

DESPATCHED

21 MAR 2007

hand delivered

sch4p4(6) Personal information

Dear Mr Briggs

I refer to your letter dated 21 March 2007 regarding the draft development approval for Mareeba Landfill.

You have requested a change to condition WT6 to allow asbestos waste to be accepted at the landfill for disposal. We recognise that there will be some quantities of asbestos in the existing waste disposal area and the waste acceptance criteria in the development approval has been changed to allow this existing waste to be accepted/relocated into the new cells.

In relation to acceptance of asbestos under the development approval the Environmental Protection Agency has the following concerns:

- Inadequate buffer distance to residents and public recreation areas;
- Increased public concern in relation to the safety of asbestos handling and disposal; and
- The lack of public consultation in relation to the disposal of this waste.

Based on the information provided to date the Environmental Protection Agency (EPA) does not consider it in the public interest to allow the disposal of asbestos at the site.

Should you wish to pursue the disposal of asbestos, the EPA suggests you to undertake:

- a public consultation process; and
- a risk assessment in relation to the public health and safety of asbestos handling and disposal at the site.

This can be facilitated through an agreed extension of time on the decision which is due today, 21 March 2007. Alternatively you could accept the development approval and apply for an amendment to allow asbestos disposal at the site once you have demonstrated that this is in the public interests and public health and safety risks have been addressed.

Yours faithfully

[Redacted]
sch4p4(6) Personal information

for
Ingrid Fomiatti Minnesma
District Manager
Cairns District, Northern Region
Environmental Protection Agency

RTI DL RELEASE - EHP

CNS12944



Queensland
Government

Enquiries Ian Florence
Telephone (07) 40466727
Your reference
Our reference CNS 6564

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

30 July 2007

Chief Executive Officer
Mareeba Shire Council
PO Box 154
Mareeba QLD 4880



Dear Sir/Madam

Environmental Protection Agency Site Visit – Mareeba Landfill

Agency officers conducted a compliance inspection on 18 July 2007 of the Mareeba Landfill Site to assess compliance with Environmental Authority IPDE00493906A11 issued under the *Environmental Protection Act 1994*.

During this inspection areas of concern were identified in relation to the ongoing management and operation of the landfill site. These areas of concern might not technically form a contravention of approval conditions, however rectification of these issues is recommended to ensure compliance with your general environmental duty. Those identified during the site inspection are as follows:

1. Recently deposited waste at the new cells had been placed in the stormwater drain. This drain is designed only to catch and settle out sediment laden stormwater.
2. The old landfill cells were still being used to accept residential waste. It is recommended that for both public safety and to ensure segregation of recyclable material that the public use a designated area of the waste transfer station.
3. Used batteries were being stored in large numbers outside of the bunded regulated waste storage area.
4. Reprocessing of pre-existing waste from the old landfill site has not yet commenced – it is currently a requirement of Mareeba Shire Council's approved Environmental Management Program (Reference No. MAN5133) that a minimum of 10,000t/yr of waste from pre-existing cells be excavated and deposited in the new landfill cells.
5. Internal banks of the new landfill cell are all showing signs of erosion. It is recommended that to ensure their long term stability these banks be treated to minimise

erosion before the start of the forthcoming wet season.

6. The waste in the new cell was placed beyond the boundary of the short-term designated catchment area for leachate collection.
7. The current supervisor of waste management operations has not been briefed or instructed on the effective management of Mareeba Shire Council's waste facilities. Although his efforts are noted, the current lack of a trained or experienced site supervisor for this landfill is of concern.

In conclusion, I would request that you advise this Agency in writing by **24th August 2007**, of the actions that you intend to take to address the above mentioned issues. Should you require any further information regarding this matter please contact Ian Florence on (07) 4046 6602.

Yours faithfully

[Redacted]
sch4p4(6) Personal information

✓ **Chris Buckingham**
Principal Environmental Officer

Facsimile Cover Sheet

Cairns District, Northern Region

5 - 5B Sheridan Street • PO Box 2066 CAIRNS QLD 4870
Phone enquiries (07) 4046 6734 • Facsimile (07) 4046 6606

Date 14 February 2007

Trans/No 3702

Please deliver to

Name Patrick O'Flaherty

Fax number 4092 3323

Business/Section Mareeba Shire Council

From

Name Ian Florence

Telephone 4046 6727

Unit Environmental Protection Agency, Cairns District, Northern Region

Subject

Notice to extend information request period

Number of pages

(including facsimile cover sheet) 2

Special precedence

☐

Urgent

☐

Confidential

Original is being forwarded

☐

Yes

☐

No

Privacy and confidentiality notice

The information contained in this facsimile is intended for the named recipient/s only. It may contain privileged and confidential information and if you are not an intended recipient, you must not copy, distribute or take any action in reliance on it. If you have received this facsimile in error, please notify the sender.

Message

Please find attached Notice to extend information request period for an application for development approval for a MCU involving an ERA.

Original will be forwarded by registered post to the notice address.

Additional Information:**RSA No**

☐ Not Required ☐ Required ☐ Client Notified Date: Notified:

I am of the opinion after reviewing the application that there is insufficient information provided to allow for a full assessment of the application.

Recommendation:

That a Section Notice to Provide Additional Information under the *Integrated Planning Act 1997* be served on the applicant.

Endorsement:

Assessing Officer:	Supervisor / Reviewer:	Delegate:
Accepted / Refused	Accepted / Refused	Accepted / Refused
Signed:	Signed:	Signed:
Date:	Date:	Date:

Extension of Time:**RSA No** 6481

☒ Required

Reason:

Moreeba Shire Council are yet to provide all information on - noise, groundwater monitoring, odour to allow a full assessment.

An extension of time is required by the Environmental Protection Agency and will extend the:

- ☐ Information Request Period by ten (10) business days.
- ☒ Assessment Period by twenty (20) business days.
- ☒ Client Notified Date: Notified: 7/2/07

Recommendation:

That a Section Notice of Extension on Application under the *Integrated Planning Act 1997* be served on the applicant.

Endorsement:

Assessing Officer:	Supervisor / Reviewer:	Delegate:
Accepted / Refused	Accepted / Refused	Accepted / Refused
Signed: sch4p4(6) Personal information	Signed:	Signed:
Date: 14/2/07	Date:	Date: 14/02/2007

FILE NOTE:

Environmental Protection Agency
Cairns District, Northern Queensland
Government



Date: 22 May 2007

File No: CNS6564

Subject: Copy of the signed decision notice for Mareeba Landfill DA

Environmental Protection Agency

Officer: Chris Buckingham

Incorporating the
Queensland Parks and Wildlife Service

CNS6564.21

Elizabeth the lawyer requested a copy of the Signed decision notice for Mareeba Landfill DA, I have copied it and forward a copy to the customer as requested.

Lene.

RTI DL RELEASE - EHP

Additional Information:

RSA No

☐ Not Required ☐ Required ☐ Client Notified Date: Notified:

I am of the opinion after reviewing the application that there is insufficient information provided to allow for a full assessment of the application.

Recommendation:

That a Section Notice to Provide Additional Information under the *Integrated Planning Act 1997* be served on the applicant.

Endorsement:

Assessing Officer:	Supervisor / Reviewer:	Delegate:
Accepted / Refused	Accepted / Refused	Accepted / Refused
Signed:	Signed:	Signed:
Date:	Date:	Date:

Extension of Time:

RSA No

☐ Required

Reason:
.....
.....
.....

An extension of time is required by the Environmental Protection Agency and will extend the:

- ☐ Information Request Period by ten (10) business days.
- ☐ Assessment Period by twenty (20) business days.
- ☐ Client Notified Date: Notified:

Recommendation:

That a Section Notice of Extension on Application under the *Integrated Planning Act 1997* be served on the applicant.

Endorsement:

Assessing Officer:	Supervisor / Reviewer:	Delegate:
Accepted / Refused	Accepted / Refused	Accepted / Refused
Signed:	Signed:	Signed:
Date:	Date:	Date:

Landfill Staging and Final Landform

The application is for a waste disposal facility receiving and disposing of 75,000t or more, but less than 100,000t of general waste per year on land parcel Lot 517 on CP851523. The application includes details in relation to Stage 1 and in part Stage II. Details of the proposed landfill footprint, further staging and final landform are not provided.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
1. A drawing showing the landfill footprint over the estimated 25 year life of the landfill.	With the IRD and population growth factored in the estimated life of the site is estimated at 20 years	Maunsell – Mal Jones
2. A drawing(s) showing the stages of the landfill over the life of the landfill including stormwater and leachate management.	The revised drawings will show the landfill footprint development at the start 0 years, 5 years, 10 years, 15 years and 20 years. Each plan will provide a snap shot and will show the relevant leachate and stormwater management for that stage of the operation.	Maunsell – Mal Jones
3. A drawing(s) showing the final landform including landform heights.	The landfill final height is set to the underside of the landfill cap at contour (RL 427) the 20 year development is expected to represent the final landform. This is due to the provided IRD, achievable compaction and volume of cover to be used, current airspace calculations do show a reduction from 25 years to 20 years of airspace based on the current 2% population growth, due to current trends in recycling reduction and reuse of materials it is expected to increase which imply that the site life may well be further extended in years to come.	Maunsell – Mal Jones

OS 6564-2
e-7959 SN

Waste Acceptance Criteria:

The applicant has advised in the Site Based Management Plan (SBMP) that much of the wastes to be received at the landfill will be inert (for example in s6.5 and 6.7). However the application lacks sufficient detail to support this conclusion. It is requested that the following information be provided to clarify the types of wastes to be received.

	RESPONSE	TO BE ACTIONED BY
4. It is requested that the applicant provide: The annual quantities of the following types of waste that the applicant anticipates will be received for disposal at the landfill: a. CEC Resource and Recovery Plant residual waste; b. Domestic sourced general waste; c. Vegetation and garden waste; d. Commercial and industrial waste; e. Construction and demolition waste; f. Animal carcasses; and g. Asbestos;	<p>a. 50,000 tonnes per year (approx)</p> <p>b. 5,000 tonnes per year (approx) - it is intended that this will be received and transported to CEC Resource Recovery plant in Cairns for processing. This waste stream will not be landfilled.</p> <p>c. 1,000 tonnes per year (approx) - chipped onsite and purchased for local area use. This waste stream will not be landfilled.</p> <p>d. 2,500 tonnes per year limited - historically this waste stream involved matter from agricultural processing and packaging. It is intended that this waste stream will not be landfilled and will be directed to the CEC Resource Recovery plant with the Domestic General Wastes for processing. Only the residual/non putrescible fraction will be landfilled.</p> <p>e. 2,500 tonnes per year. Considered predominantly inert and directed to the landfill.</p> <p>f. < 100 tonnes (approx). Directed to the landfill as a Special Burial and covered as soon as is practicable.</p> <p>g. < 100 tonnes per year (approx). Directed to a separate asbestos burial area which is identifiable by a surveyed location within the landfill cell.</p>	MSC / CEC – Patrick O’Flaherty, Roy Lavis

<p>5. Details of the practices and procedures proposed to segregate recyclable materials from materials to be received at the landfill. Recyclable materials would include:</p> <ol style="list-style-type: none"> Green waste Cardboard Paper Concrete Bricks Plastics Glass Metal Foodstuffs (It is stated in the SBMP that condemned foodstuff will be accepted at the site. This waste is accepted at the composting facility). 	<p>MSC are reviewing recycling options with regional contractors and will assess their future viability with respect to an appropriate operational fit. Where inspected loads are deemed to have a significant recyclable fraction they will be directed to the transfer shed for delivery to CEC Resource Recovery, Cairns.</p> <ol style="list-style-type: none"> directed to a designated disposal area where which is supervised by the landfill operations staff. CEC Resource Recovery, Cairns CEC Resource Recovery, Cairns. CEC Resource Recovery, Cairns. CEC Resource Recovery, Cairns. CEC Resource Recovery, Cairns CEC Resource Recovery, Cairns directed to a designated disposal area where which is supervised by the landfill operations staff. CEC Resource Recovery, Cairns. Condemned foodstuffs will be accepted to the Mareeba landfill site as part of the putrescible waste stream and transported to the CEC Resource Recovery plant in Cairns for reprocessing. 	<p>MSC – Patrick O’Flaherty</p>
<p>6. Details of the monitoring program for the recyclable materials segregation, practices and procedures (including those at regional transfer stations) and corrective actions proposed to ensure that recyclable materials are not disposed to landfill.</p>	<p>Monitoring of metal recycling is undertaken by weighing the recycled metals that are removed from the site by the recycling contractor.</p> <p>Processed greenwaste is recorded by weight by the mulching contractor and is recorded as part of the waste collection software.</p> <p><u><i>Need procedures for checking incoming loads (those not going to CEC) and removing identified recyclables. It would be good if this could be provided in the updated SBMP if possible.</i></u></p> <p><u><i>Details of how separation of recyclables at WTSS will be facilitated is requested.</i></u></p> <p>Waste transfer stations will be provided with a 2 bin system for either CEC Resource Recovery materials or Mareeba landfill materials. The WTS supervisor will direct a presented load or load portion to be placed into the appropriate bin.</p>	<p>MSC – Patrick O’Flaherty</p>

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<p>7. Details of its contingency plans for circumstances where the CEC Resource and Recovery Plant is not operational.</p>	<p>What needs to occur?</p> <ol style="list-style-type: none"> 1. Contractor needs to use source segregation. OK for kerbside but what about other? <i>No kerbside recycling for domestic waste in Mareeba – so it would need to go through a MRF before disposal. - refer Q5</i> 2. Need to condition contractors supplying waste. (same condition as Springmount) 3. Contingency plan for impact of cyclone. <p><i>What needs to occur has been identified, we would like to see the results of this work if possible.</i></p>	<p>MSC – Patrick O'Flaherty, CEC – Roy Lavis</p>
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Impacts upon Sensitive Receptors

The application involves the substantial increase in volume of waste at an existing landfill. Landfills have the potential to cause adverse impacts on sensitive receptors through odour, dust, noise and litter. The application has advised that sensitive receptors will not be impacted. However the details of the assessment that resulted in this conclusion are not provided.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
<p>8. A drawing showing the location of sensitive receptors in relation to the landfill.</p>	<p>Provided by MSC</p>	<p>Maunsell – Mal Jones</p>

<p>9. Distances of the sensitive receptors from the landfill during the progressive stages of the landfill. Please include details of any planned future sensitive land uses that are relevant to the site.</p>	<p>The residential development appears to be on the southern side of the site. Based on the cell development sequence, cells 1,2,3 and 5 will be situated outside of the 500m buffer area, while cells 4 and 6 are situated within the 500m buffer area and as a result will require the construction of screening berms on the cell perimeter in order to screen daily landfill operations from the public view. Currently the remaining land within the buffer area is crown land and as a result will not be developed thus creating a reasonable natural buffer zone.</p> <p><i>Is there any supporting information, etc to indicate that current operations at the site have not resulted in impacts on, or complaints from, the residents within this critical 500m buffer?</i></p> <p>Manager Water & Waste investigated MSC's Customer Request system which logs any customer complaints. This has shown that there have been no odour or noise complaints regarding the Mareeba landfill directed to MSC from any person in the past 18 months.</p>	<p>Maunsell – Mal Jones</p>
<p>10. An assessment of potential dust impacts from the operation of the landfill, including waste and cover material transport activities, on sensitive receptors through the progressive stages of the landfill. Details of proposed mitigation measures should also be provided as relevant for the various stages.</p>	<p>The cell development and operation will follow the same sequence indicated in the staged development and will require the management of dust during construction within and outside of the 500m buffer area. With the landfill footprint containing adequate cover capping and topsoil volumes (based on the IRD and growth) to take the site to the final landform (20 years) care will have to be taken to stockpile the various material at selected locations so as to ensure easy access and maintenance of the stockpiles during the life of the site. Adequate dust suppression during construction coupled to seeding and re-vegetation of long term stockpiles and completed side slopes ie cells 4 and 6 as a potential screen berm (rising green wall).</p>	<p>Maunsell – Mal Jones</p>

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<p>11. An assessment of potential noise impacts from the operation of the landfill, including waste and cover material transport activities, on sensitive receptors through the progressive stages of the landfill. Predicted noise limits should be discussed with reference to the EPA Guideline, Planning for noise control. Details of proposed mitigation measures should also be provided as relevant for the various stages.</p>	<p>The cell development and operation will follow the same sequence indicated in the staged development 1 to 20 years and will require the management of noise during construction and landfill operations within and outside of the 500m buffer area.</p> <p>With the landfill footprint containing adequate cover capping and topsoil volumes (based on the IRD and growth) to take the site to the final landform (20 years). Additional noise suppression can be generated by construction a suitable screen berm during the early stages of operation prior to developing cells 4 and 6, this coupled to seeding and re-vegetation of long term slopes and completed side slopes will reduce the noise levels. Contractors will be required to ensure the construction and landfill operating equipment is of good operating condition and meets all relevant noise requirements.</p> <p><i>The EPA Guideline mentioned specifies that background noise monitoring should be done at affected residences – is this the case? Noise impacts in relation to residences within the 500m is a concern – conditions must be set at an achievable level – has any noise modeling been done to estimate levels at these residences during development and operation of cells 4 and 6?</i></p> <p><i>The landfill consulting engineers are currently arranging noise monitoring apparatus to undertake baseline investigations. Results to be provided to EPA.</i></p>	<p>Maunsell – Mal Jones</p>
<p>12. An assessment of potential odour impacts from the operation of the landfill, including waste and cover material transport activities, on sensitive receptors through the progressive stages of the landfill. Predicted odour impacts and mitigation measures should be discussed with reference to the EPA Guideline, Odour impact assessment from developments. Details of proposed mitigation measures should also be provided as relevant for the various stages.</p>	<p>The cell development and operation will follow the same sequence indicated in the staged development 1 to 20 years and will require the management of odour during construction and landfill operations within and outside of the 500m buffer area.</p> <p>With the landfill footprint containing adequate cover capping and topsoil volumes (based on the IRD and growth) to take the site to the final landform (20 years). Additional odour suppression can be generated by more frequent covering of waste during the early stages of operation prior to developing cells 4 and 6, these cells may require more control on the working face with the incremental placement of cover if required. It should be noted that as the bulk of the waste is being received from the CEC recycling plant and enters the landfill as treated waste the potential for odour problems is greatly reduced.</p>	<p>Maunsell – Mal Jones</p>

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13. Details of proposed litter management practices and procedures should be provided.	The Contractor will have mobile litter fences on the working face of the landfill at all times, litter picking will be under taken on a regular basis. Where necessary the placement of day cover or alternative will be put down to prevent wind scatter. Vehicles transporting waste accessing the site will be required to have covers over the waste loads to prevent wind scatter.	MSC – Patrick O’Flaherty Maunsell – Mal Jones
14. Practices and procedures to be employed to manage greenwaste and mulch stockpiles on site to prevent combustion, odour problems and stormwater contamination.	<p>The site is fully fenced to prevent access by unauthorised intruders.</p> <p>The stockpiles are in an area which is regularly monitored by site operations staff.</p> <p>Drainage plan for the re-contoured landfill site provides for stormwater segregation.</p> <p><i>Are there any plans to monitor temperature, turn over stockpiles, etc?</i></p> <p><i>Greenwaste piles will be turned over as is the current practice.</i></p>	MSC – Patrick O’Flaherty

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Liner and Final Cap

The protection that the landfill provides to the environment is significantly dependent on the performance of the landfill liners, capping and final cover. Sufficient details of quality control and assurance and cover availability are not provided for assessment.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
15. Details of the quality control and quality assurance for the landfill liner and cover systems. The applicant should be referred to the EPA Guideline Landfill siting, design, operation and rehabilitation for guidance.	<p>The QA procedures, test results, etc need to be compiled and provided to EPA.</p> <p><i>Have specs been provided for cover systems or capping at this stage? Capping specs not critical at this point. however if they've been provided could we receive a copy?</i></p> <p><i>No specification has been determined at this stage. It is proposed that an appropriate determination may be made following the results of the current ACAAP trials in Australia.</i></p>	Maunsell – Michael Arri, CEC – Ravi Pillay

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<p>16. Details should be provided of the availability of intermediate and final cover material through the stages of the landfill.</p>	<p>Based on the staged development of the site in 5,10 15 and 20 years from start up.</p> <p>The estimated cumulative cover requirements by volume are as follows:</p> <ul style="list-style-type: none"> • 0-5 years – 80 900m³ • 5-10 Years – 83 600m³ • 10-15 years – 86 500m³ • 15-20 years – 88 500m³ <p>The total volume of cover generated from out of the landfill cell footprint totals 431 000m³ which is adequate for the full operational life of the site. There is also adequate volume of capping material from out of cell footprint to cap the final landform with a 500mm clay cap.</p> <p>The introduction of alternate day cover on cells 1,2,3and 5 (cells outside of the 500m buffer area)reduces the overall cover requirement by as much as 90 000m³ the cells within the 500m buffer area will require cover to be placed daily or the use of alternatives to manage odour, and rodents as well as other such nuisances.</p> <p>The topsoil from cells 1 through to 6 will need to be stockpiled for future use in the capping phase of the site.</p> <p>Topsoil volume required is as follows:</p> <ul style="list-style-type: none"> • Cells 1 to 6 is 30 000m³ <p>Total capping requirement based on the available geotechnical investigation indicates that adequate volume is available on site within cell 6.</p> <ul style="list-style-type: none"> • Total volume for Capping for cells 1to 6 of 48 400m³ <p>This approach allows the site to operate for the full life of the footprint without having to buy in cover daily, intermediate or capping providing the on site cover is correctly managed during the daily operations of the cells 1 through to 6.</p>	<p>MSC – Patrick O’Flaherty</p>
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<p>17. Details of monitoring of waste loads and controls to be in place to prevent damage to the liner from large and/or rigid items.</p>	<p>The placement of the pioneered layer of selected waste (Soft layer for initial placement) above the drainage layer is key to ensuring the operational integrity of the drainage layer. A pioneered layer of selected waste will be end tipped on to the drainage layer of each of the newly constructed cells from 1 to 6. The selected waste will be provided directly from the CEC recycling plant, this will ensure that the selected waste is free of items which could damage the liner during placement and would not add to premature clogging of the separation medium or the drainage layer.</p>	<p>Maunsell – Mal Jones</p>
<p>18. Practices and procedures to be employed to ensure the integrity and maintenance of 1 in 4 batters on the flanks of the landfill. 1 in 5 batters are recommended.</p>	<p>Concern over effectiveness of compaction of clay at slopes of 1 in 4.</p> <p>The long term maintenance of the batters at a 1:4 slope would not be problematic for the following reasons:</p> <ul style="list-style-type: none"> • Slope lengths on site as per the SBMP will not exceed 30 linear meters. • Benching will be provided where slopes would exceed this length, benching will further assist with access and operation of equipment during the maintenance period. • Construction equipment can operate effectively and safely on up to 1:3 slopes (including compaction rollers, graders etc) • Erosion will be managed with side slope drains and diversion bunds where appropriate. • Maintenance of grassed slopes (motorized slashes) can operate on 1:3 slopes safely. 	<p>Maunsell – Mal Jones</p>

<p>19. Specifications for the passive venting system to be utilised at the site where required. Passing venting would be seen as favourable in comparison to the absence of a venting system at a site of this size.</p>	<p>Landfill gas management infrastructure aims to reduce the uncontrolled release of methane and other landfill gases to the atmosphere. Due to the site containing pretreated waste and that the land fill will contain a lining system which will prevent migration outside of the landfill footprint it is envisaged that the landfill will not generate significant amounts of landfill gas. Where there may be an uncontrolled release of methane and other landfill gases to the atmosphere this is generally achieved by oxidation of methane and other components. Oxidation will be achieved by:</p> <ul style="list-style-type: none"> • Dispersing LFG through the final capping layer, micro-organisms within the soil oxidise methane to form carbon dioxide; this can be enhanced by the addition of organic matter to the cap; or • Install LFG collection networks in the form of a number of linked gravel filled trenches under the capping, consolidate and vent. • Monitoring will be carried out at the required locations including bores once in three months to access compliance with methane limits. 	<p>Maunsell – Mal Jones</p>
<p>20. Details of any spike testing to be conducted to monitor the sub-surface presence of methane and/or any methane testing of service conduits.</p>	<p>Fugitive LFG emissions will be tested once in every three months through surface emission testing conducted by a suitably qualified person. Testing points will be located on a 50m grid across the landfill surface with testing of cracks and fissures where noted undertaken in addition to the grid-based sampling regime. Testing should be undertaken on a dry day between the months of October and March with wind speeds lower than 5km/hr by holding an LFG meter or TLV "sniffer" 5cm above each monitoring point and a stabilised reading taken before moving to the next point. Trigger values for remedial measures to be implemented will be 25% of the lower explosive limit for methane.</p>	<p>Maunsell – Mal Jones</p>
<p>21. Details of the type of vegetation proposed for the final cover to the landfill cap.</p>	<p>Vegetation on the landfill cap prevents surface erosion and batter slope instability by protecting the final capping layer. Vegetation used on landfill caps will be local (native) grass or turf common to the area, as this has relatively low maintenance requirements and the shallow root system does not affect the compacted low permeability soil layer. Vegetation assists in protection of the low permeability soil layer to prevent desiccation or excessive drying.</p>	<p>Maunsell – Mal Jones</p>

Some concern of perched leachate from plastics

Leachate Management

It is noted that the applicant has advised that it may recirculate leachate into the landfill or discharge to sewer, by tanker initially and later by sewer connection. The effectiveness of these options is dependent upon the volume of leachate generated and the control practices used to manage leachate generation and treatment.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
22. An estimate of the volume of leachate generated based on a 1-in-20 year storm event.	<p>Leachate generation volumes were calculated based on the following:</p> <ul style="list-style-type: none"> • 1 in 20 year storm event • 24 hour intensity • Required removal to less than 300mm above the drainage layer in less than 24 hours of pumping. <p>The Leachate sump has storage for approximately half this volume and EPA guidelines allow the head to exceed 300mm for extended periods.</p> <p><i>Is this achievable with proposed pump set-up?</i></p> <p><u>Should leachate be generated during the early stages of operation, this period being the time required to raise the waste body from a below ground operation to an above ground operation is approximately 18 months based on the current filling sequence within the cells. The expected exposed area during this stage will be limited to a maximum of 6 300m², this then reducing the overall contaminated runoff. The leachate will be extracted and either trucked off site to Mareeba Sewage Treatment Plant (STP) or recirculated within the landfill cell at the working face. The anticipated volume could be contained within the leachate sump and still have reserve capacity within the 300mm thick drainage layer. The required pump out flow rate of 2.9l/s to clear the sump and drainage layer over 36 hour period. The drainage layer alone would then be cleared over a 24 hour period. It is anticipated that sewage connection will be available to convey the leachate to the Mareeba STP in late February 2007, providing a long-term disposal solution.</u></p>	<p>Maunsell – Mal Jones</p>

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23. Contingency plans where leachate generated is in volumes or at a rate in excess of recirculation or treatment capabilities.	<p>The leachate management plan to addresses the period between startup and when the new STP is in operation comprises of two options namely to remove the leachate using a tanker and to dispose of it to sewer or to remove the leachate by tanker and redistribute it over the existing waste body through irrigation and or trenching into the existing waste itself. All waste removed from the trench will be placed at the working face and covered over. The trench will then be backfilled and covered using selected waste and cover material, this process must be completed within 48 hours of initial trenching.</p> <p>Approximate leachate volumes for the site over the years 1,2 and 3 when managed through tanker and disposal to sewer or trenching with an exposed area of ranging from 0.75ha to 0.35 ha would result in a total potential out flow for year 1 of 0.04l/s, for year 2 of 0.02 l/s and for year three of 0.015l/s.</p> <p>The total leachate out flow for the final landform with an exposed area of 0.5 ha would result in a total potential out flow of 0.24l/s</p>	Maunsell – Mal Jones MSC – Patrick O’Flaherty
24. A drawing showing the location of leachate collection pipework in the base of the landfill showing the pipework at the proposed 25m spacing.	Drawing was provided to EPA with original landfill design proposal.	Maunsell – Mal Jones
25. Practices and procedures to be employed to ensure that the head of leachate in the collection sump is maintained at a height of less than 300mm above the liner.	<p>Leachate pump stations will have pump failure alarms included to warn of overflow. Back up pumps are to be available on site in the event of a pump failure. All alarms are to be able to operate without mains power in the event of a power failure. <i>Are suitable generators available to council in the event of a prolonged power failure?</i></p> <p><i>Council provides for its ongoing needs with local commercial building hire companies being sourced in emergency circumstances</i></p>	Maunsell – Mal Jones
26. Details of the leachate re-injection mechanisms.	Leachate re-injection is to take place in existing waste on site through trenching into the waste body, all waste removed from the trench is to be disposed of immediately at the working face and is to be covered with fresh waste. Trenches are to be no deeper than 3m and no longer than 6m (to prevent side collapse), trenches are to be backfilled within 48 hours of use. Leachate is to discharged into the trench using a flexible hose with working couplings to prevent discharge on to the surface of the site as well as to reduce vehicle movements too close to the excavations.	Maunsell – Mal Jones

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27.	Details of how the geotextile separation layer will be installed and managed to prevent the possibility of biofouling.	<p>The geotextile is required to ensure the integrity of the drainage layer is maintained when placing selected waste on the base of the cell. The waste placed over the base of the cell will comprise of selected treated waste from the CEC recycling plant. This will ensure that there are no excessive fines or possible items that could damage or puncture the separation layer, further to this is the fact that the waste is treated means the possibility of biofouling is also reduced. With the layer end tipped and pioneered in, contact resulting from plant and equipment is also greatly reduced.</p> <p>Most separation layers are capable of functioning adequately even with excessive clogging (reference to a paper supporting this to be provided by Mal)</p>	Maunsell – Mal Jones
28.	Details of any pre-treatment of wash down waters before they are released to the leachate collection system. E.g. to remove hydrocarbons, etc.	Wash down bay not connected.	MSC – Patrick O'Flaherty
29.	The current date for installation of the sewer line to the landfill site.	Mid February 2007 - construction has begun.	MSC – Patrick O'Flaherty
30.	Details of any investigation that has been carried out to ensure that the Mareeba sewage treatment plant can effectively treat the expected volumes and concentration of leachate and associated contaminants.	Designed into planning for STP. Mal needs to provide leachate volumes for storm and throughout the year.	Maunsell – James Jentz
31.	Details of any testing or supporting evidence to verify that the suggested compaction rate is achievable using the specified practices on the residual waste material provided by the CEC Resource and Recovery Plant.	Latest work by CEC at CCC	CEC – Roy Lavis
32.	Practices and procedures to ensure that intermediate cover is effectively managed between lifts to prevent generating perched leachate.	Detail is provided in the SBMP under the waste deposition and compaction Item d, page 11	Maunsell – Mal Jones
33.	Verification of how often waste will be covered – conflicting advice is present in the SBMP with every second day specified in most cases and daily in another (6.1.1.h).	<p>Waste landfilled will be covered every alternate day while operating in cells 1,2,3 and 5. While cells 4 and 6 will require the placement of cover on a daily basis due to the cells positioning being within the 500meter buffer area relative to the surrounding housing development. The relevant sections (6.1.1.h) will be amended accordingly. <i>Please provide amended SBMP as part of add info response.</i></p>	Maunsell – Mal Jones

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34. Details of the type of cover sheet to be used in lieu of cover material (6.1.1.j).	Some of the options currently available on the market in the form of alternate cover are (examples) reusable woven and or woven coated cover sheets, biodegradable cover sheets, foam based alternate cover and organic alternative cover, to list a few options for the site. The selected option will require discussion and possibly some site specific field testing to be carried out in conjunction with the EPA prior to final acceptance.	Maunsell – Mal Jones
35. Details of how compaction rates will be calculated.	Quarterly for first year & then 6 monthly if consistent results.	Maunsell – Mal Jones
36. Details of any gas venting for the leachate collection sump.	See attached PDF sketch	Maunsell – Mal Jones
37. Practices and procedures to be employed in the maintenance of leachate pumps and monitoring probes.	Duty & standby pump. Routine checking of probes. <i>Please add to SBMP and provide.</i>	Maunsell – Mal Jones MSC – Patrick O'Flaherty

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Groundwater Protection

The applicant has referenced a groundwater assessment conducted more than 10 years ago. A landfill has operated on the site in the intervening period and some groundwater monitoring occurring but has not been included in the application.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
38. Further assessment of the groundwater, including a review of groundwater monitoring data collected since 1993 and updating the assessment as appropriate.	Water quality as well as height <i>Please provide details.</i>	Maunsell – Mal Jones MSC – Patrick O'Flaherty

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<p>39. A drawing showing groundwater contours.</p>	<p>Groundwater contours based upon 1993 data is presented within the Golder Geotechnical/Hydrogeological Investigation (refer attached Golder report). Groundwater contours post 1993 cannot be developed as data for only two wells (BH2 and BH7) has been provided since 1999. Between 1993 and 1999, no groundwater level data has been provided.</p> <p>BH7 was not monitored as part of the original investigation (hence BH7 was not used for the development of the original groundwater contours) and details of this bore's construction have not been provided. Groundwater level within this bore remained relatively consistent in the period from April 1999 until July 2005 (levels fluctuated between 12 and 13mBGL); however, in October 2005 a marked rise in the water level to 8.7mBGL was noted.</p> <p>BH2 was included as part of the original investigation and recorded a standing water level at approximately 10.6mBGL. Since April 1999, the standing water level within this bore has fluctuated markedly generally between approximately 7mBGL to 12.9mBGL.</p> <p>Updated groundwater contours will be produced after the installation of additional groundwater monitoring bores (refer response 40).</p>	<p>Maunsell – Mal Jones</p>
<p>40. Details of proposed groundwater monitoring network for the landfill.</p>	<p>Considering the staged process of landfill development, it is recommended that a staged monitoring program be initiated in response to the landfill development. As a result the following stages are proposed:</p> <p>Stage 1/2</p> <ul style="list-style-type: none"> – Reinstate groundwater monitoring wells in the positions formerly occupied by BH6 and BH4 and level to site datum. – Level BH7 to the site datum and obtain construction details. Reinstate if construction is deemed inadequate. <p>Stage 3</p> <ul style="list-style-type: none"> – Remove BH7 as part of Cell 3 construction. – Reinstate groundwater monitoring well in the position formerly occupied by BH5 and level to site datum. <p>Stage 4</p> <ul style="list-style-type: none"> – Reinstate groundwater monitoring well in the position formerly occupied by BH1 and level to site datum. <p>Additional groundwater monitoring wells may be required should data obtained indicate impact to groundwater may be occurring.</p> <p><u>Please provide plans</u></p>	<p>Maunsell – Mal Jones</p>

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<p>41. Provide supporting information or evidence to verify the statement that the perched water table at the north east of the site is recharged by the reclaimed sand depression.</p>	<p>The water levels in the groundwater monitoring bores show the groundwater table to be approximately 8m below ground level at BH2 with the depth greater at other locations. During the geotechnical investigations into sourcing a suitable clay liner for the landfill a total of 13 test pits were dug to depths of up to 3m as per the attached report from CETS. It is noted that free ground water was not observed in a single pit. However, no pits were dug in the north west area of the landfill where the perched ground water table was encountered.</p> <p>During excavation of the cell groundwater was encountered in the north west corner as well as the western end of the sediment pond. The water was observed to seep into the open excavation through a sand lense running generally in a north south direction. The free groundwater was observed to be as close as 500mm below the natural surface. The cell was excavated to a depth of approximately 4m below ground level and free groundwater was not evident throughout the construction period except in several areas where the sand lense was encountered. In the sediment pond which was excavated to approximately 3m depth free ground water was observed at the western end so a 10m section of the excavation was reinstated and no water ponded, or was observed weeping into the sediment pond.</p> <p>It is considered that the sand lenses dissecting the clay stratum in the north west area of the site act as a reservoir for a perched water table due to the impermeability of the clayey material. In areas outside of the sand lense no free groundwater was observed during the two month construction period. Furthermore, dipping of the groundwater observation bores confirmed that the groundwater table was approximately 8m below the surface and in some places in excess of 12m below the surface.</p> <p><u><i>As discussed please include monitoring of water from perched groundwater table in monitoring program and provide.</i></u></p>	<p>Maunsell – Michael Arri</p>
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Stormwater Quality

Landfills have the potential to cause adverse impacts on receiving waters through stormwater contamination. The application has advised that stormwater will be managed to ensure that contaminants will be controlled to prevent any adverse environmental impacts. However several issues require clarification.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
42. Details of the completion date for installation of the sediment pond/s and specifications for their construction.	Sedimentation Dam 1 was constructed in December 2006. Specification is contained within a standard Maunsell earthworks specification requiring removal of unsuitable material and compaction of walls. A rock lined spillway is specified on the detail construction drawings. The second Sedimentation Dam is not required until the construction of cells 1B and 3.	Maunsell – Mal Jones
43. Details of the end location of the overflow channel from the sediment pond and the receiving environment.	The receiving environment is gently sloping to the north and is grassed.	Maunsell – Mal Jones MSC – Patrick O'Flaherty
44. An amended Table 7 for water quality monitoring in the sediment pond that includes testing for the presence and concentration of ammonia.	<p>On-site drainage has been designed so that only clean run-off will be channeled through the sedimentation dam. Runoff that comes into contact with waste within the active landfill areas will be collected via the leachate collection system and the leachate sump. The presence of ammonia within the sedimentation dam may arise from batter seeps that can occur post closure of the facility and as a result should be managed through the post closure provisions and ultimately the conditions specified within a site management plan.</p> <p>The measurement of conductivity and dissolved oxygen are considered appropriate indicators for the presence of leachate within the sedimentation dam as conductivity is a conservative indicator (i.e is not subject to chemical transformation/degradation). Once exposed to the environment, ammonia can be oxidized to nitrate and nitrite thus rendering the testing for ammonia redundant. It is not considered appropriate to test for ammonia within the sedimentation pond until post closure provisions have been implemented for closed landfill cells.</p>	Maunsell – Mal Jones

Environmental Management Program Compliance

An Environmental Management Program (MAN5133) in place for the current site requires the reprocessing of waste from the existing waste pile at a rate of no less than 10,000tonne per year. No reference is made to this in the application or Site Based Management Plan.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
45. Practices and procedures to be employed to ensure that the reprocessing of the existing waste pile is carried out to comply with Mareeba Shire Council's Environmental Management Program MAN5133.	<p>Under the contractual arrangements between CEC Resource Recovery and Mareeba Shire Council (MSC), a 10,000 tonne per year allocation has been allocated for MSC use. MSC arranged this to provide for the reprocessing of the existing landfill cell waste into the new engineered cell which has now been constructed. The 10,000 tonnes per year includes wastes that will be accepted to the Mareeba landfill site for landfilling which is projected to be approximately 3,000 tonnes per year leaving 7,000 tonnes available for waste reprocessing from the existing cell.</p> <p>It is proposed that the landfill staff will undertake the reprocessing as an ongoing part of their daily duties which will be resourced by MSC.</p> <p><i>As discussed - the EMP provided by MSC and approved by the EPA specifies that approximately 10,000t/yr is to be reprocessed. The discrepancy will need to be rectified.</i></p>	MSC – Patrick O’Flaherty

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Emergency Response

A recent fire at the existing site highlighted the problem associated with the current water supply's inability to effectively extinguish a large fire in the waste pile.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
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46. Details of any upgrade to the existing water supply to the site to ensure an effective fire fighting capability.	<p>A water tanker is currently permanently stationed adjacent to the tip face. A fast fill connection to the existing 50 mm supply is being investigated and is programmed for installation completion by March 2007.</p> <p>A further upgrade with the installation of a 100mm water line has been planned for the 2007-8 capital program year. The district fire officer has been consulted and has agreed with this project. The installation will be undertaken as a priority project in 2007-8 with an expected completion before December 2007.</p>	MSC – Patrick O’Flaherty
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Staff Responsibilities

It is stated in 7.2 of the Site Based Management Plan that responsibilities for particular tasks are set out in section 6.0. However it is not clearly stated in section 6.0 which staff members are assigned the specified duties and responsibilities – i.e. for site construction, verification of works, sampling, inspections, monitoring of waste loads, compliance control, complaint response, etc.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
47. Details of responsibilities for particular tasks identified within the Site Based Management Plan. Please include reference to any internal or 3 rd party environmental audits to be conducted.	<p>A current review of the staff establishment is being undertaken as part of the new operating protocols. One additional plant operator has been included onto the site and a newly created position of the Landfill leading hand has also been filled.</p> <p><i>We’d like to see the SBMP updated to include these staff responsibilities (as specified in 7.2).</i></p>	MSC – Patrick O’Flaherty

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Financial Assurance

It is understood that the construction and operation of the landfill is a joint venture between the Mareeba Shire Council and CEC. The EPA needs to ensure that the site will be effectively rehabilitated both progressively and at the end of its life and that appropriate funds and resources are available for this costly process.

It is requested that the applicant provide:

	RESPONSE	TO BE ACTIONED BY
48. Details of which entity will assume the long term responsibility for the final rehabilitation and post closure care for the landfill site. If this is to be Mareeba Shire Council please provide details of contractual obligations and agreements in this respect. If final rehabilitation is to be the responsibility of CEC then a financial assurance may be required.	While the ERA licence, operational administration and post closure site responsibility are those of the Mareeba Shire Council's, Council holds a bank guarantee from CEC to provide additional financial surety.	

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Section 3.5.15 Integrated Planning Act 1997

EPA Permit¹ number: IPDE00493906A11

EPA Permit ¹ number:	IPDE00493906A11 (Amendment 13-APR-2007)
Assessment Manager reference:	as above
Date application received by EPA:	13-OCT-2006
Permit ¹ Type:	Development Approval for a MCU involving an ERA
Date of Decision:	21 March 2007
Decision:	Approval with conditions
Relevant Laws and Policies:	Environmental Protection Act 1994 and any subordinate legislation

Development Description

Property

Mareeba Landfill Site

Lot/Plan

Lot 517 Plan CP857523

Aspect of Development

ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

Additional information for applicants

The standard currency periods stated in section 3.5.21 of the *Integrated Planning Act 1997* or the nominated currency period, apply to each aspect of development in this permit¹. For information on when this permit¹ takes effect and the relevant currency periods, please see point 3 in the Notice of Decision.

Contaminated Land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a Notifiable Activity (as defined by Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 30 days after becoming so aware, give notice to the Environmental Protection Agency.

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service

EPA Permit number: IPDE00493906A11

Environmentally Relevant Activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the *Environmental Protection Act 1994*. For the person to become a registered operator, they must apply for a registration certificate under section 73F of the *Environmental Protection Act 1994*.

sch4p4(6) Personal information

Mark Cavicchiolo
Operations Manager
Cairns District, Northern Region
Delegate
Environmental Protection Agency

13 April 2007

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EPA Permit number: IPDE00493906A11

CONDITIONS OF APPROVAL

ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

Agency Interest: General

(G1) Prevent and/or Minimise Likelihood of Environmental Harm

In carrying out an ERA to which this approval relates, all reasonable and practicable measures must be taken to prevent and / or to minimise the likelihood of environmental harm being caused.

(G2) Maintenance Of Measures, Plant and Equipment

The operator of an ERA to which this approval relates must:
install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval; and
maintain such measures, plant and equipment in a proper and efficient condition; and
operate such measures, plant and equipment in a proper and efficient manner.

(G3) Site Based Management Plan

From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all ERAs that are carried out.

The SBMP must address the following matters:

- (a) Environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals.
- (b) Identification of environmental issues and potential impacts.
- (c) Control measures for routine operations to minimise likelihood of environmental harm, including the following:
 - (i) diverting upstream stormwater away from disturbed or contaminated areas and any ponds or other structures used for the storage or treatment of contaminants or wastes;
 - (ii) containing contaminated stormwater on site;
 - (iii) minimising the size of contaminated areas;
 - (iv) provision of stormwater settling ponds and rubbish traps;
 - (v) minimising the size of disturbed areas by measures such as progressive restoration of disturbed areas;
 - (vi) a waste sampling and monitoring program to detect any prohibited wastes received at the site and to ensure that the wastes received for disposal or treatment at the site comply with the waste acceptance criteria stated in this approval.
- (d) Contingency plans and emergency procedures for non-routine situations including:
 - (i) fires;
 - (ii) cyclonic conditions;
 - (iii) the recovery and removal from the site for proper disposal of any prohibited wastes received at the site which cannot be accepted for storage, treatment or disposal at the site.
- (e) Organisational structure and responsibility.
- (f) Effective communication.
- (g) Monitoring of contaminant releases.
- (h) Conducting environmental impact assessments.

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- (i) Staff training.
- (j) Record keeping.
- (k) Periodic review of environmental performance and continual improvement.
- (l) Leachate management
- (m) Identifying and monitoring a reference site that establishes background values for surface and ground waters.

(G4) The site based management plan must not be implemented or amended in a way that contravenes any condition of this approval.

(G5) Records

Record, compile and keep all monitoring results required by this approval and present this information to the administering authority when requested.

(G6) Waste Records

A record of all regulated waste accepted at and removed from the site must be kept detailing the following information:

- (a) date of receipt of the waste;
- (b) description of waste;
- (c) quantity of waste;
- (d) origin of the waste; and
- (e) destination of the waste.

(G7) Site Development Plan

All works at the site must be undertaken in accordance with a Site Development Plan. A Site Development Plan, identifying all activities to be carried out on the site during the period of the plan, must be prepared for each cell subject to this development permit. Each Site Development Plan must be finalised at least three (3) months before the expiry of the previous plan and must include details of at least the following:

- (a) dimensions of landfill units used for waste disposal or storage;
- (b) an accurate level survey of any area to be utilised for the disposal or storage of wastes. The levels must be reduced to a common datum and related to contour plans;
- (c) the dimensions of the active waste disposal face;
- (d) location of any new site infrastructure or extensions, such as a new leachate dam, pond, or pump well to be used or other plant and equipment, required to the leachate collection, storage and recirculation infrastructure to serve the new cell;
- (e) location of any new stormwater drains, diversion embankments or settling ponds required to serve the new cell;
- (f) location of any areas to be capped (both final and interim capping where the next stage on the completed cell will not commence within 12 months), the proposed capped surface levels and contours, surface drainage system and species of vegetation to be planted as part of a rehabilitation program;
- (g) location of any new groundwater and gas monitoring or collection bores required to serve the new cell; and
- (h) progressive recording of waste deposition such that the location of a deposited load can be readily identified.

(G8) Closure and Post-Closure Care

When the deposition of waste to the landfill unit ceases, a final cover system to the landfill unit must be installed which minimises:

- (a) infiltration of water into the landfill unit;
- (b) the likelihood of any erosion occurring to either the final cover system or the landfilled materials; and
- (c) uncontrolled release of landfill gas.

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The specifications for the final cover system must be submitted to the Administering Authority at least 12 months prior to closure. The specifications and method used in the final cover system must meet the approval of the Administering Authority.

- (G9) Post-closure care of the landfill unit must be conducted following deposition of waste in the landfill unit, for:
- (a) a period of 30 years; or
 - (b) such shorter period until the landfill unit and surrounding site are geotechnically stable and that no release of waste materials, leachate, landfill gas or other contaminants to the environment is likely.

The post closure care element of the Closure and Post Closure Care Plan must include at least the following:

- (1) monitoring of:
 - (a) the leachate collection and recirculation system;
 - (b) the groundwater monitoring network;
 - (c) any installed landfill gas management system;
 - (d) leachate quality;
 - (e) groundwater quality;
 - (f) surface water quality;
 - (g) landfill gas;
- (2) maintenance of:
 - (a) the leachate collection and recirculation system
 - (b) the groundwater monitoring network;
 - (c) any installed landfill gas management system;
 - (d) the integrity and effectiveness of final cover systems

- (G10) A site management plan pursuant to Chapter 7, Part 8, Division 5 of the *Environmental Protection Act 1994* must be developed and provided to the administering authority at least 12 months before the expected final receipt of waste in the landfill unit. The site management plan must include, but is not to be limited to, the future land use and actions you intend to take for compliance with the closure and post-closure care requirements of this approval. In accordance with G8 the plan must include specifications for the final cover system for assessment by the Administering Authority.

(G11) Security

Measures must be taken to prevent unauthorised access to the site to which this approval relates.

(G12) Fire-Fighting Access

Clear access to the water supply for fire-fighting vehicles must be provided at all times and the water supply must be suitable and sufficient for the control of a large fire within the landfill and in accordance with the recommendations of the Queensland Fire Service.

- (G13) An effective fire break must be provided and maintained around the landfill site and all waste disposal and processing areas.

(G14) Third Party Environmental Auditing

Compliance with the conditions of this approval must be audited within 28 days of commencement of the activity and be carried out at least every two years thereafter.

- (G15) The audit detailed in condition G14 must be conducted by a suitably qualified third party auditor, nominated by the approval holder and accepted by the administering authority.

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(G16) In relation to the audit required by condition G14, the auditor must submit a final version of the auditor's report to the administering authority within 28 days of completing the audit.

(G17) The total financial cost of the audit(s) will be the responsibility of the holder of this approval.

(G18) Notification.

Telephone the EPA's Pollution Hotline or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this approval.

(G19) Investigation Into Alternative Waste Management Practices

For the purpose of minimising the disposal of recyclable waste to landfill, in accordance with the waste management hierarchy and principles of the Environmental Protection (Waste Management) Policy 2000, you must implement a Waste Management Plan that addresses at least the following matters:

- (a) waste management practices that will ensure that recyclables are diverted from landfill;
- (b) procedures for identifying and implementing opportunities to improve the waste management practices employed including information and education packages for waste generators to assist in maximising the diversion of recyclable materials from landfill;
- (c) details of any accredited management system employed, or planned to be employed, to implement the waste management practices;
- (d) training programs and guidance for waste transport contractors in the identification and source separation of recyclable materials;
- (e) procedures for auditing waste loads to identify material to be removed for recycling;
- (f) how often the performance of the waste management practices will be assessed (at least annually);
- (g) the indicators or other criteria, taking into account economic, social and environmental factors on which the performance of the waste management practices will be assessed;
- (h) the recovery of energy from any methane collected in a landfill gas collection system; and
- (i) annual reporting by 31 August each year any new measures adopted or materials newly diverted from landfill disposal. This report must include the following:
 - (i) any new measures adopted or materials newly diverted from landfill disposal;
 - (ii) a summary (expressed in tonnes/year wherever appropriate) of the following information including wastes received, recyclable material recovered, fate of recyclables (e.g. transported off site for reuse/recycling, reused/recycled on site or stored on site) and calculated percentage diversion rate for the materials specified.
 - (1) Total amount of waste converted to useable energy;
 - (2) Amount of green and organic waste collected and recycled;
 - (3) Amount of green and organic waste disposed to landfill;
 - (4) Amount of green and organic waste recovered for energy;
 - (5) Amount of construction and demolition waste collected and recycled;
 - (6) Amount of construction and demolition waste disposed to landfill;
 - (7) Amount of commercial and industrial waste (including agricultural) recycled;
 - (8) Amount of commercial and industrial waste (including agricultural) disposed to landfill;
 - (9) Number of scrap tyres collected for recycling (Equivalent Passenger Units - EPU's);
 - (10) Amount of waste oil recycled;
 - (11) Total amount of paper, white office, newsprint and mixed paper waste recycled;
 - (12) Total amount of cardboard recycled;
 - (13) Total amount of mixed plastics recycled;
 - (14) Total amount of other plastics (please specify) recycled;
 - (15) Total amount of aluminium cans recycled;
 - (16) Total amount of steel cans & tins recycled;
 - (17) Other types and quantities of recyclables (please specify) recycled;
 - (18) Amount of waste disposed to landfill;
 - (19) Amount domestic waste disposed to landfill; and
 - (20) Total amount of landfill cover material used.

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NOTE: The development of the local government's waste management strategic plan in accordance with the Environmental Protection (Waste Management) Policy 2000 which addresses the above matters will be deemed to satisfy the requirements of this condition.

(G20) Spill Kit

An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site.

(G21) Spill Kit Training

Anyone operating under this approval must be trained in the use of the spill kit.

Agency Interest: Air**(A1) Nuisance**

The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.

- (A2)** Cells 4 and 6 are only to be used for non-putrescible waste until the time that the approval holder submits results of comprehensive odour modelling and evidence of the lack of previous odour complaints that demonstrates to the satisfaction of the administering Authority that an odour nuisance is unlikely at nearby nuisance sensitive or commercial places.

(A3) Dust Nuisance

The release of dust and/or particulate matter resulting from the ERA must not cause an environmental nuisance at any nuisance sensitive or commercial place.

- (A4)** Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place:

- (a) Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 of 2003 (or more recent editions); OR
- (b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, when monitored in accordance with:
 - Australian Standard AS 3580.9.6 of 2003 (or more recent editions) 'Ambient air - Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet -Gravimetric method'; or
 - any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

- (A5)** When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include:

- (a) for a complaint alleging dust nuisance, dust deposition; and
- (b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.

(A6) Management of Landfill Gas

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The release of landfill gas must not cause environmental harm.

- (A7) Landfill gas is not considered to cause environmental harm if:
- (a) a landfill gas collection system is installed and maintained when the landfill unit is sufficiently elevated to allow adequate drainage of gas lines; and/or
 - (b) landfill gas monitoring shows that the release of methane does not exceed the following limits:
 - (i) 500 parts per million at a height of 50mm above the final and intermediate cover surface including the batter slopes of the landfill unit;
 - (ii) 25 percent of the lower explosive limit when measured in facility structures (but excluding facility structures used for landfill gas control and landfill gas recovery system components); and
 - (iii) the lower explosive limit at the landfill facility boundary.
- (A8) Where landfill gas monitoring shows the release of methane as being above 500 parts per million at a height of 50mm, an effective landfill gas collection system must be designed, installed, operated and maintained on all landfill areas. Any gas collected in this system should, if it all possible, be reused in an energy recovery system, otherwise it must be actively vented or flared using only enclosed flares.
- (A9) **Landfill Gas Monitoring**
- The assessment of compliance with the methane limit at a height of 50mm above the final and intermediate cover surface of the landfill unit prescribed by A7 must be undertaken at the following locations:
- (a) on a grid pattern where the grid lines are no more than 50 metres apart; and
 - (b) at any other locations where visual observations indicate potentially elevated concentrations of landfill gas, for example cracks, seeps in cover and distressed vegetation.
- (A10) A landfill gas monitoring network must be installed for each landfill unit to assess compliance with methane limits for facility structures and at the boundary. The network must consist of gas monitoring devices, such as monitoring bores and be developed by a person possessing appropriate qualifications and experience in the fields of hydrogeology and landfill gas monitoring program design to be able to competently make recommendations about these matters.
- (A11) Conduct and keep records of landfill gas monitoring which is performed at the following frequencies:
- (a) at least every three months to assess compliance with the methane limit at a height of 50mm above the cover surface of the landfill unit prescribed by A7; and
 - (b) at least every three months to assess compliance with methane limits for facility structures and at the boundary prescribed by A7.
- (A12) Landfill gas monitoring referred to in the above conditions must be undertaken for at least the following parameters:
- (a) methane;
 - (b) oxygen;
 - (c) carbon dioxide;
 - (d) hydrogen sulphide; and
 - (e) atmospheric pressure.

Agency Interest: Land

- (L1) Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.

- (L2) **Land Rehabilitation**

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The site must be rehabilitated (including all disturbed areas associated with waste storage, treatment, disposal and borrow pits and any stockpile and screening areas) in a manner such that:

- (a) suitable native species of vegetation are planted and established that are compatible with the vegetation community of the adjacent remnant regional ecosystem;
- (b) potential for erosion of the site is minimised;
- (c) the quality of stormwater, water and seepage released from the site is such that releases of contaminants are not likely to cause environmental harm;
- (d) the likelihood of environmental nuisance being caused by release of dust is minimised;
- (e) the final landform is stable and not subject to slumping.

(L3) Rehabilitation of disturbed areas must take place progressively as waste disposal cells are completed, areas of borrow pits are worked out and new areas for waste disposal or borrow pits are developed.

(L4) Access to areas awaiting rehabilitation or being rehabilitated must be restricted by suitable barriers to prevent disturbance of these areas.

(L5) Waste Disposal Cell Interim Cover and Rehabilitation

You must implement an interim cover and rehabilitation program for waste disposal cells not forming part of the final surface level of the site and not likely to receive their next layer of waste within 12 months. This program must include at least the following:

- (a) the installation of an interim cover system:
 - (i) of at least an additional 300 mm of compacted clayey material;
 - (ii) with a maximum permeability of 4×10^{-6} metres per second;
 - (iii) designed with effective surface water management systems to prevent water ponding; and
- (b) a stabilisation program including measures such as revegetation and or mulching to prevent erosion.

Agency Interest: Noise and Vibration

(N1) Noise Nuisance

Noise from the ERA must not cause an environmental nuisance at any nuisance sensitive place or commercial place

(N2) All noise from activities must not exceed the levels specified in Table One - Noise limits at any nuisance sensitive or commercial place.

Table One - Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Noise sensitive place'					
L _{A10} , adj, 10 mins	65	55	50	65	55	50
L _{A1} , adj, 10 mins	70	60	55	70	60	55
	Noise measured at a 'Commercial place'					
L _{A10} , adj, 10 mins	70	65	55	70	65	55
L _{A1} , adj, 10 mins	75	65	60	75	65	60

(N3) Noise Monitoring

When requested by the administering authority, noise monitoring must be undertaken to investigate any

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complaint of noise nuisance, and the results notified within 14 days to the administering authority.

Monitoring must include:

- [- airblast overpressure (dB (Lin) Peak);]
- LA 10, adj, 10 mins
- LA 1, adj, 10 mins
- the level and frequency of occurrence of impulsive or tonal noise;
- atmospheric conditions including wind speed and direction;
- effects due to extraneous factors such as traffic noise; and
- location, date and time of recording.

(N4) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

(N5) Vibration emitted from activities must not cause a nuisance at any vibration sensitive place.

Agency Interest: Social

(S1) Complaint Response

The operator of the ERA must record the following details for all complaints received and provide this information to the administering authority on request:

- (a) Time, date, name and contact details of the complainant;
- (b) reasons for the complaint;
- (c) any investigations undertaken;
- (d) conclusions formed; and
- (e) any actions taken.

Agency Interest: Waste

(WT1) Waste Records

Records of the source, volumes and composition of all waste materials accepted at the landfill facility, recyclable materials recovered, fate of recyclable materials (e.g. transported off site for reuse / recycling, reused / recycled on site or stored on site), calculated percentage diversion rates for the materials must be kept and maintained and reported, in a specified format, to the administering authority by 31 August each year.

Note: The submission of these values in an annual report for the local government's waste management strategic plan or otherwise required by the administering authority will be deemed to satisfy the reporting requirement of this condition.

(WT2) Site Control

At all times while the ERA is operating, at least one person must be present who is responsible for the control and operation of the facility and whose duties must include but not be limited to:

- (a) controlling the reception, storage and removal of waste;
- (b) maintaining the facility;
- (c) controlling all employees working in the facility; and
- (d) supervising all persons entering the facility.

(WT3) Waste Acceptance

The following wastes may be received at the site for disposal:

- (a) domestic waste;
- (b) commercial waste;
- (c) industrial waste;
- (d) construction and demolition waste;
- (e) solid inert waste;
- (f) waste from the pre-existing (prior to March 21 2007) landfill at a rate of 10,000tonne per annum; and
- (g) limited regulated waste (except those prohibited in WT6).

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- (WT4) Waste received at the site for disposal under this approval must have had recyclable materials either segregated at the source or have been processed in a materials recovery facility to remove reusable and recyclable materials. ✓
- (WT5) Segregated recyclable materials, including wastes such as tyres, must not be disposed of in the landfill area but should be dealt with in accordance with the following hierarchy with the preference reducing down the list:
- (a) reuse;
 - (b) recycling;
 - (c) energy recovery; and
 - (d) recoverable buried storage in a separate portion of the site, but only where such burial and subsequent recovery is unlikely to cause any environmental harm.
- (WT6) Notwithstanding any condition of this approval, except where sourced from the pre-existing landfill, the following waste materials are not permitted or allowed to be deposited in the landfill unit:
- (a) regulated waste (other than limited regulated waste);
 - (b) liquid or semiliquid waste other than liquid or semiliquid waste which has been produced in carrying out the ERA;
 - (c) hot ash;
 - (d) material that is smouldering or aflame;
 - (e) material containing a substance which is ignitable, corrosive, reactive or toxic (other than materials containing a toxic substance from domestic premises) unless this material is to be deposited into a dedicated monocoil approved in writing by the administering authority;
 - (f) all radioactive wastes, unless otherwise approved under the *Radiation Safety Act 1999*;
 - (g) an explosive;
 - (h) Soils contaminated with regulated waste;
 - (i) ammunition, other than ammunition that no longer contains explosives, pyrotechnics or propellants apart from trace residues that are no longer capable of supporting combustion or an explosive reaction;
 - (j) fish processing waste;
 - (k) food processing waste;
 - (l) poultry processing waste;
 - (m) tallow;
 - (n) vegetable oils;
 - (o) putrescible kitchen wastes from commercial operations;
 - (p) liquid or semi-liquid waste other than liquid or semi-liquid waste which has been generated
 - (q) any substance listed under Schedule 8 of the Poisons Regulation 1978;
 - (r) tyres;
 - (s) filled or partly filled drums containing liquid wastes;
 - (t) car bodies;
 - (u) waste paints and solvents;
 - (v) gas bottles;
 - (w) green waste;
 - (x) Biosolids
 - (y) Asbestos
- (WT7) If a waste load is contaminated with any waste type listed in WT6 you must take all possible steps to identify the source of the contaminated load and implement the necessary practices and procedures to minimise the potential for a reoccurrence, including but not necessarily limited to:
- (a) providing written advice to transporters on the requirement to collect appropriate loads;
 - (b) providing information sheets to generators on the segregation of recyclable wastes;
 - (c) monitoring and audit procedures for loads received at site; and

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- (d) review data to identify particular industries or locations which are prone to delivering contaminated loads, taking appropriate measures as outlined in a), b) and c) above to address the problem.

Should the measures outlined in a) to d) above prove unsuccessful in preventing contamination, further deliveries of waste from the same source must not be accepted on site.

(WT8) Burning of Waste

You must not:

- (a) burn waste at or on the site; nor
- (b) allow waste to burn or be burnt at or on the site; nor
- (c) remove waste and burn such waste elsewhere unless the burning is carried out at a facility appropriately licensed under the provisions of the *Environmental Protection Act 1994*.

(WT9) Vector Control

You must take all measures necessary to ensure that operations on the site do not cause environmental nuisance in relation to nuisance vectors, including fly breeding, mosquito breeding, and harbourage and/or breeding of rats and other pest organisms.

- (WT10)** In the event of environmental nuisance from nuisance vectors due to operations on the site, you must do all such acts and things and carry out any such works as may be necessary to:

- (a) abate such adverse effects and such nuisance; and
- (b) prevent the likelihood of any recurrence of the circumstances which gave rise to such adverse effects and/or nuisance.

(WT11) Active Waste Disposal Cell Management

You must ensure that waste disposal activities do not extend beyond the boundary of the site.

- (WT12)** You must take effective measures to ensure that all wastes accepted for disposal at the site are not disposed of:

- (a) outside any active waste disposal cell; and
- (b) beyond the catchment of any leachate collection drains installed as part of a leachate collection system, except for the separate disposal of asbestos waste.

- (WT13)** All wastes must be deposited in lifts not exceeding a vertical height of 2 metres after initial compaction.

- (WT14)** Every lift of waste deposited in the active waste disposal cell must be evenly and properly consolidated by mechanical plant to a density of at least 0.7 tonnes per cubic metre.

- (WT15)** Large items for disposal, must be compacted before and/or after being deposited to minimise residual void space in the landfill.

- (WT16)** Wastes deposited in any active waste disposal cell must be consolidated, compacted and covered with a layer of inert earthen material, biodegradable plastic sheeting or shredded green wastes as often as is necessary, but at least daily for cells 4 and 6 and every forty-eight hours for other cells, to effectively minimise the quantity of wind blown litter, odour and fly nuisance resulting from exposure of putrescible waste.

(WT17) Cover material

Cover material must be stored and be readily available at the site in a quantity sufficient for not less than two weeks normal operation of the site.

(WT18) Litter Management

Where litter is blown or washed from the site you must:

- (a) retrieve the litter and ensure that it is disposed of in an appropriate manner; and
- (b) implement measures to prevent a recurrence of litter being blown or washed from the site.

(WT19) Access roads

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You must ensure all weather access roads are installed and maintained so that, at all times whilst the site is open for receiving wastes, vehicles have access to any areas required for the normal operation of the site.

(WT20) Removal of intermediate cover

You must ensure that any intermediate cover on a cell is removed immediately prior to any subsequent waste disposal on top of that cell and exposed compacted waste is ripped to allow percolation of leachate through the full depth of waste deposited in the landfill.

(WT21) Waste Handling, Storage, Treatment and Reprocessing

In the event of you becoming aware of any prohibited waste being received at the site you must:

- (a) cease depositing such waste if it is still occurring;
- (b) remove the prohibited waste and store in a covered and bunded area; and
- (c) arrange for a person who can lawfully transport such waste to collect it within 24 hours of it being identified and remove it to a facility that can lawfully accept it.

(WT22) All storage, treatment and reprocessing of wastes, including green waste, must only be carried out on a hard stand area(s):

- (a) constructed of compacted clay or other low permeable material to minimise soil infiltration;
- (b) graded to prevent rainwater ponding;
- (c) bunded to contain the materials stored; and
- (d) graded to facilitate collection of leachates and contaminated stormwater runoff for discharge to the leachate collection system or Council sewer.

(WT23) Tyre Storage

Waste tyres may be stored:

- (a) by recoverable burial in cells in a designated area of the site with any cell containing no more than 500 equivalent passenger-tyre units (EPU); or
- (b) in temporary above ground heaps on the site provided that there are no more than 500 equivalent passenger-tyre units (EPU) at any time in any one heap.

(WT24) Where there is more than one heap or buried cell of waste tyres, a separation distance between the cells or heaps must be established and maintained so as to effectively prevent fire from spreading:

- from one tyre storage cell or heap or to another; and
- to other waste stored or disposed of at the site.

(WT25) Battery Storage

Waste wet cell batteries may only be temporarily stored on the site in a covered enclosure that has been bunded to contain spillages and leakages.

(WT26) Waste Oil Storage

Waste oil may be temporarily stored in drums or other containers at the site, provided that the drums or containers are:

- (a) stored in a roofed area designated for this purpose;
- (b) bunded to contain spillages and leakages; and
- (c) securely sealed when full to prevent spillage if knocked over.

(WT27) Equipment Containing Ozone Depleting Gases

Waste refrigerators, freezers, air conditioners or any other equipment containing ozone depleting gases received at the site must be either degassed by an appropriately qualified person at the site or, if degassed off the site, accompanied by a degassing certificate signed by a qualified person.

(WT28) Car Bodies

Car bodies stored at the site must be drained of all oils, fuels and hydraulic fluids prior to compaction.

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Agency Interest: Water

(W1) Sediment Management

Prevent the release of sediment to waters or a build up of sediment in any stormwater drain.

(W2) Control of Off-Site Movement of Mud and Waste on Vehicles

Prevent vehicles from carrying waste, mud or dirt off the site and depositing these materials on any road or in any location likely to be washed into waters.

Release of Contaminants to Surface Waters

(W3) Authorised release point.

Contaminants must only be released to surface waters at a discharge point from the sedimentation ponds to the grassed area north of the site via a spillway constructed to prevent erosion at the discharge point.

(W4) The sediment pond must be monitored for the parameters contained in Tables Two and Three not less frequently than monthly and releases to waters from authorised release point must be monitored at the discharge location for the parameters contained in Tables Two and Three not less frequently than once per day whilst discharging for all parameters except suspended solids which must be measured at commencement of discharge and weekly thereafter.

(W5) All determinations of the quality of contaminants released must be:

- (a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; and
- (b) made in accordance with methods prescribed in the latest edition of the Environmental Protection Agency Water Quality Sampling Manual; and
- (c) carried out on samples that are representative of the discharge.

(W6) If discharge waters from the sediment pond exceed any of the contaminant trigger levels stated in Table Two, the environmental authority holder must:

- (a) complete an investigation in accordance with the ANZECC (2000) methodology, or any updated ANZECC guidelines, into the potential for environmental harm; and
- (b) provide a written report to the administering authority within 3 months of the date of the original exceedence, outlining:
 - details of the investigations carried out; and
 - actions taken to prevent environmental harm.

EPA Permit number: IPDE00493906A11

Table Two – Sediment Pond Discharge Water Contaminant Trigger Levels

Parameter	Unit	Trigger Levels	Level Type
Turbidity	NTU	80 th percentile ¹ of reference ² or 6NTU ³ , whichever is higher.	Median ⁵
pH	pH units	Minimum – 6.0 ³ or 20 th percentile ¹ of reference ² whichever is lower. Maximum 7.5 ³ or 80 th percentile ¹ of reference ² whichever is higher.	Median ⁵
Dissolved oxygen	Percentage saturation	80 th percentile ¹ of reference ² or 90% ³ saturation, whichever is lower	Median ⁵
Electrical conductivity	µS/cm	80 th percentile ¹ of reference ² or 250µS/cm ⁴ , whichever is higher	Median ⁵

¹ Trigger levels based on the 80th or 20th percentile are derived using ANZECC (2000) and QWG methodology and are based on the reference sites defined in 2 below.

² Reference sites must:

- be from the same biogeographic and climatic region; and
- have similar geology, soil types and topography; and
- contain a range of habitats similar to those at the test sites; and
- a similar flow regime; and
- not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
- refer to QWG guidelines page 76 for further guidance

³ Limits based on values contained in the Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region

⁴ Limits based on ANZECC Table 3.3.5 – upper salinity limits for upland rivers of slightly disturbed ecosystems in tropical Australia.

⁵ The median must be determined based on a maximum of ten (10) consecutive samples.

- (W7) The discharge waters from the sediment pond must not exceed any of the contaminant limits defined in Table Three

Table Three – Sediment Pond Discharge Contaminant Limits

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4 - 9 ¹	Range
Total suspended solids	mg/L	50	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

EPA Permit number: IPDE00493906A11

(W8) Management of Sedimentation Ponds

The sedimentation pond installed as part of the stormwater diversion system must be maintained in an effective operating condition and managed so that stored stormwater volumes are minimised following each rainfall event to reinstate holding capacity in readiness for the next rainfall event. The size of any sedimentation pond must be sufficient to contain the run-off expected from a 24 hour storm with an average recurrence interval of 1 in 10 years.

(W9) Landfill Liner Construction

Waste may only be disposed of in areas that have been prepared and constructed in accordance with Section 6.4 of the submitted Mareeba Landfill Site Based Management Plan and specifications of drawing numbers 60018386-101 to 60018396-108 prepared by Maunsell Australia Pty Ltd and dated September 2006. This landfill liner system must be installed and maintained at the site to effectively:

- (a) prevent any release of contaminants to groundwaters; and
- (b) prevent subsurface migration of landfill gas from the landfill.

(W10) Leachate Management

You must operate the site in a manner that minimises the generation of leachate.

(W11) Leachate Collection

A leachate collection system must be installed and maintained at the site to effectively and efficiently:

- (a) collect any leachate generated in the landfill;
- (b) convey the collected leachate to Mareeba Shire Council's sewage treatment plant or recirculate it within the landfill at the working face;
- (c) control the leachate head so that it does not exceed 1.5 metres on any leachate collection sump liner serving the landfill, except during a pump failure, when it may exceed 1.5 metres for a period not exceeding 48 hours.

(W12) Leachate Disposal

Leachate or contaminated stormwater intercepted by the leachate collection system may only be disposed of:

- (a) by recirculation back into the landfilled waste ; or
- (b) by irrigation over exposed wastes on the site that have not received their final cover; or
- (c) to a sewage treatment plant.

(W13) Landfill Gas Condensate Disposal

Any landfill gas condensate collected must be treated as leachate.

(W14) Leachate Pumping Stations

Leachate pumping stations must be fitted with pump-failure alarms as well as high-level alarms to warn of imminent pump station overflow. Suitably sized backup pumps must be readily available on site in the event of pump system failure. All alarms must be able to operate without mains power if such power failure occurs and, when in operation, must notify the appropriate person to respond to the alarm.

(W15) Leachate Management and Monitoring

You must develop and implement a leachate quality and quantity management and monitoring program for the leachate generated at the site that includes at least:

- (a) daily rainfall or rainfall events (if an event is longer than daily) must be measured and recorded for the site;
- (b) the quantity of leachate extracted must be calculated and recorded daily;
- (c) weekly calculation of the volume of leachate in the landfill based on monitoring of the level of the leachate at any leachate collection sump or monitoring well, correlated to both AHD (Australian

EPA Permit number: IPDE00493906A11

Height Datum) and the level of the top of the closest perimeter bund to the sump or monitoring well;

- (d) calculation of weekly water balances for the landfill to include, but to not necessarily be limited to, incident rainfall and leachate extraction rate;
- (e) a sufficient number of monitoring locations to establish the composition and volume of leachate generated within the landfill; and
- (f) sampling of leachate from the landfill at least in April and October of each year; and
- (g) analysis of leachate samples for the quality characteristics identified in Table Four.

Table Four - Monitoring Requirements

Quality Characteristic	Leachate	Surface Water	Groundwater
pH	X	X	X
electrical conductivity	X	X	X
Total dissolved solids	X	X	X
dissolved oxygen	X	X	
bicarbonate (HCO ₃)	X		X
oxidised nitrogen	X	X	X
ammonia	X	X	X
calcium	X	X	X
sulphate	X	X	X
chloride	X		X
hexavalent chromium	X	X	
cadmium	X	X	
manganese	X	X	X
total iron	X	X	X
copper	X	X	X
lead	X	X	X
zinc	X	X	X
pesticides (organochlorines and organophosphates)	X	X	X
Polycyclic Aromatic Hydrocarbons (PAHs)	X	X	X
Total Petroleum Hydrocarbons	X	X	X
BTEX (Benzene, Toluene, Ethyl Benzene and Xylene)	X	X	X
Chemical Oxygen Demand (COD)	X	X	X
5-Day Biological Oxygen Demand (BOD ₅)	X	X	
Total Organic Carbon (TOC)	X		

(W16) Surface Water Monitoring

An effective surface water monitoring program must be developed and implemented for the site. The program must include, but not be limited to, a sufficient number of monitoring locations to:

- (a) establish the reference quality of surface waters upstream from the landfill; and
- (b) detect any impact on surface waters as a consequence of landfill operation.

(W17) The surface water monitoring program specified in condition number (W16) must monitor and record the quality of surface water for at least the quality characteristics identified in Table Four.

(W18) Surface water quality samples must be collected from sample points in accordance with the surface water monitoring program at least in January, April, July and October of each year, or, in the event of no sample being obtainable in ephemeral systems at this time, during the next period of flow of the watercourse.

(W19) Groundwater Monitoring

An effective groundwater monitoring program must be developed and implemented for the site. The program must include:

- (a) installation of a groundwater monitoring network which:
 - (i) establishes the background quality of groundwater upgradient and downgradient of the landfill site;

- (ii) are installed and maintained by a person possessing appropriate qualifications and experience in the fields of hydrogeology and groundwater monitoring program design to be able to competently make recommendations about these matters;
- (iii) include a sufficient number of "bore(s) of compliance" to detect any impact on groundwater as a consequence of landfill operation, constructed in accordance with the "Minimum Construction Requirements for Water Bores in Australia" (Agricultural and Resource Management Council of Australia and New Zealand 1997), that are located not more than 150 metres from the landfill area or at the boundary of the landfill facility whichever is the closer; and
- (iv) provides representative groundwater samples for the aquifers being sampled;
- (v) includes monitoring of water from the perched groundwater found in the sand lens in the North west corner of the site identified during cell construction and situated beneath the landfill liner
- (b) analysis of groundwater samples for at least the quality characteristics identified in Table Four;
- (c) collection of groundwater quality samples from groundwater at least in January, April, July and October of each year; and
- (d) assessment of monitoring results to determine whether or not there has been any adverse change for each groundwater quality characteristic at locations hydraulically down gradient of the landfill unit above when compared to background values.

(W20) Groundwater Quality

If groundwater monitored under condition W19 for parameters specified in Table Four, exceed any of the contaminant trigger levels stated in Table Five, the environmental authority holder must:

- (a) complete an investigation in accordance with the ANZECC (2000) methodology, into the potential for environmental harm;
- (b) provide a written report to the administering authority within 3 months of the date of the original exceedence, outlining:
 - (i) details of the investigations carried out; and
 - (ii) actions taken to prevent environmental harm.

Table Five - Groundwater Contaminant Trigger Levels - Unfiltered

Parameter	Unit	Limit	Limit Type
EC	µS/cm	80 th percentile of reference or 250 ¹ , whichever is higher.	Median ³
pH	pH units	Minimum – 6.0 ³ or 20 th percentile of reference whichever is lower.	Median ³
		Maximum 7.5 ³ or 80 th percentile of reference whichever is higher.	Median ³
Ammonia N	µg/L	80 th percentile of reference or 6 ² , whichever is higher.	Median ³
Total N	µg/L	80 th percentile of reference or 250 ² , whichever is higher.	Median ³
Copper	µg/L	1.4 ⁴	95 th percentile ³
Lead	µg/L	3.4 ⁴	95 th percentile ³
Zinc	µg/L	8 ⁴	95 th percentile ³
Manganese	µg/L	1900 ⁴	95 th percentile ³
Benzene	µg/L	950 ⁴	95 th percentile ³
Polycyclic Aromatic Hydrocarbons (PAHs)		Above limit of detection	95 th percentile ³

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pesticides (organochlorines and organophosphates)		Above limit of detection	95 th percentile ³
Total Petroleum Hydrocarbons		Above limit of detection	95 th percentile ³

¹ Trigger levels based on ANZECC Table 3.3.5 – upper EC limit for upland rivers of slightly disturbed ecosystems in tropical Australia

² Trigger levels based on values contained in the *Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline vales for physio-chemical indicators – Wet Tropics Region*

³ The median and the 95th percentile must be determined based on a maximum of ten (10) consecutive samples.

⁴ ANZECC (2000) trigger levels for aquatic ecosystems of slightly – moderately disturbed systems – table 3.4.1 level of protection 95% - tropical Australian upland rivers.

- (W21) The groundwater monitored under condition W19 for parameters specified in Table Four must not exceed any of the contaminant limits defined in Table Six

Table Six - Groundwater Contaminant Limits - Unfiltered

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4.9	Range
Total N	mg/L	5 ¹	Maximum
Sulphate	mg/L	1000 ¹	Maximum
Copper	mg/l	0.2 ¹	Maximum
Lead	mg/l	0.1 ¹	Maximum
Zinc	mg/L	2 ¹	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

- (W22) Notwithstanding the above conditions, should groundwater monitoring show a statistically significant adverse change of levels of contaminants over background values at locations hydraulically down gradient of the landfill unit then the Environmental Protection Agency must be notified within 14 days. (Information on the interpretation of groundwater monitoring data at landfills can be found in the EPA's *Guideline - Recording, interpretation & analysis of monitoring results. ERA 75 – Waste disposal*).

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DEFINITIONS

Words and phrases used throughout this permit¹ are defined below. Where a definition for a term used in this permit¹ is sought and the term is not defined within this permit¹ the definitions provided in the relevant legislation shall be used.

"administering authority" means the Environmental Protection Agency or its successor.

"annual return" means the return required by the annual notice (under section 316 of the *Environment Protection Act 1994*) for the section 73F registration certificate that applies to the development approval.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Integrated Planning Act 1997*.

"approved plans" means the plans and documents listed in the approved plans section in the notice attached to this development approval.

"artificial waterway" means an artificial channel, lake or other body of water. Artificial waterway includes –

- an artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land;
- other artificial channels subject to the ebb and flow of the tide; and
- any additions or alterations to an artificial waterway.

"authorised place" means the place authorised under this development approval for the carrying out of the specified environmentally relevant activities.

"clinical waste" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"commercial place" means a place used as an office or for business or commercial purposes.

"dwelling" means any of the following structures or vehicles that is principally used as a residence –

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"Environmental Protection Agency" means the department or agency (whatever called) administering the *Coastal Protection and Management Act 1995* or the *Environmental Protection Act 1994*.

"Industrial Waste" includes residue from the primary and secondary screening process produced at the Bedminster Composting Facility.

"infectious waste" means waste containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.

"intrusive noise" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration –

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.
- In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 – 1997 Acoustics – Description and Measurement of Environmental Noise Part 2 – Application to Specific Situations.

" $L_{A\ 10, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

" $L_{A\ 1, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.

" $L_{A, \text{max adj}, T}$ " means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

EPA Permit number: IPDE00493906A11

"mg/L" means milligrams per litre.

"noxious" means harmful or injurious to health or physical well being.

"NTU" means nephelometric turbidity units.

"nuisance sensitive place" includes –

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"regulated waste" means non-domestic waste mentioned in Schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes –

- for an element - any chemical compound containing the element; and
- anything that has contained the waste.

"site" means land or tidal waters on or in which it is proposed to carry out the development approved under this development approval.

"watercourse" means a river, creek or stream in which water flows permanently or intermittently-

- in a natural channel, whether artificially improved or not; or
- in an artificial channel that has changed the course of the watercourse.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

"works" or "operation" means the development approved under this development approval.

"you" means the holder of this development approval or owner / occupier of the land which is the subject of this development approval.

"50th percentile" means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.

"80th percentile" means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

END OF CONDITIONS

FILE NOTE:

Environmental Protection Agency
Cairns District, Northern Region

p1

Date: 16 March 2009

File No: CNS6564

Subject: Mareeba Tip

CNS 6564 2

Officer: Steve Smith

- Hayden, Kirsten, Tom Gilmore, Steve Ruffer
Ingrid, Andrew, Benny, me, Dean.

Mareeba Landfill - new cell required in about 15 months.
- Council presented a plan of the cells currently open.
CITA asks for EPA comments on

IFM - odour modelling required for cells near residential areas.

DS - cell 3 is there any geotech

Hayden - no

DS - cell 5 best option immediately adjacent to current cell.

- new cell - HDPE liner, same process as old first cells? Power by

IFM - would landfill still being reprocessed?

Hayden - yes 10,000 t

IFM - Licence has requirement for S.D.P. - cell 3 is OK.
Licence permits it

DS - underfloor drainage blanket would be beneficial

Re -> reprocessing of waste is not in licence why is it required.

IFM -> reprocessing is part of T&P. when emp expires it will

Tom -> Q about definition of inert waste. Site waste is not really
-> Ask EPA to consider council request to put all wastes from
old landfill into same cell - ie. cell 1

Signature:

sch4p4(6) Personal information

Page: 1

FILE NOTE:

Environmental Protection Agency
Cairns District, Northern Region

2

CNS6564-2

Date: 16 March 2009

File No: CNS6564

Subject: Mareeba Tip

Officer: Steve Smith

<<Comments>>

IFM → EPA would welcome if old landfill was emptied sooner
Tom → Council would like to have different management options

DS → need ventilation of landfill

Tom → is there a value for methane that you have to flare?

DS - 5 - 15 % volume of air

SS - The reprocessing of old landfill waste was meant to assist in the management of the new cells - to weigh down the liner.

DS - Leachate option - Still connecting to sewer

KL → For wet season overflow anyway - Still looking at Leachate recirculation

SR - Pretreatment of Leachate is not a preferred option.

- STP has allowed 0.5 meg for leachate

Tom - Council would rather not have pretreatment. would prefer to have money spent on STP to take waste

IFM - Advice has gone to Cairns Landfills that only C & D waste can be taken. Mareeba Tip is one of those places where waste can be taken.

Signature:

sch4p4(6) Personal information

Page: 2

12-426

DL Documents

60 of 209

PLEASE FORWARD COPY TO FILE.

document2



Department of
**Environment and
Heritage Protection**

Ref NOR/043437 #2040297

5 March 2013

Chief Executive Officer
Tablelands Regional Council
PO Box 573
ATHERTON QLD 4883

Attention: Kirsty Lamperd, Bill Cuthbertson

Dear Chief Executive Officer

The Department of Environment and Heritage Protection (EHP, the department) is writing to you in relation to a meeting held between Tablelands Regional Council (Council) and EHP on 5 February 2013 regarding the findings of the leachate and landfill gas report for the old Mareeba Landfill and matters to progress forward.

Based on the findings of the preliminary report undertaken by GHD on behalf of Council it was discussed at the meeting that further information would be required to determine a suitable environmental outcome. The following information was discussed and recommended, but not limited to:

- Detailed Hydrogeological assessment including the identification of preferential flow paths including palaeochannels and seasonal variation in the groundwater table;
- Volumetrics and calculation of waste tonnage onsite having consideration to the potential for residual waste to result in environmental harm and delimiting the active and non-active portions of the existing waste pile; and
- Leachate monitoring in the existing waste pile including hydraulic head, volume and quality incorporating seasonal variation.

The department is open to discussing further options presented by Council and as a result of the meeting requests that Council provide at your earliest convenience a plan of action including timeframes.

Should you have any further enquiries, please contact Jacinta Oliver of the department on telephone 07) 4222 5336.

sch4p4(6) Personal information

Principal Environmental Officer

RTI DL RELEASE - EHP

Notice to extend decision making period – EPA as Assessment Manager

This notice is issued by the Environmental Protection Agency pursuant to Sections 3.5.7 of the Integrated Planning Act 1997 to extend the information request, assessment or decision making period.

Mareeba Shire Council
PO Box 154
MAREEBA QLD 4880



Our reference: 305420

Attention: Mr Patrick O'Flaherty

Dear Mr O'Flaherty

Re: Application for development approval – extension of time for decision making period.

The Environmental Protection Agency, has extended the decision making period by 20 business days to a revised date of 14 March 2007 for the following permit(s):

Permit Type: Development Approval for a MCU involving an ERA
Activity: ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.
Act: Integrated Planning Act 1997
Location: Vaughan Street, Mareeba QLD 4880

Should you require more information, please contact Ian Florence, the Project Manager, on the telephone number listed below.

Yours sincerely

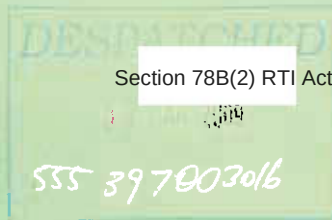
sch4p4(6) Personal information

Ingrid Fomiatti Minnesma
District Manager
Cairns District, Northern Region
Delegate
Environmental Protection Agency

Enquiries:
Cairns District Office (EPA)
PO Box 2066
CAIRNS QLD 4870
Phone: (07) 4046 6727
Fax: (07) 4046 6606

14-FEB-2007

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service



Notice

Section 328 — Environmental Protection Act 1994

Notice of extension of decision period

This statutory notice is issued by the administering authority pursuant to section 328 of the Environmental Protection Act 1994, to advise you of a decision to extend the period for deciding whether or not to accept your environmental report.

Tablelands Regional Council
PO Box 154
MAREEBA QLD 4880

Your reference: WAS-DEP/KI

Our reference: CA15882/CNS6564

Attention: Kirsty Lamperd
Manager Waste Services

Re: Submission of environmental report "Mareeba Landfill on Land described as Lot 517 on Plan CP851523"

The administering authority requires an extension of time to decide whether or not to accept this environmental report. A decision on the environmental report will be made by 20th April 2009.

The extension of time is required for the following reasons:

To allow sufficient time for Tablelands Regional Council to conduct further investigations to satisfy the EPA's information request and submit those investigations for assessment by the EPA.

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this Notice. This information is intended as a guide only. You may have other legal rights and obligations



Notice of extension of decision period

Should you have any queries in relation to this Notice, please contact Benny Asirvatham of the EPA on telephone 07 4046 6739.

sch4p4(6) Personal information

Signature

02 MARCH 2009

Date

Ingrid Fomiatti Minnesma
District Manager
Environmental Protection Agency

Enquiries:
Environmental Protection Agency
Ph. 07 4046 6722
Fax. 07 4046 6605

RTI DL RELEASE - EHP

Notice

Section 328 — Environmental Protection Act 1994

Notice of extension of decision period

This statutory notice is issued by the administering authority pursuant to section 328 of the Environmental Protection Act 1994, to advise you of a decision to extend the period for deciding whether or not to accept your environmental report

Tablelands Regional Council
Po Box 154
MAREEBA QLD 4880

Your reference WAS-DEP/kl
Our reference CA15882/CNS6564

Attention: Kirsty Lamperd
Manager Waste Services

Re: Submission of Environmental Report- Mareeba Landfill on land described as Lot517 on Plan CP851523.

The administering authority requires an extension of time to decide whether or not to accept this environmental report. A decision on the environmental report will be made by 13 February 2009.

The extension of time is required for the following reasons:

To allow sufficient time for Tablelands Regional Council to supply additional information and for the EPA to consider the additional information

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this Notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, please contact Benny Asirvatham of the EPA on telephone 07 4046 6739.

sch4p4(6) Personal information

07/11/2008

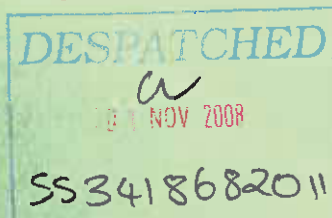
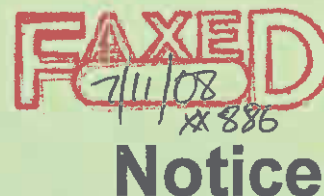
Signature

Date

Ingrid Fomiatti Minnesma
Manager- Far Northern Region
Delegate of Administering Authority
Environmental Protection Act 1994

Enquiries:
Environmental Protection Agency
Ph. 07 4046 6722
Fax. 07 4046 6606

RTI DL RELEASE - EHP



Environmental Operations

Conduct or commission an environmental evaluation¹

This statutory notice is issued by the administering authority pursuant to section 326 of the Environmental Protection Act 1994, to advise you of a decision to require additional information about a report to be given.

Tablelands Regional Council
Po Box 154
MAREEBA QLD 4880

Your reference : WAS-DEP / kl
Our reference : CA15882/ CNS6564

Attention: Kirsty Lamperd
Manager, Waste Services,

Re: Additional information relating to the Environmental Report for Mareeba Landfill on land described as Lot 517 on Plan CP 851523.

Under section 326(4) of the *Environmental Protection Act 1994* (the Act) this notice requires you to submit additional relevant information. The grounds for requiring additional information are clarification is required regarding the activities undertaken during the assessment period and location of activities. The facts and circumstances forming the basis for these grounds are:

Insufficient information relating to HDPE liner integrity and ground water contamination.

The additional information must address the following matters:

- Clarification of the landfill liner integrity and the methodology used to identify that the HDPE rose by approximately 500mm.
- Methodology and time frame for non destructive inspection of the liner.
- Clarification on the determination of elongation at yield relating to the 1.5mm thick HDPE liner.
- Methodology used to establish that the HDPE liner was not overstressed by groundwater accumulating underneath the liner.
- Provide onsite ground water quality monitoring results for Electrical Conductivity, Polycyclic Aromatic Hydrocarbon, Pesticides and Total Petroleum Hydrocarbon.

¹ An environmental evaluation may be either an environmental audit under section 322 or an environmental investigation under section 323.

Conduct or commission an environmental evaluation

The additional information must be submitted by 16 January 2009 to the Environmental Protection Agency at PO Box 2066, Cairns QLD 4870. Both you and the person who conducted the further investigation must complete the enclosed statutory declarations.

You are responsible for the costs of meeting the requirements of this Notice.

You may apply to the EPA for a review of this decision within 10 business days of receiving this Notice. You may also appeal against this decision to the Planning and Environment Court.

Information outlining the review and appeal processes under the *Environmental Protection Act 1994* is included with this Notice. This information is intended as a guide only. You may have other legal rights and obligations.

Should you have any queries in relation to this Notice, Benny Asirvatham of the EPA on telephone 07 4046 6739 would be happy to assist you.

sch4p4(6) Personal information

Signature

07 November 2008

Date

Ingrid Fomiatti Minnesma
Manager - For Northern Region
Delegate of Administering Authority
Environmental Protection Act 1994

Enquiries:
Environmental Protection Agency
Ph. 07 4046 6722
Fax. (07) 4046 6606

REQUEST FOR STATUTORY APPROVAL:

6573
CNS 1294.4

Applicant: Mareeba Shire Council

Project No: 305420

in respect of carrying out an Environmental Relevant Activity at the following place(s):

Development Approval No:

Mareeba Landfill

Lot 517 CP851523

Parish Tinaroo, County of Nares

Located at:

Vaughan Street

Mareeba Qld 4880

- ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

At a meeting with the Mareeba Shire Council's Mayor Mick Borzi, Trevor Adil - Shire Engineer, Dean Sharpe, Chris Buckingham and Ingrid Pomiatti Minnesma it was agreed that the addition of a definition of Industrial Waste to include the residue from the Bedminster Composting facility be made to the development approval.

"Industrial Waste" includes residue from the primary and secondary screening process produced at the Bedminster Composting Facility.

RECOMMENDATION:

That the addition of a definition of Industrial Waste is included on the development approval as an administrative change to the permit.

(S35.24 (pact)).

Endorsement:

Assessing Officer:	Supervisor / Reviewer:	Delegate:
Chris Buckingham	Accepted / Refused	Accepted / Refused
Signed: [Signature]	Signed:	Signed:
Date: 13/04/07	Date:	Date: 13/04/07

23rd October 2009

Mr. Chris Buckingham
Department of Environment and Resource Manage
Environmental Operations
Northern Region, Cairns
PO Box 2066
CAIRNS, QLD, 4870.

RE : REGIONAL WASTE MANAGEMENT PROPOSAL

CONFIDENTIAL

Dear Chris,

We refer to our discussions at yesterday's meeting where a Regional Waste Management proposal was tabled involving Cairns Regional Council and Tablelands Regional Council waste management activities.

As discussed, the negotiations between SITA and Thiess FGF are confidential and there is a confidentiality agreement in place. We have approval from Thiess FGF to discuss this matter in broad terms with all stakeholders to gain agreement in principle.

COMPOST FACILITY VOLUMES

The Bedminster compost facility currently accepts approximately 119,000 tonnes of waste annually. This is made up of approximately 72,000 tonnes of Municipal Solid Waste (MSW), 36,000 tonnes of Commercial and Industrial waste (C&I) and 12,000 tonnes of biosolids from local sewerage treatment plants.

The MSW volumes are from Cairns Regional Council, including Port Douglas/Mossman, Mareeba, local transfer stations and the Materials Recovery Facility (MRF) residual.

The C&I volumes are from the local commercial operators such as JJ Richards, Cleanaway, Cairns Skips and others.

Currently, the C&I waste is tipped at the receival hall at the facility and the "treatable" material, ie. Organic in nature, is loaded into the digesters. The area for sorting the "untreatable" material, ie. non organic in nature, is restrictive due to the level of equipment required in this area. The level of "treatable" material in the C&I waste stream is approximately 30% based on audit findings from 12 months ago.

The "untreatable" waste has recyclable streams such as ferrous and non ferrous metals, plastics, cardboard, plasterboard, wood and some organic material that has not been sorted. This material has been landfilled, thus reducing the overall landfill diversion rate.

Currently, the diversion rate of the MSW is approximately 60 – 65% and 25% for the C&I materials.

SITA PROPOSAL

In confidential discussions with Thiess FGF, an opportunity exists to acquire the transfer station at Woree in Cairns and divert all C&I "untreatable" waste from the commercial operators to this facility. Mechanical sorting equipment will be used to extract all recyclables and any remaining organic waste and divert these materials from landfill.

The overall input volume of this facility will be approximately 32,000 tonnes, as 10,000 tonnes of "treatable" material will go directly to the compost facility. Obviously, the involvement of the commercial operators will be a key component of this initiative.

If this proposal gains support from the key stakeholders, SITA would be seeking an amendment to the licence at the transfer station in Woree to allow the acceptance volumes to be increased from 20,000 tonnes per year to 50,000 tonnes per year. SITA would be seeking DERM's support in this application

The residual waste from the C&I transfer station would be transferred to Springmount with the 90 cubic metre walking floor trailers that would be acquired as part of the transfer station. The reduction in tonnages and the increased capacity of the walking floor trailers would reduce truck movements by approximately 25%.

The mechanical sorting equipment will initially be a loader, excavator and a bobcat. In the medium term, it is intended to conduct trials with the front end sorting station that is currently in the receival hall of the facility. This will allow trommelling and further positive sorting to occur and should increase the landfill diversion rates even further.

As part of this acquisition, the proposal is to divert all residual waste from the compost facility and the C&I transfer station to the Springmount landfill, thus greatly reducing the waste stream to the Mareeba landfill and establishing Springmount as the major regional landfill.

The long term disposal arrangement with Thiess FGF would continue for the same period of the Waste Management Contract that expires in 2026. There would be no minimum tonnage clauses, as this would allow for exploration of recycling initiatives for further diversion of waste from landfill.

Incorporated into this disposal contract, are the potential volumes from the Tablelands Regional Council. Springmount currently receives MSW volumes from the pre-amalgamation Atherton, Eacham and Herberton Shire areas but could extend to further volumes should the Tablelands Regional Council consider closing other regional landfills.

SITA has a contract with the Tablelands Regional Council for the disposal of residual and non-treatable waste volumes from the compost facility. This contract provides for SITA to design and construct the engineered cells at the Mareeba landfill and for Tablelands Regional Council to accept Mareeba and SITA waste for disposal over the life of the Waste Management Contract. SITA are responsible for capping of the landfill cells to a standard compliant with environmental laws and regulations.

The first cell still has approximately 80,000 cubic metres of airspace remaining of the original 200,000 cubic metres design capacity.

There is also the matter of the old Mareeba landfill, which is being negotiated between Tablelands Regional Council and DERM and the outcome will affect the success of the regional waste management proposal.

TRANSACTION TIMING

The timing for this transaction is critical. Both SITA and Thiess FGF must complete this transaction by the end of December 2009. To date, we have agreement in principle from Cairns Regional Council but not with the Tablelands Regional Council where staff are preparing the business case to present to Council 18 November 2009. We now seek DERM's support.

The proposed timeline that we have developed for completion is as follows;

1. Agreement in principle between key stakeholders – 16th October 2009
2. Gain DERM support by the end of October 2009
3. Presentation to TRC Council meeting – 18th November
4. Formalise agreement between SITA and Tablelands Regional Council by end November 2009.
5. Approvals from EPA and licence amendments finalised – mid December 2009.
6. Transaction complete – end of December 2009.

SUMMARY

This proposal delivers a sustainable and environmental outcome for the Cairns and Tablelands region. It meets all criteria in terms of the hierarchy of waste management and it fits with the Cairns Regional Council draft waste management strategy, that has recently being advertised for comment.

It also presents a number of future opportunities for other waste types being greenwaste and biosolids.

The direct benefits to the region are as follows;

- Improved sorting of C&I waste in the Cairns region
- Increased landfill diversion of waste streams
- Increased beneficial reuse of the recyclable materials
- Landfill regionalisation
- Reduced truck movements over the Kuranda Range of up to 20%
- Reduced truck movements through Mareeba township of 90%
- Capacity for additional MSW volumes to be attracted to the compost facility
- Capacity for additional C&I and C&D volumes to be attracted to the C&I sorting facility

We look forward to discussing this proposal with you further.

Kind regards,

Brian Cohalan
STATE GENERAL MANAGER - QLD



Tablelands Regional Council

Atherton Service Centre
PO Box 573, Atherton QLD 4883
Telephone: 1300 362 242

Planning and Development
Kirsty Lamperd
Senior Advisor Environmental Planning
Telephone: (07) 4043 4390
Facsimile: (07) 4096 5086
Email: kirstyl@trc.qld.gov.au

23 October, 2009

Mr Chris Buckingham
Department of Environment and Resource Management
PO Box 2066
CAIRNS QLD 4870

File Ref:
Your Ref:

WAS-FAC

:kl

**RECEIVED
RECORDS SECTION**

29 OCT 2009

CNS 1294.4

CNS 2009 6949

DEPARTMENT OF
ENVIRONMENT AND
RESOURCE MANAGEMENT
CAIRNS

✓ CARMS

Dear Sir

MAREEBA LANDFILL – REPROCESSING WASTE FROM OLD LANDFILL

I refer to discussions on Monday 19th October between yourself and representatives of Tablelands Regional Council and SITA where the matter of reprocessing waste from the old landfill was discussed.

The Environmental Management Plan (MAN5133) suggests that 10,000 tonnes per annum of waste from the old Mareeba landfill be reprocessed into the new lined cell. Council has recently conducted surveys and investigations to establish the volume of waste in the old landfill and estimate that approximately 280,000m³ remains.

Council now seeks to re-negotiate this matter with DERM also taking the following factors into consideration.

- Asbestos and other regulated wastes are contained in the old landfill and to expose and move it would create a risk to public health.
- Volume of waste in the old landfill is approximately 280,000m³. At a rate of 10,000m³ per year it would take 28 years to shift entirely. It would therefore cost in excess of \$5 million to shift the whole cell in addition to the capital value to build the landfill cell.
- CPRS implications would come into affect as the waste is no longer legacy waste once it is placed in a new cell. Emissions from the landfill would also be released at a greater rate than if the waste remained covered.
- Recent groundwater monitoring indicate no adverse results. Two new monitoring bores have been installed to provide more extensive data.
- Odour is an issue when the old waste is exposed. During the period in November 2008 when Council was shifting waste from the old cell, three complaints were received from nearby residents regarding the odour. These are the only complaints received at the site over a 15 month period.
- Should the old landfill not be required to be reprocessed, it could be appropriately capped and remediated in the near future rather than be partially exposed for the next 28 years.

Recent groundwater quality results are attached. Please advise if you require further historical data.

Council is seeking a prompt response from DERM regarding this matter and note that DERM are aware of negotiations between SITA, Thiess and Council regarding future landfill plans and the relevance of this matter in regards to those negotiations.

Should you wish to discuss this issue further, please contact Council's Senior Advisor Environmental Planning, Kirsty Lamperd on Ph: 4043 4390.

Yours faithfully

sch4p4(6) Personal information

KIRSTY LAMPERD
SENIOR ADVISOR ENVIRONMENTAL PLANNING

RTI DL RELEASE - EHP



Department of
**Environment and
Heritage Protection**

Ref NOR/043437 #1968343

10 January 2013

Chief Executive Officer
Tablelands Regional Council
PO Box 573
ATHERTON QLD 4883

Attention: Kirsty Lamperd

Dear Chief Executive Officer

The Department of Environment and Heritage Protection (EHP, the department) is writing to you in relation to your letter dated 12 September 2012 regarding the leachate and landfill gas report for the old Mareeba Landfill and subsequent discussions held on site on the 27 November 2012. The department thanks you for providing your assistance during the site inspection.

At the time of the site inspection preliminary discussions were held with Kirsty Lamperd, GHD and EHP regarding the above report. To further facilitate progressing the matter EHP would like to meet with Tablelands Regional Council and the relevant GHD representatives to be provided with an overview of the report and to discuss in detail the report findings.

EHP would like to suggest a meeting date of the 24th January 2013, to be held at EHP located at 5B Sheridan Street Cairns. EHP strongly recommends that a GHD representative with a high level of knowledge of the report methodology and findings be available for the meeting.

Should you have any further enquiries, please contact Jacinta Oliver of the department on telephone 07) 4222 5336.

Yours sincerely ,

sch4p4(6) Personal information

Filiz Tansley
Principal Environmental Officer



Tablelands Regional Council

Atherton Service Centre
PO Box 573, Atherton QLD 4883
Telephone: 1300 362 242

Planning and Development
Kirsty Lamperd
Senior Advisor Environmental Planning
Telephone: (07) 4043 4390
Facsimile: (07) 4096 5086
Email: kirstyl@trc.qld.gov.au

23 October, 2009

Mr Chris Buckingham
Department of Environment and Resource Management
PO Box 2066
CAIRNS QLD 4870

File Ref: WAS-FAC
Your Ref: :kl

**RECEIVED
RECORDS SECTION**

29 OCT 2009

CNS 1294.4

CNS 2009 6949

DEPARTMENT OF
ENVIRONMENT AND
RESOURCE MANAGEMENT
CAIRNS

CARMS

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Council now seeks to re-negotiate this matter with DERM also taking the following factors into consideration.

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Should you wish to discuss this issue further, please contact Council's Senior Advisor Environmental Planning, Kirsty Lamperd on Ph: 4043 4390.

Yours faithfully

sch4p4(6) Personal information

KIRSTY LAMPERD
SENIOR ADVISOR ENVIRONMENTAL PLANNING

RTI DL RELEASE - EHP



LABORATORY REPORT COVERSHEET

Date: 20 October 2009

To: Tablelands Regional Council
PO Box 154
MAREEBA QLD 4880

Attention: Kirsty Lamperd

Your Reference: Ground Water
Laboratory Report No: CE65171

Samples Received: 5/10/2009
Samples / Quantity: 4 Waters

The above samples were received intact and analysed according to your written instructions. Unless otherwise stated, solid samples are reported on a dry weight basis and liquid samples as received.

sch4p4(6) Personal information

Jon Dicker
Manager
CAIRNS

Shey Goddard
Administration Manager
CAIRNS

Page 1 of 16



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CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-1 BH7 Water 5/10/2009	CE65171-2 BH2 Water 5/10/2009	CE65171-3 BH8 Water 5/10/2009
Date Extracted		6/10/2009	6/10/2009	6/10/2009
Date Analysed		6/10/2009	6/10/2009	6/10/2009
pH	pH Units	7.1	7.3	7.1
Electrical Conductivity @ 25°C	µS/cm	950	1,000	490
Total Dissolved Solids	mg/L	590	610	300
Chemical Oxygen Demand	mg/L	18	60	<10
Bicarbonate Alkalinity	mg/L CaCO ₃	470	480	220
Carbonate Alkalinity	mg/L CaCO ₃	<5	<5	<5
Total Alkalinity	mg/L CaCO ₃	470	480	220
Sulphate, SO ₄	mg/L	<2	3	6
Chloride, Cl	mg/L	52	71	32
Ammonia Nitrogen NH ₃ as N	mg/L	<0.05	<0.05	<0.05
Total Oxidised Nitrogen (as N)	mg/L	<0.05	<0.05	<0.05
Manganese, Mn	mg/L	0.063	0.018	0.83
Copper, Cu ^{AA}	mg/L	<0.001	0.001	<0.001
Lead, Pb ^{AA}	mg/L	<0.001	<0.001	<0.001
Zinc, Zn	mg/L	0.060	0.029	0.022
Calcium, Ca	mg/L	12	41	28
Total Iron, Fe	mg/L	3.2	8.1	4.6

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-4 BH9 Water 5/10/2009
Date Extracted		6/10/2009
Date Analysed		6/10/2009
pH	pH Units	7.3
Electrical Conductivity @ 25°C	µS/cm	460
Total Dissolved Solids	mg/L	290
Chemical Oxygen Demand	mg/L	<10
Bicarbonate Alkalinity	mg/L CaCO ₃	240
Carbonate Alkalinity	mg/L CaCO ₃	<5
Total Alkalinity	mg/L CaCO ₃	240
Sulphate, SO ₄	mg/L	7
Chloride, Cl	mg/L	18
Ammonia Nitrogen NH ₃ as N	mg/L	<0.05
Total Oxidised Nitrogen (as N)	mg/L	<0.05
Manganese, Mn	mg/L	0.086
Copper, Cu ^{^^}	mg/L	<0.001
Lead, Pb ^{^^}	mg/L	<0.001
Zinc, Zn	mg/L	0.031
Calcium, Ca	mg/L	23
Total Iron, Fe	mg/L	0.65

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

Organochlorine Pesticides Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-1 BH7 Water 5/10/2009	CE65171-2 BH2 Water 5/10/2009	CE65171-3 BH8 Water 5/10/2009
Date Extracted		8/10/2009	8/10/2009	8/10/2009
Date Analysed		15/10/2009	15/10/2009	15/10/2009
HCB	µg/L	<0.03	<0.03	<0.03
alpha - BHC	µg/L	<0.03	<0.03	<0.03
gamma - BHC (Lindane)	µg/L	<0.03	<0.03	<0.03
beta - BHC	µg/L	<0.03	<0.03	<0.03
Heptachlor	µg/L	<0.04	<0.04	<0.04
delta - BHC	µg/L	<0.02	<0.02	<0.02
Aldrin	µg/L	<0.05	<0.05	<0.05
Heptachlor epoxide	µg/L	<0.03	<0.03	<0.03
gamma - Chlordane	µg/L	<0.04	<0.04	<0.04
alpha - Chlordane	µg/L	<0.04	<0.04	<0.04
alpha - Endosulfan	µg/L	<0.05	<0.05	<0.05
p,p' - DDE	µg/L	<0.06	<0.06	<0.06
Dieldrin	µg/L	<0.05	<0.05	<0.05
Endrin	µg/L	<0.05	<0.05	<0.05
p,p' - DDD	µg/L	<0.05	<0.05	<0.05
beta - Endosulfan	µg/L	<0.05	<0.05	<0.05
p,p' - DDT	µg/L	<0.05	<0.05	<0.05
Endrin aldehyde	µg/L	<0.05	<0.05	<0.05
Endosulfan sulphate	µg/L	<0.05	<0.05	<0.05
Methoxychlor	µg/L	<0.08	<0.08	<0.08
Endrin ketone	µg/L	<0.05	<0.05	<0.05
2,4,5,6-tetrachloro-m-xylene -Surrogate	%	78	62	70

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

Organochlorine Pesticides Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-4 BH9 Water 5/10/2009
Date Extracted		8/10/2009
Date Analysed		15/10/2009
HCB	µg/L	<0.03
alpha - BHC	µg/L	<0.03
gamma - BHC (Lindane)	µg/L	<0.03
beta - BHC	µg/L	<0.03
Heptachlor	µg/L	<0.04
delta - BHC	µg/L	<0.02
Aldrin	µg/L	<0.05
Heptachlor epoxide	µg/L	<0.03
gamma - Chlordane	µg/L	<0.04
alpha - Chlordane	µg/L	<0.04
alpha - Endosulfan	µg/L	<0.05
p,p' - DDE	µg/L	<0.06
Dieldrin	µg/L	<0.05
Endrin	µg/L	<0.05
p,p' - DDD	µg/L	<0.05
beta - Endosulfan	µg/L	<0.05
p,p' - DDT	µg/L	<0.05
Endrin aldehyde	µg/L	<0.05
Endosulfan sulphate	µg/L	<0.05
Methoxychlor	µg/L	<0.08
Endrin ketone	µg/L	<0.05
2,4,5,6-tetrachloro-m-xylene -Surrogate	%	76

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

OP Pests Water Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-1 BH7 Water 5/10/2009	CE65171-2 BH2 Water 5/10/2009	CE65171-3 BH8 Water 5/10/2009
Date Extracted		8/10/2009	8/10/2009	8/10/2009
Date Analysed		15/10/2009	15/10/2009	15/10/2009
Dichlorvos	µg/L	<1.2	<1.2	<1.2
Diazinon	µg/L	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.06	<0.06	<0.06
Malathion	µg/L	<0.2	<0.2	<0.2
Chlorpyrifos	µg/L	<0.06	<0.06	<0.06
Parathion ethyl	µg/L	<0.08	<0.08	<0.08
Azinphos methyl (Guthion)	µg/L	<0.6	<0.6	<0.6
2,4,5,6-tetrachloro-m-xylene -Surrogate	%	78	62	70

OP Pests Water Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-4 BH9 Water 5/10/2009
Date Extracted		8/10/2009
Date Analysed		15/10/2009
Dichlorvos	µg/L	<1.2
Diazinon	µg/L	<0.2
Fenitrothion	µg/L	<0.06
Malathion	µg/L	<0.2
Chlorpyrifos	µg/L	<0.06
Parathion ethyl	µg/L	<0.08
Azinphos methyl (Guthion)	µg/L	<0.6
2,4,5,6-tetrachloro-m-xylene -Surrogate	%	76



CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

TRH/ BTEX (Water) Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-1 BH7 Water 5/10/2009	CE65171-2 BH2 Water 5/10/2009	CE65171-3 BH8 Water 5/10/2009
Date Analysed ^		9/10/2009	9/10/2009	9/10/2009
Date Extracted ^		9/10/2009	9/10/2009	9/10/2009
Hydrocarbons C6-C9 ^	µg/L	<40	<40	<40
TRH C10-C14 ^	µg/L	<100	<100	<100
TRH C15-C28 ^	µg/L	<200	<200	<200
TRH C29-C36 ^	µg/L	<200	<200	<200
Benzene ^	µg/L	<0.5	<0.5	<0.5
Toluene ^	µg/L	<0.5	<0.5	<0.5
Ethyl Benzene ^	µg/L	<0.5	<0.5	<0.5
Xylenes ^	µg/L	<1.5	<1.5	<1.5
BTEX Surrogate (%) ^	%	95	80	73

RTI DL RELEASE



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CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

TRH/ BTEX (Water) Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-4 BH9 Water 5/10/2009
Date Analysed ^		9/10/2009
Date Extracted ^		9/10/2009
Hydrocarbons C6-C8 ^	µg/L	<40
TRH C10-C14 ^	µg/L	<100
TRH C15-C28 ^	µg/L	<200
TRH C29-C38 ^	µg/L	<200
Benzene ^	µg/L	<0.5
Toluene ^	µg/L	<0.5
Ethyl Benzene ^	µg/L	<0.5
Xylenes ^	µg/L	<1.5
BTEX Surrogate (%) ^	%	78



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CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

PAHs Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-1 BH7 Water 5/10/2009	CE65171-2 BH2 Water 5/10/2009	CE65171-3 BH8 Water 5/10/2009
Date Extracted ^		9/10/2009	9/10/2009	9/10/2009
Date Analysed ^		9/10/2009	9/10/2009	9/10/2009
Naphthalene ^	µg/L	<0.50	<0.50	<0.50
2-Methylnaphthalene ^	µg/L	<0.50	<0.50	<0.50
1-Methylnaphthalene ^	µg/L	<0.50	<0.50	<0.50
Acenaphthylene ^	µg/L	<0.50	<0.50	<0.50
Acenaphthene ^	µg/L	<0.50	<0.50	<0.50
Fluorene ^	µg/L	<0.50	<0.50	<0.50
Phenanthrene ^	µg/L	<0.50	<0.50	<0.50
Anthracene ^	µg/L	<0.50	<0.50	<0.50
Fluoranthene ^	µg/L	<0.50	<0.50	<0.50
Pyrene ^	µg/L	<0.50	<0.50	<0.50
Benzo[a]anthracene ^	µg/L	<0.50	<0.50	<0.50
Chrysene ^	µg/L	<0.50	<0.50	<0.50
Benzo[b,k]fluoranthene ^	µg/L	<1	<1	<1
Benzo[a]pyrene ^	µg/L	<0.50	<0.50	<0.50
Indeno[123-cd]pyrene ^	µg/L	<0.50	<0.50	<0.50
Dibenzo[ah]anthracene ^	µg/L	<0.50	<0.50	<0.50
Benzo[ghi]perylene ^	µg/L	<0.50	<0.50	<0.50
Total PAH ^	µg/L	<9.0	<9.0	<9.0
Nitrobenzene-d5 ^	%	81	77	72
2-Fluorobiphenyl ^	%	76	77	91
d14-p-terphenyl (Surrogate) ^	%	120	110	120



CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

PAHs Our Reference Your Reference Type of Sample Date Sampled	Units	CE65171-4 BH9 Water 5/10/2009
Date Extracted ^		9/10/2009
Date Analysed ^		9/10/2009
Naphthalene ^	µg/L	<0.50
2-Methylnaphthalene ^	µg/L	<0.50
1-Methylnaphthalene ^	µg/L	<0.50
Acenaphthylene ^	µg/L	<0.50
Acenaphthene ^	µg/L	<0.50
Fluorene ^	µg/L	<0.50
Phenanthrene ^	µg/L	<0.50
Anthracene ^	µg/L	<0.50
Fluoranthene ^	µg/L	<0.50
Pyrene ^	µg/L	<0.50
Benzo[a]anthracene ^	µg/L	<0.50
Chrysene ^	µg/L	<0.50
Benzo[b,k]fluoranthene ^	µg/L	<1
Benzo[a]pyrene ^	µg/L	<0.50
Indeno[123-cd]pyrene ^	µg/L	<0.50
Dibenzo[ah]anthracene ^	µg/L	<0.50
Benzo[ghi]perylene	µg/L	<0.50
Total PAH ^	µg/L	<9.0
Nitrobenzene-d5 ^	%	84
2-Fluorobiphenyl ^	%	76
d14-p-terphenyl (Surrogate) ^	%	120

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
Date Extracted			
Date Analysed			
pH	pH Units	0.1	AN101
Electrical Conductivity @ 25°C	µS/cm	5	AN106
Total Dissolved Solids	mg/L	10	AN113
Chemical Oxygen Demand	mg/L	10	AN272 CEA-024
Bicarbonate Alkalinity	mg/L CaCO ₃	5	AN135 CEI-012
Carbonate Alkalinity	mg/L CaCO ₃	5	AN135 CEI-012
Total Alkalinity	mg/L CaCO ₃	5	AN135 CEI-012
Sulphate, SO ₄	mg/L	2	AN275 CEA-021
Chloride, Cl	mg/L	2	AN274 CEA-020
Ammonia Nitrogen NH ₃ as N	mg/L	0.05	AN280 CEA-022
Total Oxidised Nitrogen (as N)	mg/L	0.05	AN248 CEA-001
Manganese, Mn	mg/L	0.005	AN320
Copper, Cu ^{^^}	mg/L	0.001	AN318
Lead, Pb ^{^^}	mg/L	0.001	AN318
Zinc, Zn	mg/L	0.005	AN320
Calcium, Ca	mg/L	0.05	AN320
Total Iron, Fe	mg/L	0.005	AN320

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
Date Extracted			
Date Analysed			
HCB	µg/L	0.03	AN400 CEO-100
alpha - BHC	µg/L	0.03	AN400 CEO-100
gamma - BHC (Lindane)	µg/L	0.03	AN400 CEO-100
beta - BHC	µg/L	0.03	AN400 CEO-100
Heptachlor	µg/L	0.04	AN400 CEO-100
delta - BHC	µg/L	0.02	AN400 CEO-100
Aldrin	µg/L	0.05	AN400 CEO-100
Heptachlor epoxide	µg/L	0.03	AN400 CEO-100
gamma - Chlordane	µg/L	0.04	AN400 CEO-100
alpha - Chlordane	µg/L	0.04	AN400 CEO-100
alpha - Endosulfan	µg/L	0.05	AN400 CEO-100
p,p' - DDE	µg/L	0.06	AN400 CEO-100
Dieldrin	µg/L	0.05	AN400 CEO-100
Endrin	µg/L	0.05	AN400 CEO-100
p,p' - DDD	µg/L	0.05	AN400 CEO-100
beta - Endosulfan	µg/L	0.05	AN400 CEO-100
p,p' - DDT	µg/L	0.05	AN400 CEO-100
Endrin aldehyde	µg/L	0.05	AN400 CEO-100
Endosulfan sulphate	µg/L	0.05	AN400 CEO-100
Methoxychlor	µg/L	0.08	AN400 CEO-100
Endrin ketone	µg/L	0.05	AN400 CEO-100
2,4,5,6-tetrachloro-m-xylene -Surrogate	%	1	AN400 CEO-100

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
Date Extracted			
Date Analysed			
Dichlorvos	µg/L	1.2	AN400 CEO-100
Diazinon	µg/L	0.2	AN400 CEO-100
Fenitrothion	µg/L	0.06	AN300 CEI-200
Malathion	µg/L	0.2	AN400 CEO-100
Chlorpyrifos	µg/L	0.06	AN400 CEO-100
Parathion ethyl	µg/L	0.08	AN400 CEO-100
Azinphos methyl (Guthion)	µg/L	0.6	AN400 CEO-100
2,4,5,6-tetrachloro-m-xylene -Surrogate	%	1	AN400 CEO-100

RTI DL RELEASE - EIR

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
Date Analysed ^			
Date Extracted ^			
Hydrocarbons C6-C9 ^	µg/L	40	AN433
TRH C10-C14 ^	µg/L	100	AN403
TRH C15-C28 ^	µg/L	200	AN403
TRH C29-C38 ^	µg/L	200	AN403
Benzene ^	µg/L	0.5	AN433
Toluene ^	µg/L	0.5	AN433
Ethyl Benzene ^	µg/L	0.5	AN433
Xylenes ^	µg/L	1.5	AN433
BTEX Surrogate (%) ^	%	↓	SEO-018

RTI DL RELEASE - EX-10

CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
Date Extracted ^			
Date Analysed ^			
Naphthalene ^	µg/L	0.5	AN420
2-Methylnaphthalene ^	µg/L	0.5	AN420
1-Methylnaphthalene ^	µg/L	0.5	AN420
Acenaphthylene ^	µg/L	0.5	AN420
Acenaphthene ^	µg/L	0.5	AN420
Fluorene ^	µg/L	0.5	AN420
Phenanthrene ^	µg/L	0.5	AN420
Anthracene ^	µg/L	0.5	AN420
Fluoranthene ^	µg/L	0.5	AN420
Pyrene ^	µg/L	0.5	AN420
Benzo[a]anthracene ^	µg/L	0.5	AN420
Chrysene ^	µg/L	0.5	AN420
Benzo[b,k]fluoranthene ^	µg/L	1	AN420
Benzo[a]pyrene ^	µg/L	0.5	AN420
Indeno[123-cd]pyrene ^	µg/L	0.5	AN420
Dibenzo[ah]anthracene ^	µg/L	0.5	AN420
Benzo[ghi]perylene ^	µg/L	0.5	AN420
Total PAH ^	µg/L	9	AN420
Nitrobenzene-d5 ^	%	0	SEO-030
2-Fluorobiphenyl ^	%	0	SEO-030
d14-p-terphenyl (Surrogate) ^	%		AN420



CLIENT: Tablelands Regional Council
PROJECT: Ground Water

Laboratory Report No: CE65171

LABORATORY REPORT

NOTES:

LOR - Limit of Reporting.

^ This analysis was determined at our Sydney Laboratory, their reference 72769.

^^ This analysis was determined at our Sydney Laboratory, their reference 72805.

Analysis Date: Between 5/10/09 and 20/10/09

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Geneva Legal Comment

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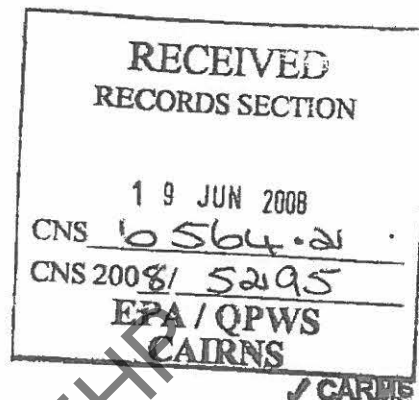
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TABLELANDS REGIONAL COUNCIL

File Ref: WAS-DEP
Admin Ref: ZW

Your Ref: CNS6564



17 June 2008

Environmental Protection Agency
Attn: Ingrid Fomiatti Minnesma
PO Box 2066
CAIRNS Q 4870

Dear Madam,

I refer to your letter dated 23 May 2008 regarding the rectification of non-compliances identified in the third party audit report on the Mareeba Landfill. I advise that a rectification schedule as attached was adopted by Council at its last ordinary meeting. You will note from the attached schedule that several of the items identified in the audit have already been addressed.

If you require any further information I can be contacted on ph 40967660.

Yours Faithfully,

sch4p4(6) Personal information

Zoe Williams
Acting Manager Waste Services

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Website: www.trc.qld.gov.au

Area of non-compliance		Rectification Action	Timeframe	Responsible Person
General				
G1: Issues of non-compliance detailed in the summary table indicate that not all reasonable and practicable measures to prevent and / or to minimise the likelihood of environmental harm being caused were taken.		Undertake regular site audits to identify potential areas of non-compliance and measures to address these.	Monthly from June 2008	Anthony Cullen
G14: Third Party Environmental Auditing was not undertaken within 28 days of commencement of the activity		Audit completed 23/04/08 Audit submitted 23/04/08	Completed Completed	
Air				
G16: The Audit report was not submitted within 28 days of completing the audit.				
A3: The release of dust and/or particulate matter resulting from the EPA caused an environmental nuisance at the nearby rodeo grounds resulting from landfill fire in the old waste disposal area, which is understood to have occurred prior to the issuing of the current EPA permit. This is considered to be a transitory issue which can be managed by waste removal procedures and provision of adequate fire fighting resources and response measures.		Continue to monitor access to the site and implement daily compaction and covering to reduce the likelihood of fires. Arrange additional firefighting capability on site.	June 2008	Landfill Operators
A11: Landfill gas monitoring is purportedly undertaken on a daily/weekly basis however this activity is not documented (LFG concentrations are not written/recorded).		Implement recording system for gas monitoring	June 2008	Anthony Cullen
Land				
L5: Insufficient interim cover has been placed over Cell 1B as waste is exposed in a number of areas. Permeability of inadequate cover has not been assessed and ponding was observed to be present on the surface of Cell 1B. To assist the resolution of this issue an assessment of the timeline for movement of waste from Cell 1B should be undertaken (see W10). In the interim suitably compacted cover should be placed over a re-profiled Cell 1B to prevent the ponding of water		Provide appropriate interim cover for cell 1B until reprocessing can occur. Ensure cover material is low permeability. May be necessary to source suitable cover material offsite as material stockpiled onsite does not appear to have sufficient clay content and is too dispersive to be used as interim cover.	October 2008	Anthony Cullen / Landfill Operators
Social				
S1: Recoding of details for complaints received does not appear to occur in a consistent manner meaning that reports made to the landfill are not necessarily recorded by the central database. Adherence to or amendment of complaint reporting procedures should be undertaken to ensure central reporting occurs.		Record all complaints in Council's Dataworks system.	Immediately	All staff
Waste				
W17: Development of a written procedure to log and warn parties who deposit inappropriate materials at the drop-off area should be developed.		Develop procedure and log system. Train all staff in the procedure	June 2008	Anthony Cullen
W122: The storage, treatment and reprocessing of wastes, including green waste is not carried out on hard stand areas in all cases as required. Review of operations and where necessary provision of additional hard stand area in compliance with the permit item is required.		Pads for storage and processing of greenwaste and scrap metal completed March 2008.	Completed	
W126: Waste oil drums were observed to be stored on an unsealed surface. A waste oil storage receptacle comprising a self contained "shed" unit was situated on a hard stand area. Staining of a limited area of the unsealed area was noted in an area adjacent to the oil recycling infrastructure where some drums were stored.		Store all waste oil drums in the designated area. Identify alternate storage options (eg banded pallets) if large numbers of drums need to be stored pending disposal.	June 2008	Landfill Operators
Water				
W1: The general storage of stockpiled soils and state of raised areas is such that on-site sediment transport was observed to occur in addition to which build-up of sediment was noted in stormwater drains. Drains internal to the cell do not appear to have been maintained adequately. Vegetation on the internal batters was not established allowing sediment build up in drains. Improved vegetation of erosion risk areas and maintenance of drains is required.		Identify and implement ways to minimise erosion of stockpiled materials. Clear internal drains. A report has been commissioned to address options for erosion control on internal batters.	July 2008	Anthony Cullen / Manager Waste Services
W4: It is apparent that sediment ponds are not monitored for parameters contained in Tables Two and Three not less frequently than monthly. It is noted that at the time of the audit no discharge of water		Implement water monitoring program as per approval conditions. Record results in collated format including		Anthony Cullen /

from the sedimentation pond was reported to have taken place since its construction.			
W8: The sedimentation pond should be maintained to ensure an effective operating condition, however the pond was observed to be approaching its freeboard limit at the time of the site inspection audit. It is also noted that this was immediately following 50mm rain received the Monday/Tuesday preceding the site visit for the audit.	maximum and minimum levels where applicable, and identify all non-compliances with discharge parameters. Undertake an evaluation of the discharge point of the sediment pond to identify reasons for the poor flow from the sediment pond. Continue to monitor water during discharge.	June 2008	Waste Services Administration Staff
W9: Landfill liner should be prepared and constructed in accordance with Section 6.4 of the Mareeba Landfill SBMP and specifications of drawing numbers 60018386-101 to 60018396-108. No construction documentation/report was provided by M/SC for review however it is understood that level one supervision of liner construction by an experienced lining installation supervisor was practiced. Additionally damage to the liner had occurred during investigations into why groundwater inflows to the groundwater sump were not keeping up with groundwater rising. It was indicated that the repair was not completed to MSC's satisfaction and ongoing liaison with the contractor is occurring regarding further rectification.		July 2008	Anthony Cullen
W10: The site should be operated in a manner that minimises the generation of leachate. However as there is a decreased rate of waste acceptance the operational plan for Cells 1A and 2, which was based on a high rate of waste acceptance, should be revised.	An evaluation of the liner has been commissioned. Undertake a review of SBMP and develop amended SBMP and site development plan taking into account the reduced waste volumes.	Report due June 2008	Manager Waste Services
W14: Leachate pumping stations were not fitted with pump-failure or high-level alarms able to operate without mains power and notify the appropriate person to respond to the alarm.	Review the leachate pumping system and report on options for alarm and back up systems.	Report due June 2008	Manager Waste Services
W15: Leachate generation and water balance calculations are not currently undertaken, however the data is available to facilitate this. Leachate quality sampling has not been undertaken in accordance with EPA permit requirements.	Implement water monitoring program as per approval conditions. Record results in collated format including maximum and minimum levels where applicable, and identify all non-compliances with discharge parameters.	August 2008	Anthony Cullen
W16-18: Surface water quality monitoring has not been undertaken in accordance with EPA permit requirements	Implement water monitoring program as per approval conditions. Record results in collated format including maximum and minimum levels where applicable, and identify all non-compliances with discharge parameters.	July 2008	Anthony Cullen
W19-22: Groundwater monitoring has not been undertaken in accordance with EPA permit requirements	Implement water monitoring program as per approval conditions. Record results in collated format including maximum and minimum levels where applicable, and identify all non-compliances with discharge parameters. EPA to be notified of any non-compliances.	July 2008	Anthony Cullen
	Install additional bore monitoring points as per site development plan.	October 2008	Anthony Cullen

Assessment Report

Environmental operations

Environmentally relevant activity/ies

APPLICATION NOTES:

1. Each assessment report prepared to support recommendations made for decision, is to be structured in the format shown below.
2. Explanatory notes for completing the report are given under each heading in brackets.
3. The report is to be completed, where indicated, to confirm conclusion of supervisory review/endorsement, and decision stages of the process.

This assessment report is for environmentally relevant activities to be assessed via the Integrated Development Assessment System in the Integrated Planning Act 1997.

COUNCIL DA NUMBER: NIL	EPA PROJECT NO: 305420
EPA DA NUMBER: IPDE00493906A11	FILE NO: CNS6564
APPLICATION TYPE: EPA is the assessment manager	
DEVELOPMENT TRIGGER: MCU for an ERA	
DEVELOPMENT DESCRIPTION: ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.	
LOCATION DESCRIPTION: 38 Vaughan Street, Mareeba. Lot 517 CP851523	
APPLICANT: Mareeba Shire Council	
TRADING AS:	

1. Issues

Background

The site under assessment has historically been used by the Mareeba Shire Council for waste management and disposal activities for the majority of waste within the Shire. They have had in place for many years an approval to landfill up to 20,000t/yr. However, particularly in more recent years it has been identified that the site has been poorly managed and monitoring has been lacking. This culminated with an Environmental Management Program being required and submitted in mid 2006. This was approved in October 2006 and conditions included the immediate improved management of waste and leachate/stormwater at the existing site, construction of new engineered cells in early 2007 and the undertaking that 10,000t/yr of previously deposited waste was to be reprocessed into the new lined landfill cells.

During the second half of 2006 the Mareeba Shire Council also entered into an agreement with CEC (now SITA-CEC) to dispose of residual waste from their newly acquired Bedminster Plant in Cairns. The Bedminster Plant being used to accept, sort and process most of the waste produced in the Cairns, Douglas and Mareeba districts. The owners of CEC did not wish to utilise the Springmount landfill for disposal of residual waste.

New demands of volume and the injection of funding from CEC-SITA then meant that Mareeba Shire Council made a move to expand their landfilling operations to that of an ERA disposing of 75,000-100,000t/yr. This meant that a new approval would be needed for a material change of use at the site. From the outset at several pre-lodgement meetings between the EPA, Mareeba Shire Council officers and their consultants Maunsell, the applicant was advised that the new approval would reflect current best practice conditions for the siting, construction and operation of a landfill.





Construction of the landfill cells started in earnest in the fourth quarter of 2006 and before the EPA received the application. This action and the fact that Mareeba Shire Council is not assessing the MCU under their planning scheme has been the subject of court action instigated by FGF Thiess. FGF Thiess own and run the Springmount landfill which is the largest site in the region and with which this landfill will go into direct competition. Their claims relate to the alleged breach of planning statutes and the EPA has been called upon as co-respondent with Mareeba Shire Council. The court action is yet to be decided and the EPAs involvement is being handled by the Legal Services team in Brisbane. The residual waste from Bedminster is currently being sent to Cairns City Council's Portsmouth Landfill as the Mareeba landfill has reached it's currently approved waste threshold of 20,000t/yr for the last 12 months.

The initial application for an approval was received on the 24 October and a request for additional information was issued. This request consisted of 49 items and ranged across the full extent of environmental impacts.

Water

Surface waters

The closest watercourse to the site is Granite Creek. The creek passes to the southeast of the lot with a northeast-southwest alignment. The site generally drains to the northeast, with a depression existing from the centre of the lot towards the north-eastern corner. This depression is the result of previous sand reclamation in the area (Golder Associates, 1993).

All contaminated waters and leachate from wastes are to be directed to the leachate collection system and pumped to the Mareeba Sewage Treatment Plant. On site stormwater and surface waters that do not come into contact with wastes or contaminants are directed to a constructed sediment pond.

Stormwater impacts will be controlled using a number of techniques. Pooling of water will be limited by grading surfaces appropriately. Temporary diversion bunds will be constructed up gradient from areas of active operation. Minimisation of contact between stormwater and waste will be achieved by limiting the size of the working face and only having one working face operational at anyone time, and using the temporary bunds.

A sedimentation pond will be used to store potentially contaminated stormwater water; the quality of the stored water will be tested regularly according to conditions set in the approval. Discharge from the sediment pond will be directed via a stone reinforced spillway to a flat grassed area to the north west of the lot. It is not anticipated that the discharge waters will have an impact on any nearby creeks, as there are none in the immediate vicinity of the discharge point and the land is graded away from Granite Creek. It has been proposed that the sediment pond water may in future be used for irrigation of the Golf Course that shares the north-eastern border with the proposal site. Additionally, the sedimentation pond will act as a water source in case of fire emergency. Space is available to construct a secondary sediment pond if this is required in the future. Maintenance of the sedimentation pond will reduce the likelihood of overtopping during periods of high and/or frequent rainfall.

Mareeba has a mean annual rainfall of 918mm (averaged over the past 51 years). Mareeba has an average of 98 rain days per year. The highest monthly average rainfall of 270mm occurs in December and the lowest monthly average rainfall of 37mm occurs in September. All drainage and sedimentation pond design requirements have been based upon a 10 year, 24 hour recurrence interval, (Australian Government Bureau of Meteorology, Accessed 5 September, 2006). As construction of the site has already reached significant completion the sediment pond has been inspected and is well constructed and appears to be extremely large, possibly in excess of the design capacity.

The waste transfer station operating on the site does not trigger the threshold to be an approved ERA, however it is intended to set conditions for fuel storage, oil storage, battery storage etc that should address surface water concerns from this area.

Discharge trigger levels have been set for the discharge of water to the adjacent land from the sediment pond.



Leachate and Groundwater

Leachate

The existing approved landfill is unlined and situated on permeable soils. For this reason, it is probable that contamination from historical landfill activities has entered the groundwater. Insufficient monitoring and reporting over previous years under the existing approval has however meant that the extent of groundwater contamination is unknown. As stated above the existing landfill site is operating under an Environmental Management Program – one condition of this being that 10,000t/yr of waste from the existing landfill is to be reprocessed into the new lined cells.

The new landfill cells covered by this assessment will be engineered with a low permeability composite liner and leachate collection system – in accordance with EPA Guidelines on landfill liner construction. A considerable proportion of waste will be the residual waste from the Bedminster plant and it is stated by the applicant's consulting engineer that this will produce less leachate than the usual putrescibles waste stream. Further to this the completed areas will be capped and this too will reduce the ingress of rainwater into the waste body, ultimately reducing the potential for leachate to be generated.

Should leachate be generated during the early stages of operation, it will be extracted and pumped to the Mareeba Sewage Treatment Plant (STP) or recirculated within the landfill cell at the working face. It is anticipated that the sewage connection will be available to convey the leachate to the Mareeba STP when the landfill commences operation, providing the long-term disposal solution.

Groundwater

The water levels in the existing groundwater monitoring bores show the groundwater table to be approximately 8m below ground level at BH2 with the depth greater at other locations. Groundwater contours based upon 1993 data is presented within the Golder Geotechnical/Hydrogeological Investigation. Groundwater contours post 1993 cannot be developed as data for only two wells (BH2 and BH7) has been provided since 1999. Between 1993 and 1999 no groundwater level data has been provided – this was in non-compliance with their approval for the majority of this time.

Groundwater level within these bores remained relatively consistent in the period from April 1999 until July 2005 (levels fluctuated between 12 and 13mBGL); however, in October 2005 a marked rise in the water level to 8.7mBGL was noted.

BH2 was included as part of the original investigation and recorded a standing water level at approximately 10.6mBGL. Since April 1999, the standing water level within this bore has fluctuated markedly generally between approximately 7mBGL to 12.9mBGL.

During the geotechnical investigations into sourcing a suitable clay liner for the landfill a total of 13 test pits were dug to depths of up to 3m. It was noted by the applicants consultant engineer that free ground water was not observed in a single pit. However, no pits were dug in the north west area of the landfill where the perched ground water table was encountered.

During excavation of the cell groundwater was encountered in the north west corner as well as the western end of the sediment pond. The water was observed to seep into the open excavation through a sand lense running generally in a north south direction. The free groundwater was observed to be as close as 500mm below the natural surface. The cell was excavated to a depth of approximately 4m below ground level and free groundwater was not evident throughout the construction period except in several areas where the sand lense was encountered. In the sediment pond which was excavated to approximately 3m depth free ground water was observed at the western end so a 10m section of the excavation was reinstated and no water ponded, or was observed weeping into the sediment pond. It is considered that the sand lenses dissecting the clay stratum in the north west area of the site act as a reservoir for a perched water table due to the impermeability of the clayey material. In areas outside of the sand lense no free groundwater was observed during the two month construction period. It is proposed that a condition be set to monitor the water quality in this sand lens as an effective early indicator if the landfill lining is breached.

It is proposed to set comprehensive conditions for the monitoring and control of groundwater quality around the landfill based on current Queensland Water Quality Guidelines and ANZECC standards. This process is covered in more detail later.

Waste

The Waste EPP requires that wastes be dealt with as high up the waste hierarchy as is reasonably and practicably possible and that landfilling is the last, and least preferred, option. The Regional Strategic Planning document FNQ2010 identified the need for a long-term landfill to dispose of any residuals or untreatable wastes from waste recovery and reuse options. FNQ2010 promotes the recycling of wastes through material recovery, recycling and composting. While a large engineered landfill is already operating at Springmount it is currently the only such facility in the region. The majority of the waste to be disposed of at the Mareeba landfill will be residual waste from the Bedminster composting facility.

Conditioning of the Development Approval has been approached on the basis that the landfill should operate in accordance with current best practice standards in Queensland. Due to the scrutiny and proximity of another modern landfill in the region many of the conditions also reflect those in the license issued for Springmount landfill. In addition to those conditions, more conditions will be set for trigger values and maximum limits for groundwaters around the site and tighter conditions are set for surface water discharge when compared to Springmount landfill.

It is worth noting at this point that Springmount is approved for the disposal of regulated waste – this application does not apply for approval to dispose of regulated waste and is therefore considered a much lower risk despite the additional controls. This point is reinforced in the conditioning where prohibited waste includes those that are regulated (apart from 'limited regulated waste').

A key principle incorporated in the Development Approval is the segregation of recyclable materials from all waste to be disposed of at landfill. This condition is consistent with that set Springmount landfill. The requirement is also consistent with the principles of the Waste Management Hierarchy and maintains standard for landfill operation in region and continues to set the standard for Queensland. Conditioning of the Development Approval for the facility has included provisions for the long-term storage recyclable materials, which may not currently have a market, to allow recovery in the future.

The proposed DA conditions prohibit the disposal of certain types of waste materials where options higher up the waste hierarchy are already regionally available or are common waste management practice for these materials. This is consistent with the Agency's obligation to implement the waste hierarchy set out in the Waste EPP and, as a consequence, prohibits the landfilling of recyclable wastes. There are already opportunities for the separation of recyclable components of such wastes. Reuse options for putrescible wastes, such as fish processing, poultry processing and commercial kitchen waste, are regionally available and are preferred to landfill disposal. In accordance with the Waste EPP, this landfill should not divert these materials from beneficial reuse options if such options exist.

Noise, odour, vibration and dust

It has been identified that cells 4 and 6, which are proposed to be operated during the 10 – 15 year phase of site development are within a buffer distance of 500m from a residential premises. This does not comply with EPA policy for positioning of a putrescibles landfills as defined in Table 1 of the *Guideline: Landfill siting, design, operation and rehabilitation*. However the buffer for non-putrescible landfill is 200m and the cells are well outside this distance.

The Guideline also states that: "Reduction of the indicative buffer distances is only possible if it is demonstrated to the EPA that sensitive areas and other protected activities will not be adversely impacted by the landfill operations." In an effort to do this Mareeba Shire have stated that:

Additional controls will be implemented to control impact from cells 4 and 6 during their phase of operation – daily covering of wastes, construction of a screening berm, dust suppression using water trucks, reducing the working face to 20 lineal metres, etc. It is believed by the assessment manager that the main problem in relation to this buffer will be odour as dust is relatively easy to control and the fact that the main road out of Mareeba runs adjacent to the landfill site and affected houses will mean that the increased noise will be minimal.

The applicant has stated that the Bedminster residual waste is also less odorous than normal putrescibles waste as much of the organic and more volatile wastes have already been removed during the composting process. (It is worth noting that an effort was made during 2005 to classify this Bedminster residual waste as non-putrescible, however the EPA decided that this was not appropriate).



In further support of their application Mareeba Shire Council has stated that they have not received any complaints from these nearby residences in at least 18 months (limit of records). This is despite the fact that during this time there have been extensive earthworks to recontour and construct the site and the pre-existing landfill area has been well within the 500m buffer for its operating life. Operations for the first ten years of the site should not encroach on this 500m buffer.

Vibration should not be an issue at the site.

Standard conditions will be set for the control of noise, odour, vibration and dust. An additional condition is to be set limiting the use of cells 4-6 to non-putrescible until the Council demonstrates that an odour nuisance is unlikely. As a minimum odour modelling should be conducted to fulfil this condition.

NOISE

Land

The final landform of the site will be finished to meet EPA Guidelines on final construction. The cells will be graded to effectively shed water and will be revegetated with native species reflecting the surrounding land uses.

The final cover and capping method has not yet been finalised as Mareeba Shire are seeking to become part of the Australian Alternative Capping Assessment Program (AACAP).

A subsequent land use has not yet been identified.

Community

As stated above, Mareeba Shire Council have stated that they have not received any complaints in the last 18 months. The EPA have not received any public objections or concerns relating to the site – although no public advertisement was required. Objections have only been made by the operators of the competing Springmount landfill site.

2. Description of Operation

The Mareeba Landfill is located on Lot 517 on CP 851523 in the Parish of Tinaroo within the County of Nares; the site is approximately 29 ha. Sealed road access to the site is via Mareeba Dimbulah Road, which passes to the south of the site. The site is predominantly covered by grasses with scattered shrubs.

Surrounding land uses include:

- A proposed industrial development to the north of the site; Detached housing to the east and south-east;
- Open land to the east;
- The northeast and eastern boundary is shared with the Mareeba Golf Club and Mareeba International Club;
- A cemetery is located south of the site;
- Open spaces and detached housing to the east and north east; and
- To the west of the site is land used for rural purposes.

The closest watercourse to the site is Granite Creek. The creek passes to the southeast of the lot with a northeast-southwest alignment. The site generally drains to the northeast, with a depression existing from the centre of the lot towards the north-eastern corner. This depression is the result of previous sand reclamation in the area (Golder Associates, 1993). Other areas throughout the site are characterised by local depressions and these allow pooling of surface water from time to time.

A hydrogeological investigation reveals that groundwater exists at approximately 12m below the natural ground surface level (Golder). One notable exception was the presence of a perched watertable close to the north east boundary of the site. The perched water table is believed to be recharged by the aforementioned reclaimed sand depression. This depression will be filled as part of the land filling activities; resulting in the draining of the perched table locally. This will return the water level in this area to the same as that of the regional watertable over time.

Cairns City Council, Douglas Shire Council and Mareeba Shire Council currently treat and dispose/reuse all domestic wastes through the CEC Resource and Recovery Plant based in Cairns with the residual waste proposed to be transported to Mareeba Landfill by 60m³ trucks. This plant is currently being upgraded to improve resource recovery and plant performance. Biodegradable matter in the waste is



converted to inert organic material and gas. One of the by-products of the process is inert material: broken glass, hard plastics, small pieces of metal, etc. As this material cannot be treated or processed further, the only disposal option is landfill.

Daily operations at the landfill include receiving and placing waste, compacting and covering waste. Prior to receiving incoming waste an inspection of the waste will be conducted to prevent the entry of prohibited wastes. Waste material that is not defined as acceptable under these conditions will be redirected to an appropriate facility for disposal. The approval will condition wastes that are to be prohibited or accepted at the landfill.

Incoming waste transported by transfer vehicles will be weighed out at the Bedminster facility in Cairns and weighed in at the landfill facility. Upon arrival at the working face waste will be placed directly into the operational landfill cell. Handling and manoeuvring of the waste will be accomplished with a landfill compactor or bulldozer. Additional plant and equipment may be used to assist with covering the controlled fill. The operational area of the working face within the cell will be limited to 20m in width.

Where appropriate at the working face daily cover will be accomplished. The landfill cells are to be staged according to Drawing Number 60018396 SK004-008. The cells have been designed to be developed with lifts of 2m to a maximum height of 25m from natural ground; this gives an air space of 180,000 m³ in Stage 1.

All wastes will be deposited in lifts not exceeding a vertical height of 2m. Each lift of waste deposited is to be consolidated to a density of 0.7 tonnes per cubic metre including cover material.

The operation of the site will involve the following major functions:

- Access to the site and access control;
- Operation of weigh-bridge system and generation of reports;
- Operation and maintenance of a 60m³ bin based transfer area;
- Maintenance of access roads and controlling of traffic within the site;
- Waste deposition and compaction;
- Provision and placement of cover material; and
- Control of nuisance.

The Landfill Manager will be responsible for implementation of all control measures and all inspection and/or monitoring activities described in the following sub-sections. Adopted performance indicators have been prescribed to both control measures and inspection/monitoring activities.

Landfilling operations will start at the lowest point of the proposed cell and be managed so as to attain the designed intermediate level at that point as soon as possible. This level will then be covered and sealed with intermediate cover, a soil of low permeability to reduce the ingress of water and the resultant leachate production from the landfill. The landfill is to be structured in a series of terraces.

Waste deposition will be conducted in adherence with the proven sanitary landfill principles of spreading, compacting and daily covering of waste. To achieve this, a single cell shall be constructed and enclosed by cover material on each alternate operating day (every day in the case of cells 4&6). In order to expose as little waste as possible to rainfall and the environment and to afford the best compaction, waste cells will be as narrow as conditions permit. The mass of waste and number of vehicles accommodated during the operating day will determine the size of the cell.

3. Emissions, Discharges and Environmental Compliance

As stated above, in addition to the submitted application a detailed request for additional information was put together with 49 points requiring a response. This information was used to ensure that a comprehensive assessment was carried out on all possible environmental impacts.

Due to the close proximity of the Springmount site that was approved in the last four years and the perception that that approval was comprehensive and contemporary many of the conditions were taken from that approval. This is to ensure that a 'level playing field' is in place for both competing operators and that standards of best practice are assured.

In addition to the many conditions taken from the Springmount approval this site is also conditioned for relevant groundwater quality parameters (both trigger values and limits) and much tighter surface stormwater quality limits that reflect the Qld Water Quality Guidelines (QWQGs) and ANZECC 2000 standards.

A number of new EPA standard conditions are also included here. It is worth noting when considering the nature of the conditions in relation to Springmount that Mareeba is **not** to dispose of regulated waste.

Agency interest - General

Summary of conditions - general

Condition	Standard (Y/N)	Justification
G1	Y Springmount (SM)	This streamlined condition makes compliance with the General Environmental Duty an obligation and defines the limits of the document in permitting environmental harm
G2	Y (SM)	Maintenance of any plant will need to be conducted in particular for waste disposal / treatment activities.
G3	Y (SM)	This standard SBMP condition has been extended to identify issues of importance in the operation of the site (diversion of stormwater, waste monitoring to detect prohibited wastes, leachate management, etc) that should be addressed in a landfill SBMP.
G4	Y EPA – Eco Track (ET)	Adds specification that SBMP details must comply with approval.
G5	Y (ET)	Reinforces obligation to provide records
G6	Y(ET)	Reinforces obligations under waste tracking requirements
G7	Y (SM)	This condition requests the submission of a detailed site development plan for each subsequent waste disposal cell. This plan is necessary to ensure that site development takes place in a way that will not result in environmental impact and to provide the Agency with information on the site's operation.
G8	Y (ET)	Broadly specifies the controls required from the final cover material. This is not overly specific as best practice may have moved on by the time the landfill will be ready closure. In particular the Mareeba SC are looking into alternative capping through the ACAP process.
G9	Y (ET)	These conditions deal with the submission and content of a site closure and post closure plan, which will ensure that the site is closed in a way that will minimise post closure impacts by ensuring that all potential issues arising during the post closure phase of site operation are identified and addressed at an early stage and planned for. This includes two extra requirements from the Springmount approval relating to the minimum period it must account for.
G10	Y (ET)	Site management plan following closure. Reinforces the requirements under the Contaminated Lands Section.
G11	Y (ET)	Security – prevents unauthorised access to site (fires, illegal dumping of prohibited wastes, etc.
G12	Y (ET) plus additional	This condition requires provision of an appropriate on-site fire fighting system. The local volunteer rural fire brigade will not have the equipment, resources or

	requirements	expertise to fight a landfill fire and would be unlikely to attend any fires on the site making the operators totally responsible for on-site fire control. Additional text to ensure that MSC provide a suitable water supply for fire fighting – in the light of the two major fires that remained uncontrolled for a long period of time in 2006 due to inadequate water supply for fire fighting.
G13	Y (ET)	Fire break
G14 – G17	Y (ET)	Requirement for third party auditing upon commissioning of the site and every two years. This has been included as a best practice condition to ensure that MSC regularly internally monitor their compliance with this approval. This seen as important due to the historical ongoing non-compliances identified at the existing site.
G18	Y (ET)	Notification – timely and made to EPA.
G19	Y (ET & SM)	This is a key condition requiring continual improvement through application of waste management practices aimed at reducing the amount of waste disposed of to landfill. It requires that a Waste Management Plan, as per the EPP Waste be implemented with an annual summary report on the implementation of the plan being provided to the EPA. The summary report is consistent with the reporting requirements for local government waste disposal practices and could not otherwise be required from a privately operated landfill. EPA included requirements for training and information to be supplied to waste generators and transporters, taking into account economic, social and environmental factors to maximise diversion of waste from landfill, promote resource use and provide for continuous improvement in waste management practices on site.
G20-21	Y (ET)	Requirement for spill kit – storage of waste oil and chemicals on site plus ongoing use of the site by heavy vehicles carrying fuel, hydraulic fluid, etc.

Agency interest - Air

Impact from development of a landfill within EPA recommended buffer zones to be assessed and conditioned.

Dust

As stated above it is felt that the standard condition for dust will be satisfactory for this approval, although the site is within the recommended buffer zone, as it is felt that dust generation can be effectively addressed with proper management controls.

Gas

The EPA requires that all putrescible landfills with annual disposal rates exceeding 20,000 tonnes/pa must have a passive (venting) or active collection system installed. The SBMP accounts for comprehensive gas monitoring. The applicant's consulting engineer maintains that a large amount of landfill gas is not expected due to the nature of the incoming waste disposed of at the site. In the event that the composition of accepted wastes changes significantly this stance will require re-assessment. It is proposed that annual monitoring on a 50m square grid basis at a height of 50mm above the surface (final/or interim including batter slopes) cover will be carried out to determine if landfill gas generation is significant. A threshold of 500ppm will be conditioned and will dictate determining whether the future development of a landfill gas system is required.

Odour

As two future cells (4 and 6) are proposed to go within the 500m buffer to residential premises (EPA policy) odour is seen as being a potential problem for this site. The 500m buffer is an internal policy and not legislated and has the added proviso that "Reduction of the indicative buffer distances is only possible if it is demonstrated to the EPA that sensitive areas and other protected activities will not be adversely impacted by the landfill operations." In order to address this potential problem the applicant has put forward the following:

- The majority of organic material and volatile compounds will be removed from the main waste stream through the Bedminster composting process and therefore odour will be greatly reduced when compared to a normal putrescibles waste stream, as covered by the policy requirements.

The previous owners of Bedmister tried to have the residual waste classified as non-putrescible – this was previously refused by the EPA.

- No complaints are recorded as being received about the existing landfilling operations at the site. These records only extend back by 18 months.
- The prevailing winds in the area are south easterly which would direct winds away from the affected residences over an unpopulated area of waste ground.
- Management practices will be put into place to further reduce odour generation – i.e. daily covering of waste, screening the disposal area by soil and vegetated berms, etc.

After taking these issues into consideration the project manager has decided to currently approve the use of cells 4 and 6 but only for the disposal of non-putrescible waste as this will satisfy the requirements of EPA policy. Although the above points made by the applicant partly demonstrate that odour shouldn't be a problem I believe that more should be done to demonstrate it – particularly in the area of modelling, which has not been carried out to date. Therefore a condition is proposed to approve the cells for use for the residual waste only if and when odour modelling demonstrates that odour should not be factor at the affected premises and they have a record of no complaints. As cells 4 and 6 are only to be used in ten years time this will also give the EPA enough time to gauge whether or not there is a body of complaints that would indicate a probable future problem.

The delegate has expressed concern that this may present a "license within a license" and this is acknowledged. However I believe that this solution offers the applicant a degree of security that these cells can be used so long as they perform well in the next ten years and carry out proper monitoring. I believe it also gives the EPA control of the use of the cells if a problem is identified.

Summary Conditions - Air

Condition	Standard (Y/N)	Justification
A1	Y (ET and SM)	The streamlined odour nuisance condition is required because there is a risk of offensive odours associated with the proposed activities and this condition sets a clear standard and is easily enforceable. This is further reinforced by the site specific condition A2, for cells 4 and 6 which do not strictly comply with EPA policy for buffer zones.
A2	No	This condition is inserted due to the non-compliance of cells 4 and 6 with EPAs policy for buffer zones for putrescibles landfills. Justification is given above.
A3	Y ET	The streamlined dust nuisance condition is required because there is a high risk of dust being generated on site and nuisance associated with this is possible. This condition sets a clear standard and is easily enforceable.
A4 – A5	Y ET	These standard conditions give the operator a baseline standard for dust should any complaints be generated and they also set a monitoring protocol. This seen as critical given the buffer issue.
A6 – A7	Y (SM)	This controls the release of gas to a level where it may cause environmental harm and sets the standard for what may constitute environmental harm. A7 also makes a requirement for gas monitoring.
A8	Y (SM) plus addition text	This condition is added to ensure that where methane is detected at levels that constitute environmental harm a gas collection and venting/reuse system must be installed. The applicant is stating that gas generation should be minimal due the nature of the waste – this condition will be called in if this does not prove to be the case. The possibility of energy production from methane is also taken into account.
A9 – A11	Y (SM)	These conditions deal with landfill gas monitoring and are necessary to assess the level of biological activity in the landfill and the amount of gas being released from the waste pile. This information is invaluable in assessing the level of biological activity (particularly methanogenesis) in the deposited waste. Part of the condition also seeks to address health safety issues at site facilities and boundaries.

Agency Interest – land

Operation of a landfill under ERA 75 is a Notifiable Activity as listed in the Environmental Protection Act 1994. The proposed site will be established on a lot previously used as landfill site and for sand extraction. The contaminated land section of EPA has been notified of landfilling operations occurring on site.

Remediation

Conditioning of the DA has taken into account the long term management of the site with a closure and post closure care plan required for the site to be submitted at least 12 months prior to the cessation of waste disposal at the site. In accordance with EPA Guidelines the site will be managed to form a final stable landform to be planted with vegetation reflecting local flora. The Council have not yet decided upon any post closure use of the site.

It should be noted that differently to the Springmount approval there is no condition for the specifications for final capping. The applicant did not submit any such specifications but stated that they would be looking into alternative technology for final capping and would decide closer to the time of closure. This is seen as reasonable as best practice may have moved on from current set specifications by the time the landfill closes in 20-30 years time. Spring mount on the other hand submitted capping specifications and were conditioned accordingly.

Summary – Conditions Land

Condition	Standard (Y/N)	Justification
L1	Y (ET)	Standard condition using AS 1940 for the control of flammable and combustible liquids.
L2 – L4	Y (SM) amended	Specify the rehabilitation requirements for all disturbed areas of the site, require progressive rehabilitation and require that access to areas ready for or undergoing rehabilitation must be controlled. These conditions will ensure that the disturbed area of the site is minimised to limit the risk of off-site impacts on waters from leachate or contaminated stormwater as well as minimising the off-site visual impact of the site.
L5	Y (SM)	Specifies the standards for an interim cover and rehabilitation program for landfill cells that are not likely to receive their next layer of waste within 12 months so that water infiltration and subsequent leachate generation is controlled as well as limiting erosion and sediment in stormwater from these areas. The permeability requirement is not as high as that for final capping due to the temporary nature of the cover, the costs involved and the risk of perched water tables if cover is inadequately ripped prior to placement of future waste lifts.

Agency interest – Noise and vibration

As stated above the noise issue needs to be tightly controlled and well managed as part of the future landfill area will fall within the recommended buffer zone to residential premises. The main source of noise will be from the use of heavy machinery and trucks using the facility. The site will not operate at night and the submitted SBMP has stated that operations will be managed to ensure that higher noise generating activities will be conducted during the week and in the middle of the day, the activities at the working face will be conducted to use the face as a screen and plant is to be maintained in good working order. Standard EPA noise conditions for decibel limits and monitoring have been set.

Summary of conditions - Noise

Condition	Standard (Y/N)	Justification
N1	Y (ET)	This streamlined condition prohibits noise nuisance at a nuisance sensitive or commercial place. This is a catch all condition that will incorporate nuisance at the nearby residences
N2	Y ET	Noise limits have been set using the standard EPA table that adds nominated decibel increases to estimated average background noise levels taken from

		<p>Appendix A of the Australian Standard 1055.2 Acoustics – Description and measurement of environmental noise Part 2: Application to specific situations.</p> <p>The nearest affected residents to the site are the main parties requiring protection from noise nuisance and they have been selected as being a category R3 area – Medium density transportation or some commerce or industry. This is seen as most suitable category as the surrounding transportation networks in the Mareeba area could not be described as having dense transportation and the only industry in the immediate vicinity is the landfill site.</p> <p>This gives a set noise level that is considered by the project manager as being strict but not unreasonable and should satisfy the concerns that the development is within the aforementioned buffer zone and provides the nearest residents with a suitable level of protection from noise nuisance.</p> <p>The Mareeba SC had stated that a background noise assessment would be carried out; however no data has been submitted. As no "Rating background level" has been provided it is impossible to use the EPAs Planning For Noise Control Guideline so this tested method has been used on this occasion.</p>
N3 – N4	Y ET	These standard conditions specify how and when noise monitoring will be required and carried out.
N5	Y ET	This condition has been included as a catch all for any vibration nuisance that may arise from on site operations. It is not anticipated that this will be a problem, however it is being included as the use of heavy machinery and trucks could result in vibration complaints from nearby residences. The other standard condition for vibration that includes specific levels is intended more for where blasting will occur and have therefore not been included. The above condition is seen as being enough to control any possible problems through the assessment of an authorised officer.

Agency Interest - waste

Many of the waste issues have been discussed in detail earlier in this report. The critical issues relate to the control of which wastes may be disposed of at this facility and facilitating the aims of the waste management hierarchy by ensuring that those wastes that have a reuse or recycling value in the region or not disposed of to landfill. The other waste conditions in the main relate to ensuring the best practice operation of the landfill site.

Summary of conditions - Waste

Condition	Standard (Y/N)	Justification
WT1	Y ET	Records - Standard condition for which records a landfill operator must keep – this is in line with the reporting requirements for local governments. As Mareeba SC is a local government this simply reinforces reporting requirements and places no extra onus on the operator.
WT2	Y ET	Site control. Condition ensures that someone is on site for all critical controls to be managed during operating hours. Prevents the problems seen historically with unmanned sites and deposition of prohibited wastes etc.
WT3	Y SM amended	This condition identifies a broad range of waste that can be <u>received</u> at the site and is consistent with the application for the site. Some local

	text	authorities on the Tablelands may wish to dispose of their domestic waste at the facility, equally industrial and commercial waste can be accepted at the facility. Same condition as Springmount except regulated waste has been removed.
WT4	Y SM	This is an important condition that requires that all wastes received for disposal must have already had recyclables segregated at the source or be processed on site. This is consistent with the Springmount license and is seen as best practice and in accordance with the requirements of the waste hierarchy. It is in line with the MSC's application, which proposes recovery of recyclables through sorting at the Bedminster facility. Waste that does not go through the Springmount facility must be subject to source separation as no MRF is operating at the site. Waste from council transfer stations is to be subject to sorting at the sites through the provision of recyclable bins. The applicant has stated that where industrial or commercial loads are received and have not been subject to source separation they will be sent with domestic waste to Bedminster for sorting. EPA modified the condition to use the term recyclable material to assist clarity. This condition is consistent with the waste EPP.
WT5	Y SM	Prohibits the disposal of segregated recyclables at the site, whilst requiring that such materials be reused, recycled or have their energy recovered. If the material cannot be dealt with at a level of the waste hierarchy higher than disposal, recoverable storage is permitted as long as such burial is unlikely to cause any environmental harm. In addition, this condition is seen as important to prevent the possibility that Bedminster compost could be disposed of at the site.
WT6	Y SM additional text	This is a key condition that prohibits the disposal of certain wastes at the facility. The first prohibited waste included is regulated waste as the applicant is applying only for category 75(a) ERA which does not include regulated waste apart from limited regulated waste. The list further clarifies which limited regulated wastes are also prohibited where there are uses for them in the district higher up the waste hierarchy. Importantly this list also includes putrescibles, biosolids and green wastes, which can already be dealt with higher up the waste hierarchy in the region and, accordingly, should not be permitted to be disposed of to landfill. The proponents have asked for no exemption from the waste hierarchy and this proposal must be assessed against the requirements of the Waste EPP. The list also includes the standard high risk wastes excluded from all waste disposal sites, which can result in fire, explosion, management problems and liquids being generated.
WT7	Y SM	This condition requires the operator to take an active part in minimising the contamination of loads by prohibited waste by using a process of monitoring, education, audit and review to reduce load contamination. Should this process fail no further deliveries of waste from the same source should be accepted.
WT8	Y SM & ET	Prohibits the burning of waste on the site and only permits burning of waste received at the site at a facility appropriately licensed under the EP Act. This condition prevents air pollution and smoke nuisance issues associated with waste burning.
WT9 - 10	Y SM	These conditions require that the operator control vectors such as flies, mosquitoes and rats to prevent them causing any off-site nuisance. This condition is required because of the high risk of rat, fly and mosquito breeding around waste disposal sites and the need for continuous monitoring and management. This catch all condition is important considering the public health and nuisance value of vectors (flies,



		mosquitos, vermin) and the proximity to residential premises.
WT11	Y SM	A very broad condition requiring that waste disposal activities are only carried out on the approved lot. This is not intended to control issues such as litter.
WT12	Y SM amended.	Limit the disposal of wastes to an active waste disposal cell where the liner and leachate collection system will prevent any contamination of surface waters and groundwater. This is in accordance with site plans and SBMP where only the lined cells are to be used for waste disposal. Asbestos is not excluded from this condition as with Springmount as FGF had specifically asked for it to be excluded. Mareeba SC have asked for no such exclusion.
WT 13	Y SM amended	Limits the vertical height of a lift of refuse to 2 metres to ensure that adequate compaction and coverage of refuse can be achieved and that the area of the working face is minimised to limit leachate generation without compromising operational efficiency. The 2 metre lift height has been specified by the applicant in their SBMP.
WT14	Y – SM	Specifies a minimum compacted density for waste of 0.7 tonnes per cubic metre to make effective use of landfill volume and to minimise the future subsidence of the site and associated problems of water ponding, infiltration and additional leachate generation. The applicant requested 0.7 tonnes per cu m be used given previous experience at other landfill sites. A concern was raised at the outset about the ability of the potentially 'spongy' residual waste's ability to reach standard compaction levels. However experience at the Portsmouth site has shown that this should not be a problem (Cairns CC have alleged compaction rates of 1.25t/m3).
WT15	Y – SM	Requires the effective compaction of large objects to minimise the creation of voids in the landfill, which can provide breeding opportunities for vectors and long-term subsidence problems.
WT16	Y – SM	Requires at least daily consolidation, compaction and covering of wastes to control wind blown litter or odour and fly nuisance associated with the operation of the active waste disposal cell. The applicant has suggested coverage of waste very two days, however it is recommended that daily be required for purposes of abating nuisance to nearby residents and assure consistency with the Springmount license.
WT17	Y – SM	Requires that a minimum amount of cover material always be available on the site and is consistent with good industry practice as it allows disposal operations to continue during periods of inclement weather or machinery breakdown when cover material cannot be won from the borrow pits.
WT18	Y – SM	Deals with litter management as litter is often the most visible and extensive impact of a waste disposal site and this condition will control any off-site impacts from litter.
WT19	Y – SM	Requires that internal access roads are trafficable at all times so that waste storage, treatment and disposal areas are always accessible to ensure the effective operation of the site.
WT20	Y – SM additional text	Requires the removal of any interim cover before any subsequent waste disposal on top of that cell to allow percolation of leachate through the full depth of waste deposited in the landfill. This ensures the effective operation of the leachate collection system and prevents leachate "breakouts" of perched leachate from the face or sides of the landfill. An additional part has been included from the Springmount condition to ensure that highly compacted waste is ripped to allow percolation where necessary.
WT21	Y – SM	Addresses the detection, storage and removal of prohibited waste from the site within specified timeframes to minimise the risk of any on-site impacts from such waste material.

WT22	Y – SM additional text	Sets a minimum standard of construction for any area of the site to be used for waste storage or treatment that will minimise the risk of any soil, groundwater or surface water contamination being caused by these activities. Additional requirement to deal with any collected contaminated stormwater from these hardstands to the leachate collection system and sewer to prevent surface water contamination.
WT23	Y – SM	Requires that asbestos wastes be disposed of in a dedicated separate disposal area on the site and specifies the standards that apply to this disposal to minimise the risk of accidental exposure through site works or erosion. Standard condition for asbestos disposal to protect environmental and health and safety concerns. Asbestos is allowed for disposal as it is a limited regulated waste.
WT24 - 25	Y – SM	Specifies the storage requirements for waste tyres in either above ground heaps or buried storage to limit potential for fire and vector breeding. In accordance with the Op policy "Conditioning new environmental authorities for storage of scrap tyres". Considered storage and disposal. This has been included due to the possibility that longer term tyre storage may be needed as there is currently difficulty in the region with the collection of waste tyres.
WT26	Y – SM & ET	Requires wet cell batteries to be stored in a way that will minimise the risk of any soil or water contamination.
WT27	Y – SM & ET	Specifies the standards required for waste oil storage and requires a roofed and bunded area to minimise the risk of soil, or water contamination.
WT28	Y – SM	Requires any refrigerators, freezers, air conditioners or any other equipment containing ozone-depleting gases received at the site to be either degassed on site or accompanied by a degassing certificate. This condition will minimise the risk of any accidental release of ozone depleting gases on the site. In accordance with provisions of EP Reg 1998.
WT29	Y – SM	Requires that car bodies must be drained of all oils, fuels and hydraulic fluids before compaction to minimise the risk of accidental release of hydrocarbons when car bodies are being crushed for storage prior to removal for recycling. NOTE: This approval prohibits disposal of car bodies on the site.
WT30	N	Reprocessing of 10,000t/yr of waste from old landfill cells. This condition has been included to reinforce the EMP already in place for the site. Due to the fact that the old site was unlined and it is unclear what waste has been historically disposed of there, the MSC have undertaken to dig up and dispose of the old waste into the lined cells to prevent any further percolation of contaminants to groundwater as the old waste continues to breakdown.

Agency Interest - water

Many of the water issues have been discussed in detail earlier in this report.

Surface water

The applicant has stated that surface water contamination should not occur as all waste water from 'dirty areas' or waste disposal areas will be directed to the leachate collection system and then ultimately the sewer. Surface water discharge should therefore only contain sediment from the site. This water will be collected in a sediment pond designed to not overflow for anything less than a 1 in 10 year stormwater event. Despite this trigger levels have been set for several basic water quality parameters from the sediment pond. The parameters set will also serve to detect any contamination of collected stormwater by leachate or contaminated waters that enter the sediment pond.

Groundwater

All waste will be disposed of into lined cells. The lined cells have been designed and constructed in accordance with current best practice for a landfill construction and also in compliance with the EPAs Guideline on the siting and construction of landfill sites. Leachate is to be pumped to council's sewage treatment plant for disposal. The council have stated that they have assessed their STP's ability to treat the leachate and it is capable of doing so. The EPA is also currently working with the Mareeba SC on the upgrade of their STP and this capability will need to be figured in to any design.

A number of conditions have been set for groundwater quality that should detect any breach of the landfill liner and associated groundwater contamination with leachate (methodology below). It is anticipated that groundwater could already be contaminated with leachate from the existing unlined cells, particularly as the applicant has stated that historically the type of waste going into the old site was an unknown. To further exacerbate the problem the Mareeba SC's groundwater monitoring over the last ten years has been grossly inadequate and in serious non-compliance with license conditions. Therefore the existence or extent of groundwater contamination at the site is currently an unknown and groundwater conditions cannot be set using existing water quality data or with reference to background data. Accordingly groundwater quality limits/levels have been set using the default prescribed standards expected of groundwaters in this area (QWQG and ANZECC).

Summary of conditions - Water

Condition	Standard (Y/N)	Justification
W1	Y SM	No direct discharge of sediment to waters or a build-up of sediment in waters is not permitted.
W2	Y SM	Prevent trucks using the site from dropping sediment and mud on the roadways around the site
W3	N	This condition has been added to limit the discharge from the site to an identified channel leaving the sediment pond. No specific GPS point has been provided by the Council and when questioned at the additional information stage they stated that the discharge would be limited and when it occurred it was to go to a flat area of grassed land north of the landfill site and disperse from there over that lot. The end point of the discharge channel is identified on the site plan. The council have stated that the end of the channel will be reinforced to prevent erosion and designed to diffuse the water.
W4	N	Condition requires daily monitoring during discharge and monthly while it is not. Monthly monitoring will detect the presence of leachate in the surface water run-off. This not seen as onerous as council is confident that the pond will not overflow. The parameters set for monitoring are limited to those which can easily and quickly be taken on site with the correct equipment.
W5	Y ET	Standard to condition to control how water samples are to be taken.
W6	Y using ANZECC & QWQG	Trigger values set for sediment pond discharge water quality and standard requirement in place for ANZECC investigation and actions if values are breached. Methodology as follows;

Activity information

- **Water** – release is not directly to any identified water.
- **Type of activity** – landfill site
- **Contaminants associated with the activity and impacts on waters** – as stated previously the only intended contaminants in the discharge waters are to be sediment and soil from drains and exposed unvegetated areas. All toxicants and contaminants associated with the waste disposal activity are to be directed to leachate collection. Parameters to be monitored for include DO and EC which will indicate the likely presence of leachate in the surface waters and turbidity to indicate sediment levels.
- **Quantity** – the sediment pond is designed for a 1 in ten year event. In accordance with this design the pond may overflow during ten percent of rainfall periods. Mareeba is one of the driest areas in the



region with rainfall data given in section 1. Therefore the characteristics of discharge should be intermittent and irregular.

- **Reduction/reuse** – the sediment pond is to be used for irrigation of newly vegetated areas around the site, dust suppression, fire fighting and it is hoped that the adjacent golf club will use the water for irrigation. A subsequent condition will require the management of the pond to reduce water quantity between events to maximise freeboard and attain readiness for the next storm event. This is seen as being satisfactory.

Receiving water

- **Water** - discharge from sediment pond to be to a flat open area of land to the north of the site. A Golder Geotechnical/Hydrogeological Investigation showed that the site is surrounded by large areas of sandy soil and so it could be reasonable expected that discharge on to this lot will result in percolation to groundwater. There is the possibility that during extreme storm events that the discharge waters may eventually discharge in part to Granite Creek.
- **Water type** – upland stream (it has been specified that although the impacted waters are most likely to be groundwater those qualities for the aquatic ecosystems for upland streams are to be used).
- **EVs** – the area around the landfill and the nearest creek, Granite creek are not scheduled in the EPP Water.
 - Under section 7 of the EPP water - the water would not be considered pristine due to the surrounding land uses and therefore the default value for this aquatic ecosystem would be that of a modified ecosystem that is moderately disturbed; and the groundwater could be used for agricultural purposes. This is justified by the fact that Granite Creek takes a significant amount of run-off from the urbanised Mareeba area and much of the surrounding land is farm land with the associated use of fertiliser and pesticides and the impacts of cattle grazing. No surface water quality monitoring has been done by the applicant. Therefore the default values set for the all but one of the selected parameters are those values contained in the Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region
 - The most relevant value for EC was not available in the QWQGs (EC was seen as important to identify the presence of leachate). Therefore the upper salinity level in ANZECC Table 3.3.5 – limits for upland rivers of slightly disturbed ecosystems in tropical Australia was used.
- **Values** – the selected values to be utilised were those associated with the risk from sediment in waters and those to be used as early detection for the presence of leachate: turbidity, pH, DO and EC.
- The possible water uses in the vicinity of the site that may be impacted have been identified using ANZECC methodology as Primary Industry – Irrigation and/or Stock watering (Chapter 4 - ANZECC 2000). For the parameters identified above the values were identified as being more liberal than those contained in the QWQGs. As the risk to primary industry uses is seen as negligible from waters only likely to only contain sediment; a maximum limit has not been set for these parameters.

Parameter	Unit	Trigger Levels	Performance Indicator
Turbidity	NTU	80 th percentile ¹ of reference ² or 6NTU ³ , whichever is higher.	Median ¹
pH	pH units	Minimum – 6.0 ³ Maximum 7.5 ³	Median
Dissolved oxygen	Percentage saturation	80 th percentile ¹ of reference ² or 90% ³ saturation, whichever is lower	Median
Electrical conductivity	µS/cm	80 th percentile ¹ of reference ² or 250µS/cm ⁴ , whichever is higher	Median

¹ Trigger levels based on the 80th or 20th percentile are derived using ANZECC (2000) and QWG methodology and are based on the reference sites defined in 2 below.

² Reference sites must:

- a. be from the same biogeographic and climatic region; and
- b. have similar geology, soil types and topography; and
- c. contain a range of habitats similar to those at the test sites; and
- d. a similar flow regime; and
- e. not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
- f. refer to QWG guidelines page 76 for further guidance

³ Limits based on values contained in the Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region

⁴ Limits based on ANZECC Table 3.3.5 – upper salinity limits for upland rivers of slightly disturbed ecosystems in tropical Australia.

Impacts of authorised discharge

- Compliance with the above limits should see no impacts on the receiving environment.

License conditions

- The above table will be set for trigger values with a condition to conduct an investigation using ANZECC methodology where the trigger values are exceeded and report findings to the EPA.
- The conditions will allow the applicant to alternatively use values obtained from reference sites, however at present no such monitoring has been done.

Summary of conditions – Water cont..

Condition	Standard (Y/N)	Justification
W7	Y SM additional text	Sets operating standards and management controls for all sedimentation ponds in the stormwater diversion and collection system to minimise the risk of off-site sediment release. Additional text has been inserted to reflect the undertaking of the applicant to ensure that they are constructed to contain at least a 1 in 10 year storm event. (Usual standard is 1 in 5).
W8	Y SM	Requires that waste is only be disposed of in areas that have been

	amended	prepared and lined in accordance with the specifications provided for leachate collection and methods proposed in the application to minimise the risk of groundwater and surface water contamination. These measures will minimise the risk of any release of leachate to surface or groundwaters.
W9	Y SM	Broad catch all condition that requires that the site be operated in a manner that minimises the generation of leachate to reduce the likelihood of failures or overflows of the leachate collection, storage and disposal system which would have the potential to cause serious off-site environmental harm.
W10	Y SM amended	Standard condition to ensure leachate collection and proper management and to ensure that leachate head is managed to the extent to prevent breakout or damage to landfill liner. The condition is changed from the Springmount condition in that leachate is only to be pumped to sewer or recirculated, storage is not proposed or permitted.
W11	Y SM amended	This condition deals with the control of leachate disposal and sets out how this can be done to prevent any environmental harm. In variance with Springmount evaporation is not proposed or authorised.
W12	Y SM amended	This condition specifies how landfill gas condensate, which may be generated during possible gas extraction (see earlier condition) should be managed to limit potential environmental harm.
W13	Y SM plus additional text	This condition specifies the construction and operation standards for any leachate pumping stations to ensure that the risk of any failure and leachate overflow will be minimised. Adds specification for suitably sized standby pumps to Springmount condition.
W14	Y SM amended	This condition specifies a leachate management and monitoring program with weekly water balances being calculated to indicate whether there are any unaccounted for leachate losses from the site. The calculation of these water balances will be the first indication of any liner failure as no vadose zone monitoring has been installed on the site. Parameters to be analysed for are typically found in leachate generated at landfill sites. If elevated levels are seen in surface or groundwater Environmental Investigation can be implemented. More on groundwater monitoring below.
W15- W17	Y SM amended	These conditions specify the minimum content of a surface water monitoring program to detect any off-site impacts caused by the site and require at least quarterly sampling. This is consistent with the monitoring requirements of the Springmount license. No surface water quality monitoring is specified in the application so it expected that they may request that this condition be removed. At present it is seen as fair to set this condition as very little or no information has been provided on surface waters affected by the site or surface waters found in the vicinity of the site and their values. Should the applicant wish to remove this condition for surface water monitoring it may be considered if their justification is considered reasonable, however best practice would be to keep this in at present.
W18	Y SM and ET	This standard condition specifies the minimum content of a groundwater monitoring program to detect any off-site impacts caused by the site and require at least quarterly sampling given the highly variable rainfall distribution throughout the year. Frequency and nearly all the parameters set reflect the submitted groundwater monitoring program.
W19	Y ET	Trigger values set for groundwater quality and standard requirement in place for ANZECC investigation and actions if values are breached. Methodology as follows;

Activity information

- **Water** – this assessment is not undertaken to authorise any release to groundwater but to identify any breaches of the landfill liner system and percolation of leachate to groundwater.
- **Type of activity** – landfill site
- **Contaminants associated with the activity and impacts on waters** – typical indicators of the presence of landfill leachate in groundwater are:
 - pH
 - electrical conductivity
 - Total dissolved solids
 - bicarbonate (HCO_3)
 - oxidised nitrogen
 - ammonia
 - calcium
 - sulphate
 - chloride
 - manganese
 - total iron
 - copper
 - lead
 - zinc
 - pesticides (organochlorines and organophosphates)
 - Polycyclic Aromatic Hydrocarbons (PAHs)
 - Total Petroleum Hydrocarbons
 - BTEX (Benzene, Toluene, Ethyl Benzene and Xylene)
 - Chemical Oxygen Demand (COD)
- **Quantity** – no discharge authorised of any quantity. The trigger values and limits to be set for groundwater will be used to identify even minor amounts of leachate entering the groundwater.
- **Reduction/reuse** – the liner and leachate collection system is designed to prevent any leachate being discharged to groundwater. All leachate collected will ultimately be pumped to council's STP and treated. Treated effluent should then be reused and contaminants removed in the form of solids may be reused in controlled circumstances at correct application rates for agricultural purposes. Conditions are in place for the applicant to take steps to minimise leachate generation.

Receiving water

- **Water** – The waters to be monitored for impact, and have trigger values and limits set, is the groundwater surrounding the site. It is believed that this groundwater may be contaminated due to previous operations of the landfill site. However, as stated earlier groundwater monitoring has not been previously done to a satisfactory standard so default values will be set using recognised data.
- **Water type** – upland stream
- **EVs** – the area around the landfill and the nearest creek, Granite creek, is not scheduled in the EPP Water.
 - Under section 7 of the EPP water - the water would not be considered pristine due to the surrounding land uses (agriculture and the town of Mareeba) and therefore the default value for this aquatic ecosystem would be that of a modified ecosystem that is moderately disturbed; and the groundwater could be used for agricultural purposes. Checks with the Department of natural resources have revealed that there are bores in the vicinity of the landfill. However As this area is not a declared subartesian area and licences are not required for the take of groundwater; and Development Permits are not required for the construction of works it is difficult to say whether these bores are in use or not. It has been decided that as agricultural use is possible and reasonable, that the standards under ANZECC Chapter 4 (Primary Industries) should be used to set maximum values for groundwater quality around the landfill.
- **Values** - As satisfactory values could be identified for all the parameters outlined above those that were given a value under the QWQGs or ANZECC were selected and given trigger values. It is felt that the suite of parameters is satisfactory to detect groundwater contamination by leachate. As detailed below in the key to the table – the values were taken from the QWQGs for physico-chemical values and



ANZECC was used for toxicants and EC. As stated previously no satisfactory groundwater monitoring has been done to date to use reference data so default values are set for all parameters.

Parameter	Unit	Limit	Limit Type
EC	µS/cm	250 ¹	Median ³
pH	pH units	Min 6 ² Max 7.5 ²	Median ³ Median ³
Ammonia N	µg/L	6 ²	Median ³
Total N	µg/L	250 ²	Median ³
Copper	µg/L	1.4 ⁴	95 th percentile ³
Lead	µg/L	3.4 ⁴	95 th percentile ³
Zinc	µg/L	8 ⁴	95 th percentile ³
Manganese	µg/L	1900 ⁴	95 th percentile ³
Benzene	µg/L	950 ⁴	95 th percentile ³
Polycyclic Aromatic Hydrocarbons (PAHs)		Above limit of detection	95 th percentile ³
pesticides (organochlorines and organophosphates)		Above limit of detection	95 th percentile ³
Total Petroleum Hydrocarbons		Above limit of detection	95 th percentile ³

¹ Trigger levels based on ANZECC Table 3.3.5 – upper EC limit for upland rivers of slightly disturbed ecosystems in tropical Australia

² Trigger levels based on values contained in the *Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physico-chemical indicators – Wet Tropics Region*

³ The median and the 95th percentile must be determined based on a maximum of ten (10) consecutive samples.

⁴ ANZECC (2000) trigger levels for aquatic ecosystems of slightly – moderately disturbed systems – table 3.4.1 level of protection 95% - tropical Australian upland rivers.

Impacts of authorised discharge

- No discharge is authorised, values are set to detect contamination.
- Compliance with the above limits should see no impacts on the receiving environment.

License conditions

- The above table will be set for trigger values with a condition to conduct an investigation using ANZECC methodology where the trigger values are exceeded and report findings to the EPA.

Summary of conditions – Water cont..

Condition	Standard (Y/N)	Justification
W20	Y ET	Limits set for groundwater quality making it a breach of the approval if they are breached. Methodology for setting the limits:

As specified above the environmental value and use of the groundwater is limited to the probable use for the primary industry purposes of irrigation and stock watering. A comparison was made between limits for both primary industry uses using Chapter 4 of ANZECC 2000. Below is a table of comparisons between maximum limits of the relevant water quality parameters.



Parameter	Limit Irrigation	Limit – Stock watering
pH	4 – 9 (s.4.2.10.1 – protection of animal and soil health)	NA
Lead	2mg/L	0.1mg/L
Zinc	2mg/L	20mg/L
Copper	0.2mg/L	1mg/L
Total N	5mg/L	NA
Sulphate	NA	1000mg/L

The values for maximum EC has been set at 1000mg/L following review of Table G3 of the QWQGs that describe >1000µS/cm as 'very high' salinity and therefore indicative of a major problem in an upland stream freshwater environment.

Therefore conditions set for groundwater limits are:

The groundwater monitored under condition W18 for parameters specified in table Three must not exceed any of the contaminant limits defined in Table Five

Table Five - Groundwater Contaminant Limits - Unfiltered

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4 - 9 ¹	Range
Total N	mg/L	5 ¹	Maximum
Sulphate	mg/L	1000 ¹	Maximum
Copper	mg/L	0.2 ¹	Maximum
Lead	mg/L	0.1 ¹	Maximum
Zinc	mg/L	2 ¹	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

Summary of conditions – Water cont..

Condition	Standard (Y/N)	Justification
W21	Y ET	This a catch all condition requiring that if the applicant identifies any statistical impacts on groundwater during monitoring the EPA must be notified.

4. Assessment Considerations

Support and substantiation for the identified relevant considerations are given below under the appropriate headings:

i) Standard criteria (as applicable)

Ecological Sustainable Development

The proponent has demonstrated the principles of ecologically sustainable development by proposing best practice landfilling techniques, recycling, reuse, waste minimisation and best practice environmental management programs. The decision made to issue the permit has integrated the long and short term economic, environmental, social and equity considerations.

The Regional Strategic Planning document FNQ2010, identified a need for a landfill to dispose of the residual wastes that cannot be recycled or reused through segregation and processing of wastes. The proposals for waste processing in this application and development permit conditions will, together, ensure that this landfill does not lower the level (on the waste hierarchy) of treatment of any particular waste by offering a cheaper landfill alternative.

Economically this will provide a second such engineered regional landfill. It is anticipated that this will lead to a reduction in waste disposal costs, particularly for the many local governments in the region now moving towards using these sites and closing down older unlined landfills, as they are encouraged to by the EPA due to their non-compliant nature.

Environmental Protection Policies (EPP's)

The EPP's on Water, Air, Noise and Waste have been considered during the assessment of this application. The objectives and standards of EPP - water, air, noise and waste have been incorporated in preparing the resulting conditions.

EPP Water

Section 7 was considered in the setting of trigger values and limits for surface water release and groundwater contamination. Accordingly it was identified that no values for the area were included in Schedule 1 and the qualities of the water were not pristine and therefore categorised a modified aquatic ecosystem under section 7(2)(a)(ii). Further assessment of the section identified that the qualities of the water to be protected included the suitability for agricultural use as there are numerous bores in the area that may be used for irrigation or stock watering.

Accordingly the provisions of section 7 were addressed by the use of values from the QWQGs and ANZECC

Section 15 was also considered as the assessment was considering an activity that may affect a water. Accordingly under subsection 15(2) steps 1 – 4 were considered. The applicant's proposal to contain the leachate and reuse where applicable and pump the rest to sewer meets the obligations of this section.

Section 19 refers to management of stormwater. As it is likely that stormwater may be contaminated with an amount of sediment subsection(3)(a)–(f) and (4)(a)-(c) must be considered. The applicant's proposal and management practices to ensure that stormwater is controlled so that it does not come into contact with wastes or contaminants and will be discharged through a suitable sedimentation pond will meet the provisions of this section.

Section 21 refers incidental release to groundwaters. The fact that the site will be engineered and lined with a leachate collection system and pump out capability, along with the groundwater monitoring conditions and limits set in the approval will meet the provisions of this section.

EPP Noise

S.5 Beneficial Assets – this definition does not extend to a waste disposal activity, therefore this development is subject to assessment against the Policy.

S.11(1) Acoustic Quality Objective – achieving an ambient level of 55dB for Queensland's residential areas.

S.11(3) The existing acoustic environment should not be allowed to significantly deteriorate – a landfill has been operating in this location for a significant number of years. As stated previously the Council have stated that they have not received noise complaints about the site as far as their records go back (unfortunately this only appears to be 18 months worth). The EPA have no record of any noise complaints about the site. Despite this during the last eighteen months the cells have been excavated and constructed, this would have been one of the noisier components of the site's continuing operation.

S.14 Matters for consideration

In making our decision we must consider the following:

Beneficial Asset? It is not a beneficial asset.

Characteristic of the noise. The noise will be mainly that of trucks entering and leaving the site and of heavy machinery operating at the site. The residents that live nearest to the site live alongside the one of the main roads entering the township of Mareeba and therefore the truck noise should not make a significant amount of difference, however noise conditions will be applied using EPA Guidelines.

Lawfulness of activity – NA - for the activity to proceed it will need a DA with noise conditions.

Order of occupancy – the site has been operating at this location for many years.

Views of the effected persons – no objections have been made or calls received from adjacent residents.

Other noises ordinarily at the site – the site is close to the urban centre of Mareeba and alongside a main road, the extra noise will be due to the use of heavy machinery. Reasonable hours of operation have been proposed and noise limits will be set.

EPP Air

S.11 Evaluation Procedure for making a decision on a relevant activity

(a) How will the activity affect environmental values – it is anticipated these affects will be limited to mainly dust and odour. These factors have been considered and comprehensive conditions will be set to address these issues.

(b) Evaluate the activity in relation to:

Air Quality Goals – These are prescribed in Schedule 1 of the Policy. Relevant parameters are Particles as PM10 and total suspended particles. The dust conditions attached to the approval will address the requirements of this section.

Matters in section 12

S.12 Characteristics of the releases – nuisance odour release could possibly be a regular occurrence. Accordingly the EPA have recommended buffer distances to for putrescible landfills and odour nuisance sensitive receptors (i.e. residences). This buffer should address the odour issue when tied in with good management practices. As discussed in more detail earlier cells 4 and 6 will be within the buffer. Accordingly a condition has been set to prohibit the use of these cells for putrescibles waste until it has been proven through modelling and complaints records that odour should not be a problem.

Order of occupancy – the site has been operating at this location for many years.

Views of the effected persons – no objections have been made or calls received from adjacent residents.

S.13 Air pollution dispersion modelling – use of this section is limited to releases that the EPA considers will cause environmental harm when added to other releases in the area and as such is not applicable. However odour modelling has been requested.

EPP Waste

The EPP waste was a critical part of the assessment of this application and most of the factors have been covered in detail earlier in this report. The critical part of this legislation is the waste hierarchy – section 10(1) - requiring that waste be managed according to defined principals of; avoidance, re-use, recycling, energy recovery, disposal.

The conditions of this application are framed to ensure that these principals are adhered to.

Plans, standards and agreements

The QWQGs and ANZECC Guidelines have been used to assist in benchmarking environmental performance. The information provided by the company has been considered in conjunction with the nature of the industry, and the receiving environment. In assessing this application the following EPA Guidelines have been used:

Landfill siting, design, operation and rehabilitation Waste disposal — ERA 75

Waste disposal (ERA 75) – Monitoring systems

Recording, interpretation & analysis of monitoring results ERA 75 – Waste disposal

The assessment report for the Springmount facility compiled by Brynn Matthews and Dean Sharpe has also been reviewed in detail to ensure that assessment and conditioning has been consistent.

Environmental Impact Statement

The applicant has provided information on the construction specifications for the site and a detailed SBMP. A comprehensive additional information request was required and most information was provided. Information relating to the environmental values of the surrounding area and background water quality have been unsatisfactory, however it is felt that conditions are to be tight enough to control any possible impacts on these values. Ongoing monitoring is recommended to assess ongoing impact of the facility. The Environmental Assessment report and the information contained in the application were considered while processing this application.

Receiving environment

The current zoning of the subject site and surrounding areas and the location of sensitive land uses have been considered. This is discussed in much more detail earlier.

Best Practice Environmental Management

These liner and capping specifications along with leachate collection and treatment proposals are considered current best practice for such a site with the proposed waste acceptance criteria.

The proposed waste processing to recover recyclables with only non-useable portions being landfilled is also best practice for such an activity.

The proposed plant is designed to be an efficient modern facility. The proponents have adopted the principles of waste minimisation and cleaner production in preparing their environmental policy. This policy extends to reduce the amount of waste generated at the site.

Financial implications

Monitoring and reporting regimes have been established by adopting specific conditions to enable continued assessments of environmental impacts. The proponents will endeavour to ensure that ample finances are allocated for completion of the monitoring program. Adequate funds, equipment and staff time will be provided to meet the commitments of the conditions.

Public Interest

No public submissions or enquires have been received for the application. The environmental values of the local community will be protected by the proposed conditions.

Site management plan



The company has demonstrated its commitment to conduct its activities in an environmentally responsible manner by development of its a site/activity based management plan. Their environmental monitoring program will commence in accordance with the issued conditions.

ii) **Native Title comments following notification (if applicable)**

NA

iii) **Notifiable Activity (if applicable)**

Yes and the requirements of this legislation in relation to the closure of such sites have been reinforced in approval conditions.

iv) **Wild River Area consideration (if applicable)**

NA

5. Consultations

Numerous meetings have been held between the EPA and representatives of Mareeba Shire Council, Maunsell, C&B and CEC-SITA.

An additional information request was required that included 40 items ^{to be} for address. These have been provided. Contact and meetings between the project manager Ian Florence and the Mareeba Shire Council's Manager of Waste and Water, Patrick O'Flaherty has been maintained on at least a weekly basis throughout the whole of the assessment period.

6. Project Killers

None

7. Streamlined Conditions

The following conditions are used:

Full Streamlined Conditions

☐

Some Streamlined Conditions

X

No Streamlined Conditions

☐

Non-streamlined condition/s	Reason/s for recommendation
See section 3	See section 3

8. Recommendation

It is recommended that the proposed development should be:

Select:	If approved select:	If approved, also select:
☒ Approved or	☒ With a development permit or	☒ With conditions or
☐ Refused	☐ With a preliminary approval or	☐ No conditions
	☐ In part only	

Assessing Officer: Ian Florence

Signed: sch4p4(6) Personal information Date: 06 March 2007

9. Review and Endorsement



Manager/Director:

<name>

Signed:

Date: <date>

Delegate: <name>

Signed:

Date: <date>

RTI DL RELEASE - EHP

Assessment Report

Environmental operations

6543

Environmentally relevant activity/ies

APPLICATION NOTES:

- 1 Each assessment report prepared to support recommendations made for decision is to be structured in the format shown below.
- 2 Explanatory notes for completing the report are given under each heading in brackets.
- 3 The report is to be completed, where indicated, to confirm conclusion of supervisory review/endorsement, and decision stages of the process.

This assessment report is for environmentally relevant activities to be assessed via the Integrated Development Assessment System in the Integrated Planning Act 1997.

COUNCIL DA NUMBER: NIL	EPA PROJECT NO: 305420
EPA DA NUMBER: IPDE00493906A11	FILE NO: CNS6564
APPLICATION TYPE: EPA is the assessment manager	
DEVELOPMENT TRIGGER: MCU for an ERA	
DEVELOPMENT DESCRIPTION: ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.	
LOCATION DESCRIPTION: 38 Vaughan Street, Mareeba. Lot 517 CP851523	
APPLICANT: Mareeba Shire Council	
TRADING AS:	

1. Issues

Background

The site under assessment has historically been used by the Mareeba Shire Council for waste management and disposal activities for the majority of waste within the Shire. They have had in place for many years an approval to landfill up to 20,000t/yr. However, particularly in more recent years it has been identified that the site has been poorly managed and monitoring has been lacking. This culminated with an Environmental Management Program being required and submitted in mid 2006. This was approved in October 2006 and conditions included the immediate improved management of waste and leachate/stormwater at the existing site, construction of new engineered cells in early 2007 and the undertaking that 10,000t/yr of previously deposited waste was to be reprocessed into the new lined landfill cells.

During the second half of 2006 the Mareeba Shire Council also entered into an agreement with CEC (now SITA-CEC) to dispose of residual waste from their newly acquired Bedminster Plant in Cairns. The Bedminster Plant being used to accept, sort and process most of the waste produced in the Cairns, Douglas and Mareeba districts. The owners of CEC did not wish to utilise the Springmount landfill for disposal of residual waste.

New demands of volume and the injection of funding from CEC-SITA then meant that Mareeba Shire Council made a move to expand their landfilling operations to that of an ERA disposing of 75,000-100,000t/yr. This meant that a new approval would be needed for a material change of use at the site. From the outset at several pre-lodgement meetings between the EPA, Mareeba Shire Council officers and their consultants Maunsell, the applicant was advised that the new approval would reflect current best practice conditions for the siting, construction and operation of a landfill.



Construction of the landfill cells started in earnest in the fourth quarter of 2006 and before the EPA received the application. This action and the fact that Mareeba Shire Council is not assessing the MCU under their planning scheme has been the subject of court action instigated by FGF Thiess. FGF Thiess own and run the Springmount landfill which is the largest site in the region and with which this landfill will go into direct competition. Their claims relate to the alleged breach of planning statutes and the EPA has been called upon as co-respondent with Mareeba Shire Council. The court action is yet to be decided and the EPA's involvement is being handled by the Legal Services team in Brisbane. The residual waste from Bedminster is currently being sent to Cairns City Council's Portsmith Landfill as the Mareeba landfill has reached its currently approved waste threshold of 20,000t/yr for the last 12 months.

The initial application for an approval was received on the 24 October and a request for additional information was issued. This request consisted of 49 items and ranged across the full extent of environmental impacts.

Water

Surface waters

The closest watercourse to the site is Granite Creek. The creek passes to the southeast of the lot with a northeast-southwest alignment. The site generally drains to the northeast, with a depression existing from the centre of the lot towards the north-eastern corner. This depression is the result of previous sand reclamation in the area (Golder Associates, 1993).

All contaminated waters and leachate from wastes are to be directed to the leachate collection system and pumped to the Mareeba Sewage Treatment Plant. On site stormwater and surface waters that do not come into contact with wastes or contaminants are directed to a constructed sediment pond.

Stormwater impacts will be controlled using a number of techniques. Pooling of water will be limited by grading surfaces appropriately. Temporary diversion bunds will be constructed up gradient from areas of active operation. Minimisation of contact between stormwater and waste will be achieved by limiting the size of the working face and only having one working face operational at any one time, and using the temporary bunds.

A sedimentation pond will be used to store potentially contaminated stormwater water; the quality of the stored water will be tested regularly according to conditions set in the approval. Discharge from the sediment pond will be directed via a stone reinforced spillway to a flat grassed area to the north west of the lot. It is not anticipated that the discharge waters will have an impact on any nearby creeks, as there are none in the immediate vicinity of the discharge point and the land is graded away from Granite Creek. It has been proposed that the sediment pond water may in future be used for irrigation of the Golf Course that shares the north-eastern border with the proposal site. Additionally, the sedimentation pond will act as a water source in case of fire emergency. Space is available to construct a secondary sediment pond if this is required in the future. Maintenance of the sedimentation pond will reduce the likelihood of overtopping during periods of high and/or frequent rainfall.

Mareeba has a mean annual rainfall of 918mm (averaged over the past 51 years). Mareeba has an average of 98 rain days per year. The highest monthly average rainfall of 270mm occurs in December and the lowest monthly average rainfall of 37mm occurs in September. All drainage and sedimentation pond design requirements have been based upon a 10 year, 24 hour recurrence interval, (Australian Government Bureau of Meteorology, Accessed 5 September, 2006). As construction of the site has already reached significant completion the sediment pond has been inspected and is well constructed and appears to be extremely large, possibly in excess of the design capacity.

The waste transfer station operating on the site does not trigger the threshold to be an approved ERA, however it is intended to set conditions for fuel storage, oil storage, battery storage etc that should address surface water concerns from this area.

Discharge trigger levels have been set for the discharge of water to the adjacent land from the sediment pond.

Leachate and Groundwater

Leachate

The existing approved landfill is unlined and situated on permeable soils. For this reason, it is probable that contamination from historical landfill activities has entered the groundwater. Insufficient monitoring and reporting over previous years under the existing approval has however meant that the extent of groundwater contamination is unknown. As stated above the existing landfill site is operating under an Environmental Management Program – one condition of this being that 10,000t/yr of waste from the existing landfill is to be reprocessed into the new lined cells.

The new landfill cells covered by this assessment will be engineered with a low permeability composite liner and leachate collection system – in accordance with EPA Guidelines on landfill liner construction. A considerable proportion of waste will be the residual waste from the Bedminster plant and it is stated by the applicant's consulting engineer that this will produce less leachate than the usual putrescibles waste stream. Further to this the completed areas will be capped and this too will reduce the ingress of rainwater into the waste body, ultimately reducing the potential for leachate to be generated. Should leachate be generated during the early stages of operation, it will be extracted and pumped to the Mareeba Sewage Treatment Plant (STP) or recirculated within the landfill cell at the working face. It is anticipated that the sewage connection will be available to convey the leachate to the Mareeba STP when the landfill commences operation, providing the long-term disposal solution.

Groundwater

The water levels in the existing groundwater monitoring bores show the groundwater table to be approximately 8m below ground level at BH2 with the depth greater at other locations. Groundwater contours based upon 1993 data is presented within the Golder Geotechnical/Hydrogeological Investigation. Groundwater contours post 1993 cannot be developed as data for only two wells (BH2 and BH7) has been provided since 1999. Between 1993 and 1999 no groundwater level data has been provided – this was in non-compliance with their approval for the majority of this time.

Groundwater level within these bores remained relatively consistent in the period from April 1999 until July 2005 (levels fluctuated between 12 and 13mBGL); however, in October 2005 a marked rise in the water level to 8.7mBGL was noted.

BH2 was included as part of the original investigation and recorded a standing water level at approximately 10.6mBGL. Since April 1999, the standing water level within this bore has fluctuated markedly generally between approximately 7mBGL to 12.9mBGL.

During the geotechnical investigations into sourcing a suitable clay liner for the landfill a total of 13 test pits were dug to depths of up to 3m. It was noted by the applicants consultant engineer that free ground water was not observed in a single pit. However, no pits were dug in the north west area of the landfill where the perched ground water table was encountered.

During excavation of the cell groundwater was encountered in the north west corner as well as the western end of the sediment pond. The water was observed to seep into the open excavation through a sand lense running generally in a north south direction. The free groundwater was observed to be as close as 500mm below the natural surface. The cell was excavated to a depth of approximately 4m below ground level and free groundwater was not evident throughout the construction period except in several areas where the sand lense was encountered. In the sediment pond which was excavated to approximately 3m depth free ground water was observed at the western end so a 10m section of the excavation was reinstated and no water ponded, or was observed weeping into the sediment pond. It is considered that the sand lenses dissecting the clay stratum in the north west area of the site act as a reservoir for a perched water table due to the impermeability of the clayey material. In areas outside of the sand lense no free groundwater was observed during the two month construction period. It is proposed that a condition be set to monitor the water quality in this sand lens as an effective early indicator if the landfill lining is breached.

It is proposed to set comprehensive conditions for the monitoring and control of groundwater quality around the landfill based on current Queensland Water Quality Guidelines and ANZECC standards. This process is covered in more detail later.

Waste

The Waste EPP requires that wastes be dealt with as high up the waste hierarchy as is reasonably and practicably possible and that landfilling is the last, and least preferred, option. The Regional Strategic Planning document FNQ2010 identified the need for a long-term landfill to dispose of any residuals or untreatable wastes from waste recovery and reuse options. FNQ2010 promotes the recycling of wastes through material recovery, recycling and composting. While a large engineered landfill is already operating at Springmount it is currently the only such facility in the region. The majority of the waste to be disposed of at the Mareeba landfill will be residual waste from the Bedminster composting facility.

Conditioning of the Development Approval has been approached on the basis that the landfill should operate in accordance with current best practice standards in Queensland. Due to the scrutiny and proximity of another modern landfill in the region many of the conditions also reflect those in the license issued for Springmount landfill. In addition to those conditions, more conditions will be set for trigger values and maximum limits for groundwaters around the site and tighter conditions are set for surface water discharge when compared to Springmount landfill.

It is worth noting at this point that Springmount is approved for the disposal of regulated waste – this application does not apply for approval to dispose of regulated waste and is therefore considered a much lower risk despite the additional controls. This point is reinforced in the conditioning where prohibited waste includes those that are regulated (apart from 'limited regulated waste').

A key principle incorporated in the Development Approval is the segregation of recyclable materials from all waste to be disposed of at landfill. This condition is consistent with that set Springmount landfill. The requirement is also consistent with the principles of the Waste Management Hierarchy and maintains standard for landfill operation in region and continues to set the standard for Queensland. Conditioning of the Development Approval for the facility has included provisions for the long-term storage recyclable materials, which may not currently have a market, to allow recovery in the future.

The proposed DA conditions prohibit the disposal of certain types of waste materials where options higher up the waste hierarchy are already regionally available or are common waste management practice for these materials. This is consistent with the Agency's obligation to implement the waste hierarchy set out in the Waste EPP and, as a consequence, prohibits the landfilling of recyclable wastes. There are already opportunities for the separation of recyclable components of such wastes. Reuse options for putrescible wastes, such as fish processing, poultry processing and commercial kitchen waste, are regionally available and are preferred to landfill disposal. In accordance with the Waste EPP, this landfill should not divert these materials from beneficial reuse options if such options exist.

Noise, odour, vibration and dust

It has been identified that cells 4 and 6, which are proposed to be operated during the 10 – 15 year phase of site development are within a buffer distance of 500m from a residential premises. This does not comply with EPA policy for positioning of a putrescibles landfills as defined in Table 1 of the *Guideline: Landfill siting, design, operation and rehabilitation*. However the buffer for non-putrescible landfill is 200m and the cells are well outside this distance.

The Guideline also states that: "Reduction of the indicative buffer distances is only possible if it is demonstrated to the EPA that sensitive areas and other protected activities will not be adversely impacted by the landfill operations." In an effort do this Mareeba Shire have stated that:

Additional controls will be implemented to control impact from cells 4 and 6 during their phase of operation – daily covering of wastes, construction of a screening berm, dust suppression using water trucks, reducing the working face to 20 lineal metres, etc. It is believed by the assessment manager that the main problem in relation to this buffer will be odour as dust is relatively easy to control and the fact that the main road out of Mareeba runs adjacent to the landfill site and affected houses will mean that the increased noise will be minimal.

The applicant has stated that the Bedminster residual waste is also less odorous than normal putrescibles waste as much of the organic and more volatile wastes have already been removed during the composting process. (It is worth noting that an effort was made during 2005 to classify this Bedminster residual waste as non-putrescible, however the EPA decided that this was not appropriate).

In further support of their application Mareeba Shire Council has stated that they have not received any complaints from these nearby residences in at least 18 months (limit of records). This is despite the fact that during this time there have been extensive earthworks to recontour and construct the site and the pre-existing landfill area has been well within the 500m buffer for its operating life. Operations for the first ten years of the site should not encroach on this 500m buffer.

Vibration should not be an issue at the site.

Standard conditions will be set for the control of noise, odour, vibration and dust. An additional condition is to be set limiting the use of cells 4-6 to non-putrescible until the Council demonstrates that an odour nuisance is unlikely. As a minimum odour modelling should be conducted to fulfil this condition.

NOISE

Land

The final landform of the site will be finished to meet EPA Guidelines on final construction. The cells will be graded to effectively shed water and will be revegetated with native species reflecting the surrounding land uses.

The final cover and capping method has not yet been finalised as Mareeba Shire are seeking to become part of the Australian Alternative Capping Assessment Program (AACAP).

A subsequent land use has not yet been identified.

Community

As stated above, Mareeba Shire Council have stated that they have not received any complaints in the last 18 months. The EPA have not received any public objections or concerns relating to the site – although no public advertisement was required. Objections have only been made by the operators of the competing Springmount landfill site.

2. Description of Operation

The Mareeba Landfill is located on Lot 517 on CP 851523 in the Parish of Tinaroo within the County of Nares; the site is approximately 29 ha. Sealed road access to the site is via Mareeba Dimbulah Road, which passes to the south of the site. The site is predominantly covered by grasses with scattered shrubs.

Surrounding land uses include:

- A proposed industrial development to the north of the site; Detached housing to the east and south-east;
- Open land to the east;
- The northeast and eastern boundary is shared with the Mareeba Golf Club and Mareeba International Club;
- A cemetery is located south of the site;
- Open spaces and detached housing to the east and north east; and
- To the west of the site is land used for rural purposes.

The closest watercourse to the site is Granite Creek. The creek passes to the southeast of the lot with a northeast-southwest alignment. The site generally drains to the northeast, with a depression existing from the centre of the lot towards the north-eastern corner. This depression is the result of previous sand reclamation in the area (*Golder Associates, 1993*). Other areas throughout the site are characterised by local depressions and these allow pooling of surface water from time to time.

A hydrogeological investigation reveals that groundwater exists at approximately 12m below the natural ground surface level (*Golder*). One notable exception was the presence of a perched watertable close to the north east boundary of the site. The perched water table is believed to be recharged by the aforementioned reclaimed sand depression. This depression will be filled as part of the land filling activities; resulting in the draining of the perched table locally. This will return the water level in this area to the same as that of the regional watertable over time.

Cairns City Council, Douglas Shire Council and Mareeba Shire Council currently treat and dispose/reuse all domestic wastes through the CEC Resource and Recovery Plant based in Cairns with the residual waste proposed to be transported to Mareeba Landfill by 60m³ trucks. This plant is currently being upgraded to improve resource recovery and plant performance. Biodegradable matter in the waste is

converted to inert organic material and gas. One of the by-products of the process is inert material: broken glass, hard plastics, small pieces of metal, etc. As this material cannot be treated or processed further, the only disposal option is landfill.

Daily operations at the landfill include receiving and placing waste, compacting and covering waste. Prior to receiving incoming waste an inspection of the waste will be conducted to prevent the entry of prohibited wastes. Waste material that is not defined as acceptable under these conditions will be redirected to an appropriate facility for disposal. The approval will condition wastes that are to be prohibited or accepted at the landfill.

Incoming waste transported by transfer vehicles will be weighed out at the Bedminster facility in Cairns and weighed in at the landfill facility. Upon arrival at the working face waste will be placed directly into the operational landfill cell. Handling and manoeuvring of the waste will be accomplished with a landfill compactor or bulldozer. Additional plant and equipment may be used to assist with covering the controlled fill. The operational area of the working face within the cell will be limited to 20m in width.

Where appropriate at the working face daily cover will be accomplished. The landfill cells are to be staged according to Drawing Number 60018396 SK004-008. The cells have been designed to be developed with lifts of 2m to a maximum height of 25m from natural ground; this gives an air space of 180,000 m³ in Stage 1.

All wastes will be deposited in lifts not exceeding a vertical height of 2m. Each lift of waste deposited is to be consolidated to a density of 0.7 tonnes per cubic metre including cover material.

The operation of the site will involve the following major functions:

- Access to the site and access control;
- Operation of weigh-bridge system and generation of reports;
- Operation and maintenance of a 60m³ bin based transfer area;
- Maintenance of access roads and controlling of traffic within the site;
- Waste deposition and compaction;
- Provision and placement of cover material; and
- Control of nuisance.

The Landfill Manager will be responsible for implementation of all control measures and all inspection and/or monitoring activities described in the following sub-sections. Adopted performance indicators have been prescribed to both control measures and inspection/monitoring activities.

Landfilling operations will start at the lowest point of the proposed cell and be managed so as to attain the designed intermediate level at that point as soon as possible. This level will then be covered and sealed with intermediate cover, a soil of low permeability to reduce the ingress of water and the resultant leachate production from the landfill. The landfill is to be structured in a series of terraces.

Waste deposition will be conducted in adherence with the proven sanitary landfill principles of spreading, compacting and daily covering of waste. To achieve this, a single cell shall be constructed and enclosed by cover material on each alternate operating day (every day in the case of cells 4&6). In order to expose as little waste as possible to rainfall and the environment and to afford the best compaction, waste cells will be as narrow as conditions permit. The mass of waste and number of vehicles accommodated during the operating day will determine the size of the cell.

3. Emissions, Discharges and Environmental Compliance

As stated above, in addition to the submitted application a detailed request for additional information was put together with 49 points requiring a response. This information was used to ensure that a comprehensive assessment was carried out on all possible environmental impacts.

Due to the close proximity of the Springmount site that was approved in the last four years and the perception that that approval was comprehensive and contemporary many of the conditions were taken from that approval. This is to ensure that a 'level playing field' is in place for both competing operators and that standards of best practice are assured.

In addition to the many conditions taken from the Springmount approval this site is also conditioned for relevant groundwater quality parameters (both trigger values and limits) and much tighter surface stormwater quality limits that reflect the Qld Water Quality Guidelines (QWQGs) and ANZECC 2000 standards.

A number of new EPA standard conditions are also included here. It is worth noting when considering the nature of the conditions in relation to Springmount that Mareeba is **not** to dispose of regulated waste.

Agency interest - General

Summary of conditions - general

Condition	Standard (Y/N)	Justification
G1	Y Springmount (SM)	This streamlined condition makes compliance with the General Environmental Duty an obligation and defines the limits of the document in permitting environmental harm
G2	Y (SM)	Maintenance of any plant will need to be conducted in particular for waste disposal / treatment activities.
G3	Y (SM) additional text	This standard SBMP condition has been extended to identify issues of importance in the operation of the site (diversion of stormwater, waste monitoring to detect prohibited wastes, leachate management, etc) that should be addressed in a landfill SBMP. The condition also required the identification and monitoring of a reference site for surface and ground waters. This will be in conjunction with conditions in the water schedule where reference site values are critical for identifying water quality impacts.
G4	Y EPA – Eco Track (ET)	Adds specification that SBMP details must comply with approval.
G5	Y (ET)	Reinforces obligation to provide records
G6	Y(ET)	Reinforces obligations under waste tracking requirements
G7	Y (SM)	This condition requests the submission of a detailed site development plan for each subsequent waste disposal cell. This plan is necessary to ensure that site development takes place in a way that will not result in environmental impact and to provide the Agency with information on the site's operation.
G8	Y (ET) additional text	Broadly specifies the controls required from the final cover material. This is not overly specific as best practice may have moved on by the time the landfill will be ready closure. In particular the Mareeba SC are looking into alternative capping through the ACAP process. Additional text has been included to ensure that whatever method is used for final cover meets a nominated standard set by the EPA. This may be considered an "approval within an approval" but it is seen as the most effective way to allow the council flexibility on the final capping method as they have requested.
G9	Y (ET)	These conditions deal with the submission and content of a site closure and post closure plan, which will ensure that the site is closed in a way that will minimise post closure impacts by ensuring that all potential issues arising

		during the post closure phase of site operation are identified and addressed at an early stage and planned for. This includes two extra requirements from the Springmount approval relating to the minimum period it must account for.
G10	Y (ET) additional text	Site management plan following closure. Reinforces the requirements under the Contaminated Lands Section and the cover assessment provision in G8.
G11	Y (ET)	Security – prevents unauthorised access to site (fires, illegal dumping of prohibited wastes, etc.
G12	Y (ET) plus additional requirements	This condition requires provision of an appropriate on-site fire fighting system. The local volunteer rural fire brigade will not have the equipment, resources or expertise to fight a landfill fire and would be unlikely to attend any fires on the site making the operators totally responsible for on-site fire control. Additional text to ensure that MSC provide a suitable water supply for fire fighting – in the light of the two major fires that remained uncontrolled for a long period of time in 2006 due to inadequate water supply for fire fighting.
G13	Y (ET)	Fire break
G14 – G17	Y (ET)	Requirement for third party auditing upon commissioning of the site and every two years. This has been included as a best practice condition to ensure that MSC regularly internally monitor their compliance with this approval. This seen as important due to the historical ongoing non-compliances identified at the existing site.
G18	Y (ET)	Notification – timely and made to EPA.
G19	Y (ET & SM)	This is a key condition requiring continual improvement through application of waste management practices aimed at reducing the amount of waste disposed of to landfill. It requires that a Waste Management Plan, as per the EPP Waste, be implemented with an annual summary report on the implementation of the plan being provided to the EPA. The summary report is consistent with the reporting requirements for local government waste disposal practices and could not otherwise be required from a privately operated landfill. EPA included requirements for training and information to be supplied to waste generators and transporters, taking into account economic, social and environmental factors to maximise diversion of waste from landfill, promote resource use and provide for continuous improvement in waste management practices on site.
G20-21	Y (ET)	Requirement for spill kit – storage of waste oil and chemicals on site plus ongoing use of the site by heavy vehicles carrying fuel, hydraulic fluid, etc.

Agency interest - Air

Impact from development of a landfill within EPA recommended buffer zones to be assessed and conditioned.

Dust

As stated above it is felt that the standard condition for dust will be satisfactory for this approval, although the site is within the recommended buffer zone, as it is felt that dust generation can be effectively addressed with proper management controls.

Gas

The EPA requires that all putrescible landfills with annual disposal rates exceeding 20,000 tonnes/pa must have a passive (venting) or active collection system installed. The SBMP accounts for comprehensive gas monitoring. The applicant's consulting engineer maintains that a large amount of landfill gas is not expected due to the nature of the incoming waste disposed of at the site. In the event that the composition of accepted wastes changes significantly this stance will require re-assessment. It is proposed that annual monitoring on a 50m square grid basis at a height of 50mm above the surface (final/or interim including batter slopes) cover will be carried out to determine if landfill gas generation is significant. A threshold of 500ppm will be conditioned and will dictate determining whether the future development of a landfill gas system is required.

Odour

As two future cells (4 and 6) are proposed to go within the 500m buffer to residential premises (EPA policy) odour is seen as being a potential problem for this site. The 500m buffer is an internal policy and not legislated and has the added proviso that "Reduction of the indicative buffer distances is only possible if it is demonstrated to the EPA that sensitive areas and other protected activities will not be adversely impacted by the landfill operations." In order to address this potential problem the applicant has put forward the following:

- The majority of organic material and volatile compounds will be removed from the main waste stream through the Bedminster composting process and therefore odour will be greatly reduced when compared to a normal putrescibles waste stream, as covered by the policy requirements. The previous owners of Bedminster tried to have the residual waste classified as non-putrescible – this was previously refused by the EPA.
- No complaints are recorded as being received about the existing landfilling operations at the site. These records only extend back by 18 months.
- The prevailing winds in the area are south easterly which would direct winds away from the affected residences over an unpopulated area of waste ground.
- Management practices will be put into place to further reduce odour generation – i.e. daily covering of waste, screening the disposal area by soil and vegetated berms, etc.

After taking these issues into consideration the project manager has decided to currently approve the use of cells 4 and 6 but only for the disposal of non-putrescible waste as this will satisfy the requirements of EPA policy. Although the above points made by the applicant partly demonstrate that odour shouldn't be a problem I believe that more should be done to demonstrate it – particularly in the area of modelling, which has not been carried out to date. Therefore a condition is proposed to approve the cells for use for the residual waste only if and when odour modelling demonstrates that odour should not be factor at the affected premises and they have a record of no complaints. As cells 4 and 6 are only to be used in ten years time this will also give the EPA enough time to gauge whether or not there is a body of complaints that would indicate a probable future problem.

The delegate has expressed concern that this may present a "license within a license" and this is acknowledged. However I believe that this solution offers the applicant a degree of security that these cells can be used so long as they perform well in the next ten years and carry out proper monitoring. I believe it also gives the EPA control of the use of the cells if a problem is identified.

Summary Conditions - Air

Condition	Standard (Y/N)	Justification
A1	Y (ET and SM)	The streamlined odour nuisance condition is required because there is a risk of offensive odours associated with the proposed activities and this condition sets a clear standard and is easily enforceable. This is further reinforced by the site specific condition A2, for cells 4 and 6 which do not strictly comply with EPA policy for buffer zones.
A2	No	This condition is inserted due to the non-compliance of cells 4 and 6 with EPAs policy for buffer zones for putrescibles landfills. Justification is given above.
A3	Y ET	The streamlined dust nuisance condition is required because there is a high risk of dust being generated on site and nuisance associated with this is possible. This condition sets a clear standard and is easily enforceable.
A4 – A5	Y ET	These standard conditions give the operator a baseline standard for dust should any complaints be generated and they also set a monitoring protocol. This seen as critical given the buffer issue.
A6 – A7	Y (SM)	This controls the release of gas to a level where it may cause environmental harm and sets the standard for what may constitute environmental harm. A7 also makes a requirement for gas monitoring.
A8	Y (SM) plus addition text	This condition is added to ensure that where methane is detected at levels that constitute environmental harm a gas collection and venting/reuse system must be installed. The applicant is stating that gas generation should be minimal due the nature of the waste – this condition will be called in if this does not prove to be the case. The possibility of energy production from methane is also taken into account.
A9 – A11	Y (SM)	These conditions deal with landfill gas monitoring and are necessary to assess

		the level of biological activity in the landfill and the amount of gas being released from the waste pile. This information is invaluable in assessing the level of biological activity (particularly methanogenesis) in the deposited waste. Part of the condition also seeks to address health safety issues at site facilities and boundaries.
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Agency Interest – land

Operation of a landfill under ERA 75 is a Notifiable Activity as listed in the Environmental Protection Act 1994. The proposed site will be established on a lot previously used as landfill site and for sand extraction. The contaminated land section of EPA has been notified of landfilling operations occurring on site.

Remediation

Conditioning of the DA has taken into account the long term management of the site with a closure and post closure care plan required for the site to be submitted at least 12 months prior to the cessation of waste disposal at the site. In accordance with EPA Guidelines the site will be managed to form a final stable landform to be planted with vegetation reflecting local flora. The Council have not yet decided upon any post closure use of the site.

It should be noted that differently to the Springmount approval there is no condition for the specifications for final capping. The applicant did not submit any such specifications but stated that they would be looking into alternative technology for final capping and would decide closer to the time of closure. This is seen as reasonable as best practice may have moved on from current set specifications by the time the landfill closes in 20-30 years time. Spring mount on the other hand submitted capping specifications and were conditioned accordingly.

Summary – Conditions Land

Condition	Standard (Y/N)	Justification
L1	Y (ET)	Standard condition using AS 1940 for the control of flammable and combustible liquids.
L2 – L4	Y (SM) amended	Specify the rehabilitation requirements for all disturbed areas of the site, require progressive rehabilitation and require that access to areas ready for or undergoing rehabilitation must be controlled. These conditions will ensure that the disturbed area of the site is minimised to limit the risk of off-site impacts on waters from leachate or contaminated stormwater as well as minimising the off-site visual impact of the site.
L5	Y (SM)	Specifies the standards for an interim cover and rehabilitation program for landfill cells that are not likely to receive their next layer of waste within 12 months so that water infiltration and subsequent leachate generation is controlled as well as limiting erosion and sediment in stormwater from these areas. The permeability requirement is not as high as that for final capping due to the temporary nature of the cover, the costs involved and the risk of perched water tables if cover is inadequately ripped prior to placement of future waste lifts.

Agency interest – Noise and vibration

As stated above the noise issue needs to be tightly controlled and well managed as part of the future landfill area will fall within the recommended buffer zone to residential premises. The main source of noise will be from the use of heavy machinery and trucks using the facility. The site will not operate at night and the submitted SBMP has stated that operations will be managed to ensure that higher noise generating activities will be conducted during the week and in the middle of the day, the activities at the working face will be conducted to use the face as a screen and plant is to be maintained in good working order.

Standard EPA noise conditions for decibel limits and monitoring have been set.

Summary of conditions - Noise

Condition	Standard (Y/N)	Justification
N1	Y (ET)	This streamlined condition prohibits noise nuisance at a nuisance sensitive or commercial place. This is a catch all condition that will incorporate nuisance at the nearby residences
N2	Y ET	<p>Noise limits have been set using the standard EPA table that adds nominated decibel increases to average background noise levels.</p> <p>The initial draft of noise conditions was set using Appendix A of the Australian Standard 1055.2 Acoustics – Description and measurement of environmental noise Part 2: Application to specific situations. The area was selected as being a category R3 area – Medium density transportation or some commerce or industry. The resultant conditions came out as being low.</p> <p>Since then the MSC have submitted background monitoring results for the site that show that the initial conditions were too low as some levels set for the site were breached during monitoring by the L90 background levels. Therefore the noise limits were recalculated using the actual data submitted by MSC.</p> <p>Background noise monitoring was carried out by C&B Group's Ben Starr and it is taken that they were conducted in accordance with the EPAs Noise Measurement Manual.</p> <p>An assessment of the average noise levels gave an L90 background level of 60dB for 0700-1800, 50dB for 1800-2200 and 50dB for 2200-0700. Trends noted were that the weekend was louder than the weekdays and that the levels spiked to a maximum around 7am. It was also noted that noise levels started to rise significantly from around 3am up to the 7am maximum.</p> <p>The background noise levels have been rounded up to the nearest 5dB and the standard additions in the table have been added. Although they appear higher than usual conditions it should be noted that maximum levels are set are for L10 and L1. A study of the submitted monitoring results has shown that L10s and L5s regularly reached and surpassed these limits during the background monitoring. Therefore MSC must limit the noise impact of operations to prevent breaching the set limits. This also gives local residents a degree of protection from any significant increases in noise from the site.</p> <p>The EPAs Planning for noise control policy was not used as it was not seen as being applicable in this case as the site has already been operating for many years in this location. This issue was discussed with EPA noise expert Warren Renew who agreed that the use of the older style table was applicable in this instance.</p> <p>The Noise limit table is included below.</p>
N3 – N4	Y ET	These standard conditions specify how and when noise monitoring will be required and carried out.
N5	Y ET	This condition has been included as a catch all for any vibration nuisance that may arise from on site operations. It is not anticipated that this will be a problem, however it is being included as the use of heavy machinery and trucks could result in vibration complaints from nearby residences. The other standard condition for vibration that includes specific levels is intended more for where blasting will occur and have therefore not been included. The above condition is seen as being enough to control any possible problems through the assessment of an authorised officer.



Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Noise sensitive place'					
L _{A10} , adj, 10 mins	65	55	50	65	55	50
L _{A1} , adj, 10 mins	70	60	55	70	60	55
	Noise measured at a 'Commercial place'					
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Commercial place'					
L _{A10} , adj, 10 mins	70	65	55	70	65	55
L _{A1} , adj, 10 mins	75	65	60	75	65	60

Agency Interest - waste

Many of the waste issues have been discussed in detail earlier in this report. The critical issues relate to the control of which wastes may be disposed of at this facility and facilitating the aims of the waste management hierarchy by ensuring that those wastes that have a reuse or recycling value in the region or not disposed of to landfill. The other waste conditions in the main relate to ensuring the best practice operation of the landfill site.

Summary of conditions - Waste

Condition	Standard (Y/N)	Justification
WT1	Y ET	Records - Standard condition for which records a landfill operator must keep – this is in line with the reporting requirements for local governments. As Mareeba SC is a local government this simply reinforces reporting requirements and places no extra onus on the operator.
WT2	Y ET	Site control. Condition ensures that someone is on site for all critical controls to be managed during operating hours. Prevents the problems seen historically with unmanned sites and deposition of prohibited wastes etc.
WT3	Y SM amended text	This condition identifies a broad range of waste that can be received at the site and is consistent with the application for the site. Some local authorities on the Tablelands may wish to dispose of their domestic waste at the facility, equally industrial and commercial waste can be accepted at the facility. Same condition as Springmount except regulated waste has been removed.
WT4	Y SM	This is an important condition that requires that all wastes received for disposal must have already had recyclables segregated at the source or be processed on site. This is consistent with the Springmount license and is seen as best practice and in accordance with the requirements of the waste hierarchy. It is in line with the MSC's application, which proposes recovery of recyclables through sorting at the Bedminster facility. Waste that does not go through the Springmount facility must be subject to source separation as no MRF is operating at the site. Waste from council transfer stations is to be subject to sorting at the sites through the provision of recyclable bins. The applicant has stated that where industrial or commercial loads are received and have not been subject to source separation they will be sent with domestic waste to Bedminster for sorting. EPA modified the condition to use the term recyclable material to assist clarity. This condition is consistent with the waste EPP. During final negotiations the MSC asked if this condition would prevent them

		from accepting commercial loads/bins of un-segregated waste at the site for disposal. It was confirmed that this would be the case and that these commercial operators must either have source segregation at their businesses or the loads must be processed through a MRF.
WT5	Y SM	Prohibits the disposal of segregated recyclables at the site, whilst requiring that such materials be reused, recycled or have their energy recovered. If the material cannot be dealt with at a level of the waste hierarchy higher than disposal, recoverable storage is permitted as long as such burial is unlikely to cause any environmental harm. In addition, this condition is seen as important to prevent the possibility that Bedminster compost could be disposed of at the site.
WT6	Y SM amended and additional text	<p>This is a key condition that prohibits the disposal of certain wastes at the facility. The first prohibited waste included is regulated waste as the applicant is applying only for category 75(a) ERA which does not include regulated waste apart from limited regulated waste. The list further clarifies which limited regulated wastes are also prohibited where there are uses for them in the district higher up the waste hierarchy. Importantly this list also includes putrescibles, biosolids and green wastes, which can already be dealt with higher up the waste hierarchy in the region and, accordingly, should not be permitted to be disposed of to landfill. The proponents have asked for no exemption from the waste hierarchy and this proposal must be assessed against the requirements of the Waste EPP.</p> <p>A decision has been made to exclude asbestos from disposal at the site. This is based in current public and EPA concerns about the public health issues of asbestos handling and disposal in areas in close proximity (see earlier discussion on lack of buffers) to residential premises and areas with unrestricted public access (e.g. Golf Course). The isolated location of Springmount landfill is considered a more appropriate site to handle and dispose of asbestos. The prohibition of asbestos was brought up by the MSC who oppose the setting of this condition. Their request to remove the condition was put in writing and considered by the Regional Director. Their request was declined for the above reasons.</p> <p>The MSC also brought up the issue of the waste acceptance criteria and prohibited wastes in relation to the reprocessing of pre-existing waste from the old landfill. Accordingly the conditions were modified to allow waste from the existing landfill to be disposed of into the new cells and ensure that no discrepancies were in place between the various conditions.</p> <p>The list also includes the standard high risk wastes excluded from all waste disposal sites, which can result in fire, explosion, management problems and liquids being generated.</p>
WT7	Y SM	This condition requires the operator to take an active part in minimising the contamination of loads by prohibited waste by using a process of monitoring, education, audit and review to reduce load contamination. Should this process fail no further deliveries of waste from the same source should be accepted.
WT8	Y SM & ET	Prohibits the burning of waste on the site and only permits burning of waste received at the site at a facility appropriately licensed under the EP Act. This condition prevents air pollution and smoke nuisance issues associated with waste burning.
WT9 - 10	Y SM	These conditions require that the operator control vectors such as flies, mosquitoes and rats to prevent them causing any off-site nuisance. This condition is required because of the high risk of rat, fly and mosquito breeding around waste disposal sites and the need for continuous monitoring and management. This catch all condition is important considering the public

		health and nuisance value of vectors (flies, mosquitos, vermin) and the proximity to residential premises.
WT11	Y SM	A very broad condition requiring that waste disposal activities are only carried out on the approved lot. This is not intended to control issues such as litter.
WT12	Y SM amended.	Limit the disposal of wastes to an active waste disposal cell where the liner and leachate collection system will prevent any contamination of surface waters and groundwater. This is in accordance with site plans and SBMP where only the lined cells are to be used for waste disposal. Asbestos is not excluded from this condition as with Springmount as FGF had specifically asked for it to be excluded. Mareeba SC have asked for no such exclusion.
WT 13	Y SM amended	Limits the vertical height of a lift of refuse to 2 metres to ensure that adequate compaction and coverage of refuse can be achieved and that the area of the working face is minimised to limit leachate generation without compromising operational efficiency. The 2 metre lift height has been specified by the applicant in their SBMP.
WT14	Y – SM	Specifies a minimum compacted density for waste of 0.7 tonnes per cubic metre to make effective use of landfill volume and to minimise the future subsidence of the site and associated problems of water ponding, infiltration and additional leachate generation. The applicant requested 0.7 tonnes per cu m be used given previous experience at other landfill sites. A concern was raised at the outset about the ability of the potentially 'spongy' residual waste's ability to reach standard compaction levels. However experience at the Portsmouth site has shown that this should not be a problem (Cairns CC have alleged compaction rates of 1.25t/m3).
WT15	Y – SM	Requires the effective compaction of large objects to minimise the creation of voids in the landfill, which can provide breeding opportunities for vectors and long-term subsidence problems.
WT16	Y – SM	Requires consolidation, compaction and covering of wastes at least every 48 hours to control wind blown litter or odour and fly nuisance associated with the operation of the active waste disposal cell. The applicant has requested covering every two days instead of daily (as initially suggested) due to the alleged unreasonable amount of soil that would be required. It has been agreed to extend the condition to every 48 hours for all cells except 4 and 6 due to their proximity to residences. They have been advised that the odour and nuisance conditions will still stand to address any problems and if any are reported then they may have to return to daily cover.
WT17	Y – SM	Requires that a minimum amount of cover material always be available on the site and is consistent with good industry practice as it allows disposal operations to continue during periods of inclement weather or machinery breakdown when cover material cannot be won from the borrow pits.
WT18	Y – SM	Deals with litter management as litter is often the most visible and extensive impact of a waste disposal site and this condition will control any off-site impacts from litter.
WT19	Y – SM	Requires that internal access roads are trafficable at all times so that waste storage, treatment and disposal areas are always accessible to ensure the effective operation of the site.
WT20	Y – SM additional text	Requires the removal of any interim cover before any subsequent waste disposal on top of that cell to allow percolation of leachate through the full depth of waste deposited in the landfill. This ensures the effective operation of the leachate collection system and prevents leachate "breakouts" of perched leachate from the face or sides of the landfill. An additional part has been included from the Springmount condition to ensure that highly compacted waste is ripped to allow percolation where necessary.
WT21	Y – SM	Addresses the detection, storage and removal of prohibited waste from the site within specified timeframes to minimise the risk of any on-site impacts from such waste material.

WT22	Y – SM additional text	Sets a minimum standard of construction for any area of the site to be used for waste storage or treatment that will minimise the risk of any soil, groundwater or surface water contamination being caused by these activities. Additional requirement to deal with any collected contaminated stormwater from these hardstands to the leachate collection system and sewer to prevent surface water contamination.
WT23 - 24	Y – SM	Specifies the storage requirements for waste tyres in either above ground heaps or buried storage to limit potential for fire and vector breeding. In accordance with the Op policy "Conditioning new environmental authorities for storage of scrap tyres". Considered storage and disposal. This has been included due to the possibility that longer term tyre storage may be needed as there is currently difficulty in the region with the collection of waste tyres.
WT25	Y – SM & ET	Requires wet cell batteries to be stored in a way that will minimise the risk of any soil or water contamination.
WT26	Y – SM & ET	Specifies the standards required for waste oil storage and requires a roofed and bunded area to minimise the risk of soil, or water contamination.
WT27	Y – SM	Requires any refrigerators, freezers, air conditioners or any other equipment containing ozone-depleting gases received at the site to be either degassed on site or accompanied by a degassing certificate. This condition will minimise the risk of any accidental release of ozone depleting gases on the site. In accordance with provisions of EP Reg 1998.
WT28	Y – SM	Requires that car bodies must be drained of all oils, fuels and hydraulic fluids before compaction to minimise the risk of accidental release of hydrocarbons when car bodies are being crushed for storage prior to removal for recycling. NOTE: This approval prohibits disposal of car bodies on the site.
WT29	Removed	<p>Reprocessing of 10,000t/yr of waste from old landfill cells. This condition had been included to reinforce the EMP already in place for the site. Due to the fact that the old site was unlined and it is unclear what waste has been historically disposed of there, the MSC have undertaken in their EMP to dig up and dispose of the old waste into the lined cells to prevent any further percolation of contaminants to groundwater as the old waste continues to breakdown.</p> <p>It was stated by the MSC that the inclusion of this condition will preclude LRAP funding for their rehab of the old cells and groundwater monitoring (that they hope to get LRAP funding for). MSC stated that the DLGP have stated that if rehab works for the old site are in any way a new DA condition then funding will not be provided. The MSC also stated that due to the location of the old cells and the site development plan for the new cells the old waste will have to be excavated to construct cells 3 and 4. Their case seemed reasonable and the requirements of the EMP Reference: MAN 5133 will still stand regardless of the removal of this condition. MSC were advised to ensure that all staff were aware of the EMP condition and that non-compliance with an EMP was a serious offence and would be enforced as such.</p>

Agency Interest - water

Many of the water issues have been discussed in detail earlier in this report.

Surface water

The applicant has stated that surface water contamination should not occur as all waste water from 'dirty areas' or waste disposal areas will be directed to the leachate collection system and then ultimately the sewer. Surface water discharge should therefore only contain sediment from the site. This water will be collected in a sediment pond designed to not overflow for anything less than a 1 in 10 year stormwater event. Despite this trigger levels have been set for several basic water quality parameters from the sediment pond. The

parameters set will also serve to detect any contamination of collected stormwater by leachate or contaminated waters that enter the sediment pond.

Groundwater

All waste will be disposed of into lined cells. The lined cells have been designed and constructed in accordance with current best practice for a landfill construction and also in compliance with the EPAs Guideline on the siting and construction of landfill sites. Leachate is to be pumped to council's sewage treatment plant for disposal. The council have stated that they have assessed their STP's ability to treat the leachate and it is capable of doing so. The EPA is also currently working with the Mareeba SC on the upgrade of their STP and this capability will need to be figured in to any design.

A number of conditions have been set for groundwater quality that should detect any breach of the landfill liner and associated groundwater contamination with leachate (methodology below). It is anticipated that groundwater could already be contaminated with leachate from the existing unlined cells, particularly as the applicant has stated that historically the type of waste going into the old site was an unknown. To further exacerbate the problem the Mareeba SC's groundwater monitoring over the last ten years has been grossly inadequate and in serious non-compliance with license conditions. Therefore the existence or extent of groundwater contamination at the site is currently an unknown and groundwater conditions cannot be set using existing water quality data or with reference to background data. Accordingly groundwater quality limits/levels have been set using the default prescribed standards expected of groundwaters in this area (QWQG and ANZECC).

Summary of conditions - Water

Condition	Standard (Y/N)	Justification
W1	Y SM	No direct discharge of sediment to waters or a build-up of sediment in waters is not permitted.
W2	Y SM	Prevent trucks using the site from dropping sediment and mud on the roadways around the site
W3	N	This condition has been added to limit the discharge from the site to an identified channel leaving the sediment pond. No specific GPS point has been provided by the Council and when questioned at the additional information stage they stated that the discharge would be limited and when it occurred it was to go to a flat area of grassed land north of the landfill site and disperse from there over that lot. The end point of the discharge channel is identified on the site plan. The council have stated that the end of the channel will be reinforced to prevent erosion and designed to diffuse the water.
W4	N	Condition requires daily monitoring during discharge and monthly while it is not. Monthly monitoring will detect the presence of leachate in the surface water run-off. This not seen as onerous as council is confident that the pond will not overflow. The parameters set for monitoring are limited to those which can easily and quickly be taken on site with the correct equipment.
W5	Y ET	Standard to condition to control how water samples are to be taken.
W6	Y using ANZECC & QWQG	Trigger values set for sediment pond discharge water quality and standard requirement in place for ANZECC investigation and actions if values are breached. Methodology as follows;

Activity information

- **Water** – release is not directly to any identified water.
- **Type of activity** – landfill site
- **Contaminants associated with the activity and impacts on waters** – as stated previously the only intended contaminants in the discharge waters are to be sediment and soil from drains and exposed unvegetated areas. All toxicants and contaminants associated with the waste disposal activity are to be



directed to leachate collection. Parameters to be monitored for include DO and EC which will indicate the likely presence of leachate in the surface waters and turbidity to indicate sediment levels.

- **Quantity** – the sediment pond is designed for a 1 in ten year event. In accordance with this design the pond may overflow during ten percent of rainfall periods. Mareeba is one of the driest areas in the region with rainfall data given in section 1. Therefore the characteristics of discharge should be intermittent and irregular.
- **Reduction/reuse** – the sediment pond is to be used for irrigation of newly vegetated areas around the site, dust suppression, fire fighting and it is hoped that the adjacent golf club will use the water for irrigation. A subsequent condition will require the management of the pond to reduce water quantity between events to maximise freeboard and attain readiness for the next storm event. This is seen as being satisfactory.

Receiving water

- **Water** - discharge from sediment pond to be to a flat open area of land to the north of the site. A Golder Geotechnical/Hydrogeological Investigation showed that the site is surrounded by large areas of sandy soil and so it could be reasonably expected that discharge on to this lot will result in percolation to groundwater. There is the possibility that during extreme storm events that the discharge waters may eventually discharge in part to Granite Creek.
- **Water type** – upland stream (it has been specified that although the impacted waters are most likely to be groundwater those qualities for the aquatic ecosystems for upland streams are to be used).
- **EVs** – the area around the landfill and the nearest creek, Granite creek are not scheduled in the EPP Water.
 - Under section 7 of the EPP water - the water would not be considered pristine due to the surrounding land uses and therefore the default value for this aquatic ecosystem would be that of a modified ecosystem that is moderately disturbed; and the groundwater could be used for agricultural purposes. This is justified by the fact that Granite Creek takes a significant amount of run-off from the urbanised Mareeba area and much of the surrounding land is farm land with the associated use of fertiliser and pesticides and the impacts of cattle grazing. No surface water quality monitoring has been done by the applicant. Therefore the default values set for the all but one of the selected parameters are those values contained in the Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region
 - The most relevant value for EC was not available in the QWQGs (EC was seen as important to identify the presence of leachate). Therefore the upper salinity level in ANZECC Table 3.3.5 – limits for upland rivers of slightly disturbed ecosystems in tropical Australia was used.
- **Values** – the selected values to be utilised were those associated with the risk from sediment in waters and those to be used as early detection for the presence of leachate: turbidity, pH, DO and EC.
- The possible water uses in the vicinity of the site that may be impacted have been identified using ANZECC methodology as Primary Industry – Irrigation and/or Stock watering (Chapter 4 - ANZECC 2000). For the parameters identified above the values were identified as being more liberal than those contained in the QWQGs. As the risk to primary industry uses is seen as negligible from waters only likely to only contain sediment; a maximum limit has not been set for these parameters.

Parameter	Unit	Trigger Levels	Level Type
Turbidity	NTU	80 th percentile ¹ of reference ² or 6NTU ³ , whichever is higher.	Median ⁵
pH	pH units	Minimum – 6.0 ³ or 20 th percentile ¹ of reference ² whichever is lower. Maximum 7.5 ³ or 80 th percentile ¹ of reference ² whichever is higher.	Median ⁵
Dissolved oxygen	Percentage saturation	80 th percentile ¹ of reference ² or 90% ³ saturation, whichever is lower	Median ⁵
Electrical conductivity	µS/cm	80 th percentile ¹ of reference ² or 250µS/cm ⁴ , whichever is higher	Median ⁵

¹ Trigger levels based on the 80th or 20th percentile are derived using ANZECC (2000) and QWG methodology and are based on the reference sites defined in 2 below.

² Reference sites must:

- be from the same biogeographic and climatic region; and
- have similar geology, soil types and topography; and
- contain a range of habitats similar to those at the test sites; and
- a similar flow regime; and
- not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
- refer to QWG guidelines page 76 for further guidance

³ Limits based on values contained in the Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region

⁴ Limits based on ANZECC Table 3.3.5 – upper salinity limits for upland rivers of slightly disturbed ecosystems in tropical Australia.

Impacts of authorised discharge

- Compliance with the above limits should see no impacts on the receiving environment.

License conditions

- The above table will be set for trigger values with a condition to conduct an investigation using ANZECC methodology where the trigger values are exceeded and report findings to the EPA.
- The conditions will allow the applicant to alternatively use values obtained from reference sites, however at present no such monitoring has been done.

Summary of conditions – Water cont..

Condition	Standard (Y/N)	Justification
W7	Y using ANZECC & QWQG	Maximum limits set for EC, pH and suspended solids for discharge from the sediment pond. Justification for pH and EC limits are outlined below in W21 text. Suspended solids were set accordingly: A discharge limit of 20mg/L is provided for by the Erosion and Sediment Control Planning Guidelines for Far North Queensland and the Institute of

		Engineers Guidelines. However, these guidelines also suggest that the discharge of waters from a sediment pond shall contain less than 50mg/L suspended solids after flocculation and a suitable settling time. Considering that the suspended sediment in sediment ponds waters will have at least a 24 hour retention time and that through this settlement a high percentage of particles will be settled out (due to the inherent proportion of coarser sandy particles in the insitu soil) the value should be achievable.
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Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4 - 9 ¹	Range
Total suspended solids	mg/L	50	Maximum

Summary of conditions – Water cont..

Condition	Standard (Y/N)	Justification
W8	Y SM additional text	Sets operating standards and management controls for all sedimentation ponds in the stormwater diversion and collection system to minimise the risk of off-site sediment release. Additional text has been inserted to reflect the undertaking of the applicant to ensure that they are constructed to contain at least a 1 in 10 year storm event. (Usual standard is 1 in 5).
W9	Y SM amended	Requires that waste is only be disposed of in areas that have been prepared and lined in accordance with the specifications provided for leachate collection and methods proposed in the application to minimise the risk of groundwater and surface water contamination. These measures will minimise the risk of any release of leachate to surface or groundwaters.
W10	Y SM	Broad catch all condition that requires that the site be operated in a manner that minimises the generation of leachate to reduce the likelihood of failures or overflows of the leachate collection, storage and disposal system which would have the potential to cause serious off-site environmental harm.
W11	Y SM amended	<p>Standard condition to ensure leachate collection and proper management and to ensure that leachate head is managed to the extent to prevent breakout or damage to landfill liner. The condition is changed from the Springmount condition in that leachate is only to be pumped to sewer or recirculated, storage is not proposed or permitted.</p> <p>The maximum head levels have also been changed from the standard EPA requirement (30cm) following negotiations with MSC and their consulting engineer Mal Jones. Mal Jones has stated that due to the construction method of the leachate collection system and the size of the submersible pump: a higher head level is appropriate and the new level set will not compromise the ability of the landfill to deal with the leachate collected and will not lead to any overflow or breach of the cells.</p> <p>The revised maximum level for the leachate sump liner is 1.5m which will still ensure that the maximum level of leachate above the upper most layer of the liner is 0.3m and in accordance with EPA Guidelines. A detailed</p>

		report and justification for the condition change is on the file. As Mal Jones is considered to be a statewide expert in this field his opinion and recommendation has been accepted.
W12	Y SM amended	This condition deals with the control of leachate disposal and sets out how this can be done to prevent any environmental harm. In variance with Springmount evaporation is not proposed or authorised.
W13	Y SM amended	This condition specifies how landfill gas condensate, which may be generated during possible gas extraction (see earlier condition) should be managed to limit potential environmental harm.
W14	Y SM plus additional text	This condition specifies the construction and operation standards for any leachate pumping stations to ensure that the risk of any failure and leachate overflow will be minimised. Adds specification for suitably sized standby pumps to Springmount condition.
W15	Y SM amended	This condition specifies a leachate management and monitoring program with weekly water balances being calculated to indicate whether there are any unaccounted for leachate losses from the site. The calculation of these water balances will be the first indication of any liner failure as no vadose zone monitoring has been installed on the site. Parameters to be analysed for are typically found in leachate generated at landfill sites. If elevated levels are seen in surface or groundwater Environmental Investigation can be implemented. More on groundwater monitoring below.
W16- W18	Y SM amended	These conditions specify the minimum content of a surface water monitoring program to detect any off-site impacts caused by the site and require at least quarterly sampling. This is consistent with the monitoring requirements of the Springmount license. No surface water quality monitoring is specified in the application so it expected that they may request that this condition be removed. At present it is seen as fair to set this condition as very little or no information has been provided on surface waters affected by the site or surface waters found in the vicinity of the site and their values. Should the applicant wish to remove this condition for surface water monitoring it may be considered if their justification is considered reasonable, however best practice would be to keep this in at present.
W19	Y SM and ET	This standard condition specifies the minimum content of a groundwater monitoring program to detect any off-site impacts caused by the site and require at least quarterly sampling given the highly variable rainfall distribution throughout the year. Frequency and nearly all the parameters set reflect the submitted groundwater monitoring program.
W20	Y ET	Trigger values set for groundwater quality and standard requirement in place for ANZECC investigation and actions if values are breached. Methodology as follows;

Activity information

- **Water** – this assessment is not undertaken to authorise any release to groundwater but to identify any breaches of the landfill liner system and percolation of leachate to groundwater.
- **Type of activity** – landfill site
- **Contaminants associated with the activity and impacts on waters** – typical indicators of the presence of landfill leachate in groundwater are:
 - pH
 - electrical conductivity
 - Total dissolved solids
 - bicarbonate (HCO₃)
 - oxidised nitrogen

- ammonia
 - calcium
 - sulphate
 - chloride
 - manganese
 - total iron
 - copper
 - lead
 - zinc
 - pesticides (organochlorines and organophosphates)
 - Polycyclic Aromatic Hydrocarbons (PAHs)
 - Total Petroleum Hydrocarbons
 - BTEX (Benzene, Toluene, Ethyl Benzene and Xylene)
 - Chemical Oxygen Demand (COD)
- **Quantity** – no discharge authorised of any quantity. The trigger values and limits to be set for groundwater will be used to identify even minor amounts of leachate entering the groundwater.
 - **Reduction/reuse** – the liner and leachate collection system is designed to prevent any leachate being discharged to groundwater. All leachate collected will ultimately be pumped to council's STP and treated. Treated effluent should then be reused and contaminants removed in the form of solids may be reused in controlled circumstances at correct application rates for agricultural purposes. Conditions are in place for the applicant to take steps to minimise leachate generation.

Receiving water

- **Water** – The waters to be monitored for impact, and have trigger values and limits set, is the groundwater surrounding the site. It is believed that this groundwater may be contaminated due to previous operations of the landfill site. However, as stated earlier groundwater monitoring has not been previously done to a satisfactory standard so default values will be set using recognised data.
- **Water type** – upland stream
- **EVs** – the area around the landfill and the nearest creek, Granite creek, is not scheduled in the EPP Water.
 - Under section 7 of the EPP water - the water would not be considered pristine due to the surrounding land uses (agriculture and the town of Mareeba) and therefore the default value for this aquatic ecosystem would be that of a modified ecosystem that is moderately disturbed; and the groundwater could be used for agricultural purposes. Checks with the Department of natural resources have revealed that there are bores in the vicinity of the landfill. However As this area is not a declared subartesian area and licences are not required for the take of groundwater; and Development Permits are not required for the construction of works it is difficult to say whether these bores are in use or not. It has been decided that as agricultural use is possible and reasonable, that the standards under ANZECC Chapter 4 (Primary Industries) should be used to set maximum values for groundwater quality around the landfill.
- **Values** - As satisfactory values could be identified for all the parameters outlined above those that were given a value under the QWQGs or ANZECC were selected and given trigger values. It is felt that the suite of parameters is satisfactory to detect groundwater contamination by leachate. As detailed below in the key to the table – the values were taken from the QWQGs for physico-chemical values and ANZECC was used for toxicants and EC. As stated previously no satisfactory groundwater monitoring has been done to date to use reference data so default values are set for all parameters.

Parameter	Unit	Limit	Limit Type
EC	µS/cm	80 th percentile of reference or 250 ¹ , whichever is higher.	Median ³
pH	pH units	Minimum – 6.0 ³ or 20 th percentile of reference whichever is lower.	Median ³

		Maximum 7.5 ³ or 80 th percentile of reference whichever is higher.	Median ³
Ammonia N	µg/L	80 th percentile of reference or 6 ² , whichever is higher.	Median ³
Total N	µg/L	80 th percentile of reference or 250 ² , whichever is higher.	Median ³
Copper	µg/L	1.4 ⁴	95 th percentile ³
Lead	µg/L	3.4 ⁴	95 th percentile ³
Zinc	µg/L	8 ⁴	95 th percentile ³
Manganese	µg/L	1900 ⁴	95 th percentile ³
Benzene	µg/L	950 ⁴	95 th percentile ³
Polycyclic Aromatic Hydrocarbons (PAHs)		Above limit of detection	95 th percentile ³
pesticides (organochlorines and organophosphates)		Above limit of detection	95 th percentile ³
Total Petroleum Hydrocarbons		Above limit of detection	95 th percentile ³

¹ Trigger levels based on ANZECC Table 3.3.5 – upper EC limit for upland rivers of slightly disturbed ecosystems in tropical Australia

² Trigger levels based on values contained in the *Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region*

³ The median and the 95th percentile must be determined based on a maximum of ten (10) consecutive samples.

⁴ ANZECC (2000) trigger levels for aquatic ecosystems of slightly – moderately disturbed systems – table 3.4.1 level of protection 95% - tropical Australian upland rivers.

Impacts of authorised discharge

- No discharge is authorised, values are set to detect contamination.
- Compliance with the above limits should see no impacts on the receiving environment.

License conditions

- The above table will be set for trigger values with a condition to conduct an investigation using ANZECC methodology where the trigger values are exceeded and report findings to the EPA.

Summary of conditions – Water cont..

Condition	Standard (Y/N)	Justification
W21	Y ET	Limits set for groundwater quality making it a breach of the approval if they are breached. Methodology for setting the limits:

As specified above the environmental value and use of the groundwater is limited to the probable use for the primary industry purposes of irrigation and stock watering. A comparison was made between limits for both primary industry uses using Chapter 4 of ANZECC 2000. Below is a table of comparisons between maximum limits of the relevant water quality parameters.

Parameter	Limit Irrigation	Limit – Stock watering
pH	4 – 9 (s.4.2.10.1 – protection of	NA

	animal and soil health)	
Lead	2mg/L	0.1mg/L
Zinc	2mg/L	20mg/L
Copper	0.2mg/L	1mg/L
Total N	5mg/L	NA
Sulphate	NA	1000mg/L

The values for maximum EC has been set at 1000mg/L following review of Table G3 of the QWQGs that describe >1000µS/cm as 'very high' salinity and therefore indicative of a major problem in an upland stream freshwater environment.

Therefore conditions set for groundwater limits are:

The groundwater monitored under condition W18 for parameters specified in table Three must not exceed any of the contaminant limits defined in Table Five

Table Five - Groundwater Contaminant Limits - Unfiltered

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4 - 9 ¹	Range
Total N	mg/L	5 ¹	Maximum
Sulphate	mg/L	1000 ¹	Maximum
Copper	mg/L	0.2 ¹	Maximum
Lead	mg/L	0.1 ¹	Maximum
Zinc	mg/L	2 ¹	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

Summary of conditions – Water cont..

Condition	Standard (Y/N)	Justification
W22	Y ET	This is a catch all condition requiring that if the applicant identifies any statistical impacts on groundwater during monitoring the EPA must be notified.

4. Assessment Considerations

Support and substantiation for the identified relevant considerations are given below under the appropriate headings:

i) Standard criteria (as applicable)

Ecological Sustainable Development

The proponent has demonstrated the principles of ecologically sustainable development by proposing best practice landfilling techniques, recycling, reuse, waste minimisation and best practice environmental management programs. The decision made to issue the permit has integrated the long and short term economic, environmental, social and equity considerations.

The Regional Strategic Planning document FNQ2010, identified a need for a landfill to dispose of the residual wastes that cannot be recycled or reused through segregation and processing of wastes. The proposals for waste processing in this application and development permit conditions will, together, ensure that this landfill does not lower the level (on the waste hierarchy) of treatment of any particular waste by offering a cheaper landfill alternative.

Economically this will provide a second such engineered regional landfill. It is anticipated that this will lead to a reduction in waste disposal costs, particularly for the many local governments in the region now moving towards using these sites and closing down older unlined landfills, as they are encouraged to by the EPA due to their non-compliant nature.

Environmental Protection Policies (EPP's)

The EPP's on Water, Air, Noise and Waste have been considered during the assessment of this application. The objectives and standards of EPP - water, air, noise and waste have been incorporated in preparing the resulting conditions.

EPP Water

Section 7 was considered in the setting of trigger values and limits for surface water release and groundwater contamination. Accordingly it was identified that no values for the area were included in Schedule 1 and the qualities of the water were not pristine and therefore categorised a modified aquatic ecosystem under section 7(2)(a)(ii). Further assessment of the section identified that the qualities of the water to be protected included the suitability for agricultural use as there are numerous bores in the area that may be used for irrigation or stock watering.

Accordingly the provisions of section 7 were addressed by the use of values from the QWQGs and ANZECC

Section 15 was also considered as the assessment was considering an activity that may affect a water. Accordingly under subsection 15(2) steps 1 – 4 were considered. The applicant's proposal to contain the leachate and reuse where applicable and pump the rest to sewer meets the obligations of this section.

Section 19 refers to management of stormwater. As it is likely that stormwater may be contaminated with an amount of sediment subsection(3)(a)–(f) and (4)(a)-(c) must be considered. The applicant's proposal and management practices to ensure that stormwater is controlled so that it does not come into contact with wastes or contaminants and will be discharged through a suitable sedimentation pond will meet the provisions of this section.

Section 21 refers incidental release to groundwaters. The fact that the site will be engineered and lined with a leachate collection system and pump out capability, along with the groundwater monitoring conditions and limits set in the approval will meet the provisions of this section.

EPP Noise

S.5 Beneficial Assets – this definition does not extend to a waste disposal activity, therefore this development is subject to assessment against the Policy.

S.11(1) Acoustic Quality Objective – achieving an ambient level of 55dB for Queensland's residential areas.

S.11(3) The existing acoustic environment should not be allowed to significantly deteriorate – a landfill has been operating in this location for a significant number of years. As stated previously the Council have stated that they have not received noise complaints about the site as far as their records go back (unfortunately this only appears to be 18 months worth). The EPA have no record of any noise complaints about the site. Despite this during the last eighteen months the cells have been excavated and constructed, this would have been one of the noisier components of the site's continuing operation.

S.14 Matters for consideration

In making our decision we must consider the following:

Beneficial Asset? It is not a beneficial asset.

Characteristic of the noise. The noise will be mainly that of trucks entering and leaving the site and of heavy machinery operating at the site. The residents that live nearest to the site live alongside the one of the main roads entering the township of Mareeba and therefore the truck noise should not make a significant amount of difference, however noise conditions will be applied using EPA Guidelines.

Lawfulness of activity – NA - for the activity to proceed it will need a DA with noise conditions.

Order of occupancy – the site has been operating at this location for many years.

Views of the effected persons – no objections have been made or calls received from adjacent residents.

Other noises ordinarily at the site – the site is close to the urban centre of Mareeba and alongside a main road, the extra noise will be due to the use of heavy machinery. Reasonable hours of operation have been proposed and noise limits will be set.

EPP Air

S.11 Evaluation Procedure for making a decision on a relevant activity

(a) How will the activity affect environmental values – it is anticipated these affects will be limited to mainly dust and odour. These factors have been considered and comprehensive conditions will be set to address these issues.

(b) Evaluate the activity in relation to:

Air Quality Goals – These are prescribed in Schedule 1 of the Policy. Relevant parameters are Particles as PM10 and total suspended particles. The dust conditions attached to the approval will address the requirements of this section.

Matters in section 12

S.12 Characteristics of the releases – nuisance odour release could possibly be a regular occurrence. Accordingly the EPA have recommended buffer distances to for putrescible landfills and odour nuisance sensitive receptors (i.e. residences). This buffer should address the odour issue when tied in with good management practices. As discussed in more detail earlier cells 4 and 6 will be within the buffer. Accordingly a condition has been set to prohibit the use of these cells for putrescibles waste until it has been proven through modelling and complaints records that odour should not be a problem.

Order of occupancy – the site has been operating at this location for many years.

Views of the effected persons – no objections have been made or calls received from adjacent residents.

S.13 Air pollution dispersion modelling – use of this section is limited to releases that the EPA considers will cause environmental harm when added to other releases in the area and as such is not applicable. However odour modelling has been requested.

EPP Waste

The EPP waste was a critical part of the assessment of this application and most of the factors have been covered in detail earlier in this report. The critical part of this legislation is the waste hierarchy – section 10(1) - requiring that waste be managed according to defined principals of; avoidance, re-use, recycling, energy recovery, disposal.

The conditions of this application are framed to ensure that these principals are adhered to.

Plans, standards and agreements

The QWQGs and ANZECC Guidelines have been used to assist in benchmarking environmental performance. The information provided by the company has been considered in conjunction with the nature of the industry, and the receiving environment. In assessing this application the following EPA Guidelines have been used:

Landfill siting, design, operation and rehabilitation Waste disposal — ERA 75

Waste disposal (ERA 75) – Monitoring systems

Recording, interpretation & analysis of monitoring results ERA 75 – Waste disposal

The assessment report for the Springmount facility compiled by Brynn Matthews and Dean Sharpe has also been reviewed in detail to ensure that assessment and conditioning has been consistent.

Environmental Impact Statement

The applicant has provided information on the construction specifications for the site and a detailed SBMP. A comprehensive additional information request was required and most information was provided. Information relating to the environmental values of the surrounding area and background water quality have been unsatisfactory, however it is felt that conditions are to be tight enough to control any possible impacts on these values. Ongoing monitoring is recommended to assess ongoing impact of the facility. The Environmental Assessment report and the information contained in the application were considered while processing this application.

Receiving environment

The current zoning of the subject site and surrounding areas and the location of sensitive land uses have been considered. This is discussed in much more detail earlier.

Best Practice Environmental Management

These liner and capping specifications along with leachate collection and treatment proposals are considered current best practice for such a site with the proposed waste acceptance criteria.

The proposed waste processing to recover recyclables with only non-useable portions being landfilled is also best practice for such an activity.

The proposed plant is designed to be an efficient modern facility. The proponents have adopted the principles of waste minimisation and cleaner production in preparing their environmental policy. This policy extends to reduce the amount of waste generated at the site.

Financial implications

Monitoring and reporting regimes have been established by adopting specific conditions to enable continued assessments of environmental impacts. The proponents will endeavour to ensure that ample finances are allocated for completion of the monitoring program. Adequate funds, equipment and staff time will be provided to meet the commitments of the conditions.

Public Interest

No public submissions or enquires have been received for the application. The environmental values of the local community will be protected by the proposed conditions.

Site management plan



The company has demonstrated its commitment to conduct its activities in an environmentally responsible manner by development of its a site/activity based management plan. Their environmental monitoring program will commence in accordance with the issued conditions.

ii) **Native Title comments following notification (if applicable)**

NA

iii) **Notifiable Activity (if applicable)**

Yes and the requirements of this legislation in relation to the closure of such sites have been reinforced in approval conditions.

iv) **Wild River Area consideration (if applicable)**

NA

5. Consultations

Numerous meetings have been held between the EPA and representatives of Mareeba Shire Council, Maunsell, C&B and CEC-SITA.

An additional information request was required that included 48 items for address. These have been provided. Contact and meetings between the project manager Ian Florence and the Mareeba Shire Council's Manager of Waste and Water, Patrick O'Flaherty has been maintained on at least a weekly basis throughout the whole of the assessment period.

The Mareeba Shire Council discussed the conditions at a formal Council meeting on the 20 march 2007. As a result the condition prohibiting asbestos disposal at the site was negotiated with Regional Director, Rob Lawrence.

6. Project Killers

None

7. Streamlined Conditions

The following conditions are used:

Full Streamlined Conditions ☐

Some Streamlined Conditions ☒

No Streamlined Conditions ☐

Non-streamlined condition/s	Reason/s for recommendation
See section 3	See section 3

8. Recommendation

It is recommended that the proposed development should be:

Select:	If approved select:	If approved, also select:
☒ Approved or	☒ With a development permit or	☒ With conditions or
☐ Refused	☐ With a preliminary approval or	☐ No conditions
	☐ In part only	

Assessing Officer: Ian Florence

Signed: ch4p4(6) Personal information Date: 20 March 2007



9. Review and Endorsement

Manager/Director:

Signed:

[Redacted] sch4p4(6) Personal information

Date:

[Redacted]

Delegate:

Signed:

[Redacted]

Date:

RTI DL RELEASE - EHP

Section 3.5.15 Integrated Planning Act 1997

EPA Permit¹ number: IPDE00493906A11

EPA Permit¹ number:	IPDE00493906A11
Assessment Manager reference:	as above
Date application received by EPA:	13-OCT-2006
Permit¹ Type:	Development Approval for a MCU involving an ERA
Date of Decision:	14 March 2007
Decision:	Approval with conditions
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i> and any subordinate legislation

Development Description

Property

Mareeba Landfill Site

Lot/Plan

Lot 517 Plan CP851523

Aspect of Development

ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

Additional information for applicants

The standard currency periods stated in section 3.5.21 of the *Integrated Planning Act 1997* or the nominated currency period, apply to each aspect of development in this permit¹. For information on when this permit¹ takes effect and the relevant currency periods, please see point 3 in the Notice of Decision.

Contaminated Land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a Notifiable Activity (as defined by Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 30 days after becoming so aware, give notice to the Environmental Protection Agency.

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service

EPA Permit number: IPDE00493906A11

Environmentally Relevant Activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the *Environmental Protection Act 1994*. For the person to become a registered operator, they must apply for a registration certificate under section 73F of the *Environmental Protection Act 1994*.

Ingrid Fomiatti Minnesma
District Manager
Cairns District, Northern Region
Environmental Protection Agency
Delegate
Environmental Protection Agency

14 March 2007

RTI DL RELEASE - EHP

CONDITIONS OF APPROVAL

ERA 75(a)(viii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

Agency Interest: General

(G1) Prevent and/or Minimise Likelihood of Environmental Harm

In carrying out an ERA to which this approval relates, all reasonable and practicable measures must be taken to prevent and / or to minimise the likelihood of environmental harm being caused.

(G2) Maintenance Of Measures, Plant and Equipment

The operator of an ERA to which this approval relates must:
install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval; and
maintain such measures, plant and equipment in a proper and efficient condition; and
operate such measures, plant and equipment in a proper and efficient manner.

(G3) Site Based Management Plan

From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all ERAs that are carried out.

The SBMP must address the following matters:

- (a) Environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals.
- (b) Identification of environmental issues and potential impacts.
- (c) Control measures for routine operations to minimise likelihood of environmental harm, including the following:
 - (i) diverting upstream stormwater away from disturbed or contaminated areas and any ponds or other structures used for the storage or treatment of contaminants or wastes;
 - (ii) containing contaminated stormwater on site;
 - (iii) minimising the size of contaminated areas;
 - (iv) provision of stormwater settling ponds and rubbish traps;
 - (v) minimising the size of disturbed areas by measures such as progressive restoration of disturbed areas;
 - (vi) a waste sampling and monitoring program to detect any prohibited wastes received at the site and to ensure that the wastes received for disposal or treatment at the site comply with the waste acceptance criteria stated in this approval.
- (d) Contingency plans and emergency procedures for non-routine situations including:
 - (i) fires;
 - (ii) cyclonic conditions;
 - (iii) the recovery and removal from the site for proper disposal of any prohibited wastes received at the site which cannot be accepted for storage, treatment or disposal at the site.
- (e) Organisational structure and responsibility.
- (f) Effective communication.
- (g) Monitoring of contaminant releases.
- (h) Conducting environmental impact assessments.

- (i) Staff training.
- (j) Record keeping.
- (k) Periodic review of environmental performance and continual improvement.
- (l) Leachate management
- (m) Identifying and monitoring a reference site that establishes background values for surface and ground waters.

(G4) The site based management plan must not be implemented or amended in a way that contravenes any condition of this approval.

(G5) Records

Record, compile and keep all monitoring results required by this approval and present this information to the administering authority when requested.

(G6) Waste Records

A record of all regulated waste accepted at and removed from the site must be kept detailing the following information:

- (a) date of receipt of the waste;
- (b) description of waste;
- (c) quantity of waste;
- (d) origin of the waste; and
- (e) destination of the waste.

(G7) Site Development Plan

All works at the site must be undertaken in accordance with a Site Development Plan. A Site Development Plan, identifying all activities to be carried out on the site during the period of the plan, must be prepared for each cell subject to this development permit. Each Site Development Plan must be finalised at least three (3) months before the expiry of the previous plan and must include details of at least the following:

- (a) dimensions of landfill units used for waste disposal or storage;
- (b) an accurate level survey of any area to be utilised for the disposal or storage of wastes. The levels must be reduced to a common datum and related to contour plans;
- (c) the dimensions of the active waste disposal face;
- (d) location of any new site infrastructure or extensions, such as a new leachate dam, pond, or pump well to be used or other plant and equipment, required to the leachate collection, storage and recirculation infrastructure to serve the new cell;
- (e) location of any new stormwater drains, diversion embankments or settling ponds required to serve the new cell;
- (f) location of any areas to be capped (both final and interim capping where the next stage on the completed cell will not commence within 12 months), the proposed capped surface levels and contours, surface drainage system and species of vegetation to be planted as part of a rehabilitation program;
- (g) location of any new groundwater and gas monitoring or collection bores required to serve the new cell; and
- (h) progressive recording of waste deposition such that the location of a deposited load can be readily identified.

(G8) Closure and Post-Closure Care

When the deposition of waste to the landfill unit ceases, a final cover system to the landfill unit must be installed which minimises:

- (a) infiltration of water into the landfill unit;
- (b) the likelihood of any erosion occurring to either the final cover system or the landfilled materials; and
- (c) uncontrolled release of landfill gas.

The specifications for the final cover system must be submitted to the Administering Authority at least 12 months prior to closure. The specifications and method used in the final cover system must meet the approval of the Administering Authority.

- (G9)** Post-closure care of the landfill unit must be conducted following deposition of waste in the landfill unit, for:

- (a) a period of 30 years; or
- (b) such shorter period until the landfill unit and surrounding site are geotechnically stable and that no release of waste materials, leachate, landfill gas or other contaminants to the environment is likely.

The post closure care element of the Closure and Post Closure Care Plan must include at least the following:

- (1) monitoring of:
 - (a) the leachate collection and recirculation system;
 - (b) the groundwater monitoring network;
 - (c) any installed landfill gas management system;
 - (d) leachate quality;
 - (e) groundwater quality;
 - (f) surface water quality;
 - (g) landfill gas;
- (2) maintenance of:
 - (a) the leachate collection and recirculation system
 - (b) the groundwater monitoring network;
 - (c) any installed landfill gas management system;
 - (d) the integrity and effectiveness of final cover systems

- (G10)** A site management plan pursuant to Chapter 7, Part 8, Division 5 of the *Environmental Protection Act 1994* must be developed and provided to the administering authority at least 12 months before the expected final receipt of waste in the landfill unit. The site management plan must include, but is not to be limited to, the future land use and actions you intend to take for compliance with the closure and post-closure care requirements of this approval. In accordance with G8 the plan must include specifications for the final cover system for assessment by the Administering Authority.

(G11) Security

Measures must be taken to prevent unauthorised access to the site to which this approval relates.

(G12) Fire-Fighting Access

Clear access to the water supply for fire-fighting vehicles must be provided at all times and the water supply must be suitable and sufficient for the control of a large fire within the landfill and in accordance with the recommendations of the Queensland Fire Service.

- (G13)** An effective fire break must be provided and maintained around the landfill site and all waste disposal and processing areas.

(G14) Third Party Environmental Auditing

Compliance with the conditions of this approval must be audited within 28 days of commencement of the activity and be carried out at least every two years thereafter.

- (G15)** The audit detailed in condition G14 must be conducted by a suitably qualified third party auditor, nominated by the approval holder and accepted by the administering authority.

(G16) In relation to the audit required by condition G14, the auditor must submit a final version of the auditor's report to the administering authority within 28 days of completing the audit.

(G17) The total financial cost of the audit(s) will be the responsibility of the holder of this approval.

(G18) Notification.

Telephone the EPA's Pollution Hotline or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this approval.

(G19) Investigation Into Alternative Waste Management Practices

For the purpose of minimising the disposal of recyclable waste to landfill, in accordance with the waste management hierarchy and principles of the Environmental Protection (Waste Management) Policy 2000, you must implement a Waste Management Plan that addresses at least the following matters:

- (a) waste management practices that will ensure that recyclables are diverted from landfill;
- (b) procedures for identifying and implementing opportunities to improve the waste management practices employed including information and education packages for waste generators to assist in maximising the diversion of recyclable materials from landfill;
- (c) details of any accredited management system employed, or planned to be employed, to implement the waste management practices;
- (d) training programs and guidance for waste transport contractors in the identification and source separation of recyclable materials;
- (e) procedures for auditing waste loads to identify material to be removed for recycling;
- (f) how often the performance of the waste management practices will be assessed (at least annually);
- (g) the indicators or other criteria, taking into account economic, social and environmental factors on which the performance of the waste management practices will be assessed;
- (h) the recovery of energy from any methane collected in a landfill gas collection system; and
- (i) annual reporting by 31 August each year any new measures adopted or materials newly diverted from landfill disposal. This report must include the following:
 - (i) any new measures adopted or materials newly diverted from landfill disposal;
 - (ii) a summary (expressed in tonnes/year wherever appropriate) of the following information including wastes received, recyclable material recovered, fate of recyclables (e.g. transported off site for reuse/recycling, reused/recycled on site or stored on site) and calculated percentage diversion rate for the materials specified.
 - (1) Total amount of waste converted to useable energy;
 - (2) Amount of green and organic waste collected and recycled;
 - (3) Amount of green and organic waste disposed to landfill;
 - (4) Amount of green and organic waste recovered for energy;
 - (5) Amount of construction and demolition waste collected and recycled;
 - (6) Amount of construction and demolition waste disposed to landfill;
 - (7) Amount of commercial and industrial waste (including agricultural) recycled;
 - (8) Amount of commercial and industrial waste (including agricultural) disposed to landfill;
 - (9) Number of scrap tyres collected for recycling (Equivalent Passenger Units - EPU's);
 - (10) Amount of waste oil recycled;
 - (11) Total amount of paper, white office, newsprint and mixed paper waste recycled;
 - (12) Total amount of cardboard recycled;
 - (13) Total amount of mixed plastics recycled;
 - (14) Total amount of other plastics (please specify) recycled;
 - (15) Total amount of aluminium cans recycled;
 - (16) Total amount of steel cans & tins recycled;
 - (17) Other types and quantities of recyclables (please specify) recycled;
 - (18) Amount of waste disposed to landfill;
 - (19) Amount domestic waste disposed to landfill; and
 - (20) Total amount of landfill cover material used.

NOTE: The development of the local government's waste management strategic plan in accordance with the Environmental Protection (Waste Management) Policy 2000 which addresses the above matters will be deemed to satisfy the requirements of this condition.

(G20) Spill Kit

An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site.

(G21) Spill Kit Training

Anyone operating under this approval must be trained in the use of the spill kit.

Agency Interest: Air

(A1) Nuisance

The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.

(A2) Cells 4 and 6 are only to be used for non-putrescible waste until the time that the approval holder submits results of comprehensive odour modelling and evidence of the lack of previous odour complaints that demonstrates to the satisfaction of the Administering Authority that an odour nuisance is unlikely at nearby nuisance sensitive or commercial places.

(A3) Dust Nuisance

The release of dust and/or particulate matter resulting from the ERA must not cause an environmental nuisance at any nuisance sensitive or commercial place.

(A4) Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place:

- (a) Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 of 2003 (or more recent editions); OR
- (b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, when monitored in accordance with:
 - Australian Standard AS 3580.9.6 of 2003 (or more recent editions) 'Ambient air - Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet -Gravimetric method'; or
 - any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

(A5) When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include:

- (a) for a complaint alleging dust nuisance, dust deposition; and
- (b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.

(A6) Management of Landfill Gas

The release of landfill gas must not cause environmental harm.

- (A7)** Landfill gas is not considered to cause environmental harm if:
- (a) a landfill gas collection system is installed and maintained when the landfill unit is sufficiently elevated to allow adequate drainage of gas lines; and/or
 - (b) landfill gas monitoring shows that the release of methane does not exceed the following limits:
 - (i) 500 parts per million at a height of 50mm above the final and intermediate cover surface including the batter slopes of the landfill unit;
 - (ii) 25 percent of the lower explosive limit when measured in facility structures (but excluding facility structures used for landfill gas control and landfill gas recovery system components); and
 - (iii) the lower explosive limit at the landfill facility boundary.
- (A8)** Where landfill gas monitoring shows the release of methane as being above 500 parts per million at a height of 50mm, an effective landfill gas collection system must be designed, installed, operated and maintained on all landfill areas. Any gas collected in this system should, if it all possible, be reused in an energy recovery system, otherwise it must be actively vented or flared using only enclosed flares.
- (A9) Landfill Gas Monitoring**
- The assessment of compliance with the methane limit at a height of 50mm above the final and intermediate cover surface of the landfill unit prescribed by A7 must be undertaken at the following locations:
- (a) on a grid pattern where the grid lines are no more than 50 metres apart; and
 - (b) at any other locations where visual observations indicate potentially elevated concentrations of landfill gas, for example cracks, seeps in cover and distressed vegetation.
- (A10)** A landfill gas monitoring network must be installed for each landfill unit to assess compliance with methane limits for facility structures and at the boundary. The network must consist of gas monitoring devices, such as monitoring bores and be developed by a person possessing appropriate qualifications and experience in the fields of hydrogeology and landfill gas monitoring program design to be able to competently make recommendations about these matters.
- (A11)** Conduct and keep records of landfill gas monitoring which is performed at the following frequencies:
- (a) at least every three months to assess compliance with the methane limit at a height of 50mm above the cover surface of the landfill unit prescribed by A7; and
 - (b) at least every three months to assess compliance with methane limits for facility structures and at the boundary prescribed by A7.
- (A12)** Landfill gas monitoring referred to in the above conditions must be undertaken for at least the following parameters:
- (a) methane;
 - (b) oxygen;
 - (c) carbon dioxide;
 - (d) hydrogen sulphide; and
 - (e) atmospheric pressure.

Agency Interest: Land

- (L1)** Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.

- (L2) Land Rehabilitation**

The site must be rehabilitated (including all disturbed areas associated with waste storage, treatment, disposal and borrow pits and any stockpile and screening areas) in a manner such that:

- (a) suitable native species of vegetation are planted and established that are compatible with the vegetation community of the adjacent remnant regional ecosystem;
- (b) potential for erosion of the site is minimised;
- (c) the quality of stormwater, water and seepage released from the site is such that releases of contaminants are not likely to cause environmental harm;
- (d) the likelihood of environmental nuisance being caused by release of dust is minimised;
- (e) the final landform is stable and not subject to slumping.

(L3) Rehabilitation of disturbed areas must take place progressively as waste disposal cells are completed, areas of borrow pits are worked out and new areas for waste disposal or borrow pits are developed.

(L4) Access to areas awaiting rehabilitation or being rehabilitated must be restricted by suitable barriers to prevent disturbance of these areas.

(L5) Waste Disposal Cell Interim Cover and Rehabilitation

You must implement an interim cover and rehabilitation program for waste disposal cells not forming part of the final surface level of the site and not likely to receive their next layer of waste within 12 months. This program must include at least the following:

- (a) the installation of an interim cover system:
 - (i) of at least an additional 300 mm of compacted clayey material;
 - (ii) with a maximum permeability of 4×10^{-6} metres per second;
 - (iii) designed with effective surface water management systems to prevent water ponding; and
- (b) a stabilisation program including measures such as revegetation and or mulching to prevent erosion.

Agency Interest: Noise and Vibration

(N1) Noise Nuisance

Noise from the ERA must not cause an environmental nuisance at any nuisance sensitive place or commercial place

(N2) All noise from activities must not exceed the levels specified in Table One - Noise limits at any nuisance sensitive or commercial place.

Table One - Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Noise sensitive place'					
L _{A10} , adj, 10 mins	55	50	40	55	50	40
L _{A1} , adj, 10 mins	60	55	45	60	55	45
	Noise measured at a 'Commercial place'					
L _{A10} , adj, 10 mins	60	55	45	60	55	45
L _{A1} , adj, 10 mins	65	60	50	65	60	50

(N3) Noise Monitoring

When requested by the administering authority, noise monitoring must be undertaken to investigate any

complaint of noise nuisance, and the results notified within 14 days to the administering authority.

Monitoring must include:

[- airblast overpressure (dB (Lin) Peak);]

- LA 10, adj, 10 mins

- LA 1, adj, 10 mins

- the level and frequency of occurrence of impulsive or tonal noise;

- atmospheric conditions including wind speed and direction;

- effects due to extraneous factors such as traffic noise; and

- location, date and time of recording.

(N4) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

(N5) Vibration emitted from activities must not cause a nuisance at any vibration sensitive place.

Agency Interest: Social

(S1) Complaint Response

The operator of the ERA must record the following details for all complaints received and provide this information to the administering authority on request:

(a) Time, date, name and contact details of the complainant;

(b) reasons for the complaint;

(c) any investigations undertaken;

(d) conclusions formed; and

(e) any actions taken.

Agency Interest: Waste

(WT1) Waste Records

Records of the source, volumes and composition of all waste materials accepted at the landfill facility, recyclable materials recovered, fate of recyclable materials (e.g. transported off site for reuse / recycling, reused / recycled on site or stored on site), calculated percentage diversion rates for the materials must be kept and maintained and reported, in a specified format, to the administering authority by 31 August each year.

Note: The submission of these values in an annual report for the local government's waste management strategic plan or otherwise required by the administering authority will be deemed to satisfy the reporting requirement of this condition.

(WT2) Site Control

At all times while the ERA is operating, at least one person must be present who is responsible for the control and operation of the facility and whose duties must include but not be limited to:

(a) controlling the reception, storage and removal of waste;

(b) maintaining the facility;

(c) controlling all employees working in the facility; and

(d) supervising all persons entering the facility.

(WT3) Waste Acceptance

The following wastes may be received at the site:

(a) domestic waste;

(b) commercial waste;

(c) industrial waste;

(d) construction and demolition waste;

(e) solid inert waste; and

(f) limited regulated waste (except those prohibited in WT6).

- (WT4) Waste received at the site for disposal must have had recyclable materials either segregated at the source or have been processed in a materials recovery facility to remove reusable and recyclable materials.
- (WT5) Segregated recyclable materials, including wastes such as tyres, must not be disposed of in the landfill area but should be dealt with in accordance with the following hierarchy with the preference reducing down the list:
- (a) reuse;
 - (b) recycling;
 - (c) energy recovery; and
 - (d) recoverable buried storage in a separate portion of the site, but only where such burial and subsequent recovery is unlikely to cause any environmental harm.
- (WT6) Notwithstanding any condition of this approval, the following waste materials are not permitted or allowed to be deposited in the landfill unit:
- (a) regulated waste (other than limited regulated waste);
 - (b) liquid or semiliquid waste other than liquid or semiliquid waste which has been produced in carrying out the ERA;
 - (c) hot ash;
 - (d) material that is smouldering or aflame;
 - (e) material containing a substance which is ignitable, corrosive, reactive or toxic (other than materials containing a toxic substance from domestic premises) unless this material is to be deposited into a dedicated monocoil approved in writing by the administering authority;
 - (f) all radioactive wastes, unless otherwise approved under the *Radiation Safety Act 1999*;
 - (g) an explosive;
 - (h) Soils contaminated with regulated waste;
 - (i) ammunition, other than ammunition that no longer contains explosives, pyrotechnics or propellants apart from trace residues that are no longer capable of supporting combustion or an explosive reaction;
 - (j) fish processing waste;
 - (k) food processing waste;
 - (l) poultry processing waste;
 - (m) tallow;
 - (n) vegetable oils;
 - (o) putrescible kitchen wastes from commercial operations;
 - (p) liquid or semi-liquid waste other than liquid or semi-liquid waste which has been generated
 - (q) any substance listed under Schedule 8 of the Poisons Regulation 1978;
 - (r) tyres;
 - (s) filled or partly filled drums containing liquid wastes;
 - (t) car bodies;
 - (u) waste paints and solvents;
 - (v) gas bottles;
 - (w) green waste;
 - (x) Biosolids
 - (y) Asbestos
- (WT7) If a waste load is contaminated with any waste type listed in WT6 you must take all possible steps to identify the source of the contaminated load and implement the necessary practices and procedures to minimise the potential for a reoccurrence, including but not necessarily limited to:
- (a) providing written advice to transporters on the requirement to collect appropriate loads;
 - (b) providing information sheets to generators on the segregation of recyclable wastes;
 - (c) monitoring and audit procedures for loads received at site; and

- (d) review data to identify particular industries or locations which are prone to delivering contaminated loads, taking appropriate measures as outlined in a), b) and c) above to address the problem.

Should the measures outlined in a) to d) above prove unsuccessful in preventing contamination, further deliveries of waste from the same source must not be accepted on site.

(WT8) Burning of Waste

You must not:

- (a) burn waste at or on the site; nor
- (b) allow waste to burn or be burnt at or on the site; nor
- (c) remove waste and burn such waste elsewhere unless the burning is carried out at a facility appropriately licensed under the provisions of the *Environmental Protection Act 1994*.

(WT9) Vector Control

You must take all measures necessary to ensure that operations on the site do not cause environmental nuisance in relation to nuisance vectors, including fly breeding, mosquito breeding, and harbourage and/or breeding of rats and other pest organisms.

- (WT10)** In the event of environmental nuisance from nuisance vectors due to operations on the site, you must do all such acts and things and carry out any such works as may be necessary to:
- (a) abate such adverse effects and such nuisance; and
 - (b) prevent the likelihood of any recurrence of the circumstances which gave rise to such adverse effects and/or nuisance.

(WT11) Active Waste Disposal Cell Management

You must ensure that waste disposal activities do not extend beyond the boundary of the site.

- (WT12)** You must take effective measures to ensure that all wastes accepted for disposal at the site are not disposed of:
- (a) outside any active waste disposal cell; and
 - (b) beyond the catchment of any leachate collection drains installed as part of a leachate collection system, except for the separate disposal of asbestos waste.

- (WT13)** All wastes must be deposited in lifts not exceeding a vertical height of 2 metres after initial compaction.

- (WT14)** Every lift of waste deposited in the active waste disposal cell must be evenly and properly consolidated by mechanical plant to a density of at least 0.7 tonnes per cubic metre.

- (WT15)** Large items for disposal, must be compacted before and/or after being deposited to minimise residual void space in the landfill.

- (WT16)** Wastes deposited in any active waste disposal cell must be consolidated, compacted and covered with a layer of inert earthen material, biodegradable plastic sheeting or shredded green wastes as often as is necessary, but at least daily, to effectively minimise the quantity of wind blown litter, odour and fly nuisance resulting from exposure of putrescible waste.

(WT17) Cover material

Cover material must be stored and be readily available at the site in a quantity sufficient for not less than two weeks normal operation of the site.

(WT18) Litter Management

Where litter is blown or washed from the site you must:

- (a) retrieve the litter and ensure that it is disposed of in an appropriate manner; and
- (b) implement measures to prevent a recurrence of litter being blown or washed from the site.

(WT19) Access roads

You must ensure all weather access roads are installed and maintained so that, at all times whilst the site is open for receiving wastes, vehicles have access to any areas required for the normal operation of the site.

(WT20) Removal of intermediate cover

You must ensure that any intermediate cover on a cell is removed immediately prior to any subsequent waste disposal on top of that cell and exposed compacted waste is ripped to allow percolation of leachate through the full depth of waste deposited in the landfill.

(WT21) Waste Handling, Storage, Treatment and Reprocessing

In the event of you becoming aware of any prohibited waste being received at the site you must:

- (a) cease depositing such waste if it is still occurring;
- (b) remove the prohibited waste and store in a covered and bunded area; and
- (c) arrange for a person who can lawfully transport such waste to collect it within 24 hours of it being identified and remove it to a facility that can lawfully accept it.

(WT22) All storage, treatment and reprocessing of wastes, including green waste, must only be carried out on a hard stand area(s):

- (a) constructed of compacted clay or other low permeable material to minimise soil infiltration;
- (b) graded to prevent rainwater ponding;
- (c) bunded to contain the materials stored; and
- (d) graded to facilitate collection of leachates and contaminated stormwater runoff for discharge to the leachate collection system or Council sewer.

(WT23) Tyre Storage

Waste tyres may be stored:

- (a) by recoverable burial in cells in a designated area of the site with any cell containing no more than 500 equivalent passenger-tyre units (EPU); or
- (b) in temporary above ground heaps on the site provided that there are no more than 500 equivalent passenger-tyre units (EPU) at any time in any one heap.

(WT24) Where there is more than one heap or buried cell of waste tyres, a separation distance between the cells or heaps must be established and maintained so as to effectively prevent fire from spreading:

- from one tyre storage cell or heap or to another; and
- to other waste stored or disposed of at the site.

(WT25) Battery Storage

Waste wet cell batteries may only be temporarily stored on the site in a covered enclosure that has been bunded to contain spillages and leakages.

(WT26) Waste Oil Storage

Waste oil may be temporarily stored in drums or other containers at the site, provided that the drums or containers are:

- (a) stored in a roofed area designated for this purpose;
- (b) bunded to contain spillages and leakages; and
- (c) securely sealed when full to prevent spillage if knocked over.

(WT27) Equipment Containing Ozone Depleting Gases

Waste refrigerators, freezers, air conditioners or any other equipment containing ozone depleting gases received at the site must be either degassed by an appropriately qualified person at the site or, if degassed off the site, accompanied by a degassing certificate signed by a qualified person.

(WT28) Car Bodies

Car bodies stored at the site must be drained of all oils, fuels and hydraulic fluids prior to compaction.

(WT29) In accordance with Mareeba Shire Council's approved Environmental Management Program (EPA Reference: MAN 5133): a minimum of 10,000 tonnes per year of waste material from the pre-existing landfill area must be disposed of into the new lined cells.

Agency Interest: Water

(W1) Sediment Management

Prevent the release of sediment to waters or a build up of sediment in any stormwater drain.

(W2) Control of Off-Site Movement of Mud and Waste on Vehicles

Prevent vehicles from carrying waste, mud or dirt off the site and depositing these materials on any road or in any location likely to be washed into waters.

Release of Contaminants to Surface Waters

(W3) Authorised release point.

Contaminants must only be released to surface waters at a discharge point from the sedimentation ponds to the grassed area north of the site via a spillway constructed to prevent erosion at the discharge point.

(W4) The sediment pond must be monitored for the parameters contained in Tables Two and Three not less frequently than monthly and releases to waters from authorised release point must be monitored at the discharge location for the parameters contained in Tables Two and Three not less frequently than once per day whilst discharging for all parameters except suspended solids which must be measured at commencement of discharge and weekly thereafter.

(W5) All determinations of the quality of contaminants released must be:

- (a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; and
- (b) made in accordance with methods prescribed in the latest edition of the Environmental Protection Agency Water Quality Sampling Manual; and
- (c) carried out on samples that are representative of the discharge.

(W6) If discharge waters from the sediment pond exceed any of the contaminant trigger levels stated in Table Two, the environmental authority holder must:

- (a) complete an investigation in accordance with the ANZECC (2000) methodology, or any updated ANZECC guidelines, into the potential for environmental harm; and
- (b) provide a written report to the administering authority within 3 months of the date of the original exceedence, outlining:
 - details of the investigations carried out; and
 - actions taken to prevent environmental harm.

Table Two – Sediment Pond Discharge Water Contaminant Trigger Levels

Parameter	Unit	Trigger Levels	Level Type
Turbidity	NTU	80 th percentile ¹ of reference ² or 6NTU ³ , whichever is higher.	Median ⁵
pH	pH units	Minimum – 6.0 ³ or 20 th percentile ¹ of reference ² whichever is lower. Maximum 7.5 ³ or 80 th percentile ¹ of reference ² whichever is higher.	Median ⁵
Dissolved oxygen	Percentage saturation	80 th percentile ¹ of reference ² or 90% ³ saturation, whichever is lower	Median ⁵
Electrical conductivity	µS/cm	80 th percentile ¹ of reference ² or 250µS/cm ⁴ , whichever is higher	Median ⁵

¹Trigger levels based on the 80th or 20th percentile are derived using ANZECC (2000) and QWG methodology and are based on the reference sites defined in 2 below.

² Reference sites must:

- be from the same biogeographic and climatic region; and
- have similar geology, soil types and topography; and
- contain a range of habitats similar to those at the test sites; and
- a similar flow regime; and
- not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
- refer to QWG guidelines page 76 for further guidance

³ Limits based on values contained in the Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region

⁴ Limits based on ANZECC Table 3.3.5 – upper salinity limits for upland rivers of slightly disturbed ecosystems in tropical Australia.

⁵ The median must be determined based on a maximum of ten (10) consecutive samples.

- (W7) The discharge waters from the sediment pond must not exceed any of the contaminant limits defined in Table Three

Table Three – Sediment Pond Discharge Contaminant Limits

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4 - 9 ¹	Range
Total suspended solids	mg/L	50	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

(W8) Management of Sedimentation Ponds

The sedimentation pond installed as part of the stormwater diversion system must be maintained in an effective operating condition and managed so that stored stormwater volumes are minimised following each rainfall event to reinstate holding capacity in readiness for the next rainfall event. The size of any sedimentation pond must be sufficient to contain the run-off expected from a 24 hour storm with an average recurrence interval of 1 in 10 years.

(W9) Landfill Liner Construction

Waste may only be disposed of in areas that have been prepared and constructed in accordance with Section 6.4 of the submitted Mareeba Landfill Site Based Management Plan and specifications of drawing numbers 60018386-101 to 60018396-108 prepared by Maunsell Australia Pty Ltd and dated September 2006. This landfill liner system must be installed and maintained at the site to effectively:

- (a) prevent any release of contaminants to groundwaters; and
- (b) prevent subsurface migration of landfill gas from the landfill.

(W10) Leachate Management

You must operate the site in a manner that minimises the generation of leachate.

(W11) Leachate Collection

A leachate collection system must be installed and maintained at the site to effectively and efficiently:

- (a) collect any leachate generated in the landfill;
- (b) convey the collected leachate to Mareeba Shire Council's sewage treatment plant or recirculate it within the landfill at the working face; and
- (c) control the leachate head on any leachate collection sump serving the landfill so that it does not exceed 0.3 metres, except during a pump failure, when it may exceed 0.3 metres for a period not exceeding 12 hours, but must not exceed 1.5 metres at any time.

(W12) Leachate Disposal

Leachate or contaminated stormwater intercepted by the leachate collection system may only be disposed of:

- (a) by recirculation back into the landfilled waste ; or
- (b) by irrigation over exposed wastes on the site that have not received their final cover; or
- (c) to a sewage treatment plant.

(W13) Landfill Gas Condensate Disposal

Any landfill gas condensate collected must be treated as leachate.

(W14) Leachate Pumping Stations

Leachate pumping stations must be fitted with pump-failure alarms as well as high-level alarms to warn of imminent pump station overflow. Suitably sized backup pumps must be readily available on site in the event of pump system failure. All alarms must be able to operate without mains power if such power failure occurs and, when in operation, must notify the appropriate person to respond to the alarm.

(W15) Leachate Management and Monitoring

You must develop and implement a leachate quality and quantity management and monitoring program for the leachate generated at the site that includes at least:

- (a) daily rainfall or rainfall events (if an event is longer than daily) must be measured and recorded for the site;
- (b) the quantity of leachate extracted must be calculated and recorded daily;
- (c) weekly calculation of the volume of leachate in the landfill based on monitoring of the level of the leachate at any leachate collection sump or monitoring well, correlated to both AHD (Australian

- Height Datum) and the level of the top of the closest perimeter bund to the sump or monitoring well;
- (d) calculation of weekly water balances for the landfill to include, but to not necessarily be limited to, incident rainfall and leachate extraction rate;
 - (e) a sufficient number of monitoring locations to establish the composition and volume of leachate generated within the landfill; and
 - (f) sampling of leachate from the landfill at least in April and October of each year; and
 - (g) analysis of leachate samples for the quality characteristics identified in Table Four.

Table Four - Monitoring Requirements

Quality Characteristic	Leachate	Surface Water	Groundwater
pH	X	X	X
electrical conductivity	X	X	X
Total dissolved solids	X	X	X
dissolved oxygen	X	X	
bicarbonate (HCO ₃)	X		X
oxidised nitrogen	X	X	X
ammonia	X	X	X
calcium	X	X	X
sulphate	X	X	X
chloride	X		X
hexavalent chromium	X	X	
cadmium	X	X	
manganese	X	X	X
total iron	X	X	X
copper	X	X	X
lead	X	X	X
zinc	X	X	X
pesticides (organochlorines and organophosphates)	X	X	X
Polycyclic Aromatic Hydrocarbons (PAHs)	X	X	X
Total Petroleum Hydrocarbons	X	X	X
BTEX (Benzene, Toluene, Ethyl Benzene and Xylene)	X	X	X
Chemical Oxygen Demand (COD)	X	X	X
5-Day Biological Oxygen Demand (BOD ₅)	X	X	
Total Organic Carbon (TOC)	X		

(W16) Surface Water Monitoring

An effective surface water monitoring program must be developed and implemented for the site. The program must include, but not be limited to, a sufficient number of monitoring locations to:

- (a) establish the reference quality of surface waters upstream from the landfill; and
- (b) detect any impact on surface waters as a consequence of landfill operation.

(W17) The surface water monitoring program specified in condition number (W16) must monitor and record the quality of surface water for at least the quality characteristics identified in Table Four.

(W18) Surface water quality samples must be collected from sample points in accordance with the surface water monitoring program at least in January, April, July and October of each year, or, in the event of no sample being obtainable in ephemeral systems at this time, during the next period of flow of the watercourse.

(W19) Groundwater Monitoring

An effective groundwater monitoring program must be developed and implemented for the site. The program must include:

- (a) installation of a groundwater monitoring network which:
 - (i) establishes the background quality of groundwater upgradient and downgradient of the landfill site;

- (ii) are installed and maintained by a person possessing appropriate qualifications and experience in the fields of hydrogeology and groundwater monitoring program design to be able to competently make recommendations about these matters;
 - (iii) include a sufficient number of "bore(s) of compliance" to detect any impact on groundwater as a consequence of landfill operation, constructed in accordance with the "Minimum Construction Requirements for Water Bores in Australia" (Agricultural and Resource Management Council of Australia and New Zealand 1997), that are located not more than 150 metres from the landfill area or at the boundary of the landfill facility whichever is the closer; and
 - (iv) provides representative groundwater samples for the aquifers being sampled;
 - (v) includes monitoring of water from the perched groundwater found in the sand lens in the North west corner of the site identified during cell construction and situated beneath the landfill liner
- (b) analysis of groundwater samples for at least the quality characteristics identified in Table Four;
 - (c) collection of groundwater quality samples from groundwater at least in January, April, July and October of each year; and
 - (d) assessment of monitoring results to determine whether or not there has been any adverse change for each groundwater quality characteristic at locations hydraulically down gradient of the landfill unit above when compared to background values.

(W20) Groundwater Quality

If groundwater monitored under condition W19 for parameters specified in Table Four, exceed any of the contaminant trigger levels stated in Table Five, the environmental authority holder must:

- (a) complete an investigation in accordance with the ANZECC (2000) methodology, into the potential for environmental harm;
- (b) provide a written report to the administering authority within 3 months of the date of the original exceedence, outlining:
 - (i) details of the investigations carried out; and
 - (ii) actions taken to prevent environmental harm.

Table Five - Groundwater Contaminant Trigger Levels - Unfiltered

Parameter	Unit	Limit	Limit Type
EC	µS/cm	80 th percentile of reference or 250 ¹ , whichever is higher.	Median ³
pH	pH units	Minimum – 6.0 ³ or 20 th percentile of reference whichever is lower.	Median ³
		Maximum 7.5 ³ or 80 th percentile of reference whichever is higher.	Median ³
Ammonia N	µg/L	80 th percentile of reference or 6 ² , whichever is higher.	Median ³
Total N	µg/L	80 th percentile of reference or 250 ² , whichever is higher.	Median ³
Copper	µg/L	1.4 ⁴	95 th percentile ³
Lead	µg/L	3.4 ⁴	95 th percentile ³
Zinc	µg/L	8 ⁴	95 th percentile ³
Manganese	µg/L	1900 ⁴	95 th percentile ³
Benzene	µg/L	950 ⁴	95 th percentile ³
Polycyclic Aromatic Hydrocarbons (PAHs)		Above limit of detection	95 th percentile ³

pesticides (organochlorines and organophosphates)		Above limit of detection	95 th percentile ³
Total Petroleum Hydrocarbons		Above limit of detection	95 th percentile ³

¹ Trigger levels based on ANZECC Table 3.3.5 – upper EC limit for upland rivers of slightly disturbed ecosystems in tropical Australia

² Trigger levels based on values contained in the *Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region*

³ The median and the 95th percentile must be determined based on a maximum of ten (10) consecutive samples.

⁴ ANZECC (2000) trigger levels for aquatic ecosystems of slightly – moderately disturbed systems – table 3.4.1 level of protection 95% - tropical Australian upland rivers.

- (W21) The groundwater monitored under condition W19 for parameters specified in Table Four must not exceed any of the contaminant limits defined in Table Six

Table Six - Groundwater Contaminant Limits - Unfiltered

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4 - 9 ¹	Range
Total N	mg/L	5 ¹	Maximum
Sulphate	mg/L	1000 ¹	Maximum
Copper	mg/L	0.2 ¹	Maximum
Lead	mg/L	0.1 ¹	Maximum
Zinc	mg/L	2 ¹	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

- (W22) Notwithstanding the above conditions, should groundwater monitoring show a statistically significant adverse change of levels of contaminants over background values at locations hydraulically down gradient of the landfill unit then the Environmental Protection Agency must be notified within 14 days. (Information on the interpretation of groundwater monitoring data at landfills can be found in the EPA's *Guideline - Recording, interpretation & analysis of monitoring results. ERA 75 – Waste disposal*).

DEFINITIONS

Words and phrases used throughout this permit¹ are defined below. Where a definition for a term used in this permit¹ is sought and the term is not defined within this permit¹ the definitions provided in the relevant legislation shall be used.

"administering authority" means the Environmental Protection Agency or its successor.

"annual return" means the return required by the annual notice (under section 316 of the *Environment Protection Act 1994*) for the section 73F registration certificate that applies to the development approval.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Integrated Planning Act 1997*.

"approved plans" means the plans and documents listed in the approved plans section in the notice attached to this development approval.

"artificial waterway" means an artificial channel, lake or other body of water. Artificial waterway includes –

- an artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land;
- other artificial channels subject to the ebb and flow of the tide; and
- any additions or alterations to an artificial waterway.

"authorised place" means the place authorised under this development approval for the carrying out of the specified environmentally relevant activities.

"clinical waste" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"commercial place" means a place used as an office or for business or commercial purposes.

"dwelling" means any of the following structures or vehicles that is principally used as a residence –

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"Environmental Protection Agency" means the department or agency (whatever called) administering the *Coastal Protection and Management Act 1995* or the *Environmental Protection Act 1994*.

"infectious waste" means waste containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.

"intrusive noise" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration –

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.
- In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 – 1997 Acoustics – Description and Measurement of Environmental Noise Part 2 – Application to Specific Situations.

" $L_{A 10, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

" $L_{A 1, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.

" $L_{A, \text{max adj}, T}$ " means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

"mg/L" means milligrams per litre.

"noxious" means harmful or injurious to health or physical well being.

"NTU" means nephelometric turbidity units.

"nuisance sensitive place" includes –

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"regulated waste" means non-domestic waste mentioned in Schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes –

- for an element - any chemical compound containing the element; and
- anything that has contained the waste.

"site" means land or tidal waters on or in which it is proposed to carry out the development approved under this development approval.

"watercourse" means a river, creek or stream in which water flows permanently or intermittently–

- in a natural channel, whether artificially improved or not; or
- in an artificial channel that has changed the course of the watercourse.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

"works" or "operation" means the development approved under this development approval.

"you" means the holder of this development approval or owner / occupier of the land which is the subject of this development approval.

"50th percentile" means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.

"80th percentile" means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

END OF CONDITIONS

① I F
② File
WS 1294.4

Rob Lawrence

From: Noel Briggs [Noel.Briggs@msc.qld.gov.au]
Sent: Friday, 9 February 2007 9:44 AM
To: Rob Lawrence
Subject: RE: Update - Assessment of Mareeba Landfill DA

Thanks Rob
I will follow up.

Noel Briggs

Chief Executive Officer

Mareeba Shire Council

07 4030 3900

Visit us: www.msc.qld.gov.au

From: Rob Lawrence [mailto:Rob.Lawrence@epa.qld.gov.au]
Sent: Friday, 9 February 2007 9:25 AM
To: Noel Briggs
Cc: Hollie Wakefield
Subject: FW: Update - Assessment of Mareeba Landfill DA

Noel

Attached is an email that Ian Florence sent to Patrick O'Flaherty on 7 February which identifies what information we are waiting on in order to complete our assessment.

Please give me a call on 40466638 if you need to discuss.

Regards

Rob

From: Ingrid Fomiatti Minnesma
Sent: Friday, 9 February 2007 9:17 AM
To: Rob Lawrence
Subject: FW: Update - Assessment of Mareeba Landfill DA

Ingrid Fomiatti Minnesma

District Manager

Environmental Operations

Cairns District Northern Region

Environmental Protection Agency

Phone: (07) 4046 6737 Fax: (07) 4046 6606

Email: Ingrid.Minnesma@epa.qld.gov.au

You can visit us online at www.epa.qld.gov.au

From: Ian Florence
Sent: Wednesday, 7 February 2007 10:30 AM
To: Ingrid.Minnesma@epa.qld.gov.au; Chris.Buckingham@epa.qld.gov.au; Luke Zambelli
Subject: FW: Update - Assessment of Mareeba Landfill DA

The below email is forwarded FYI.

From: Ian Florence
Sent: Wednesday, 7 February 2007 10:27 AM
To: Patrick O'Flaherty
Subject: Update - Assessment of Mareeba Landfill DA

Patrick,

Good morning, I'd just like to keep you in the loop with how things are going with the assessment of the landfill DA. The information that you submitted last week has been sent down to Brisbane for review by one of our waste specialists down there. He will be getting back to me with his feedback in the next week or two.

However, there are a few pieces of information previously requested from Mareeba SC that we are still waiting on. The outstanding information will be needed for us to be able to fully assess the application against all our assessment criteria. This includes:

- Provision of the groundwater monitoring data (No 36 of add info request).
- An updated groundwater monitoring plan that includes monitoring of the perched lens of groundwater beneath the newly constructed cell.
- Background noise monitoring data for the nearest affected residences.
- Updating the SBMP/application to include reprocessing of 10,000t/yr of waste from the old landfill (in line with requirements of the approved EMP).

Due to the above, it looks as though I will be extending the decision date by the permitted 20 business days.

If possible I'd also like to see a bit more history or information than currently provided on the number of, or lack of, complaints from nearby residents in relation to previous operations at the site. The submitted plans that illustrate the 500m buffer shows that cells 4 and 6 will in fact be closer to those residences than the previously operated cell.

Do Bedminster have any data, or is there any research data to show their residual waste is significantly less odorous than normal putrescible waste. For example any volatile solids reduction testing or specific oxygen uptake rate (SOUR) testing that's been carried out could be invaluable in demonstrating that the lack of the usual buffer distance shouldn't be a problem.

As discussed previously, this buffer issue is critical and for the purposes of my assessment I'd like to see as much evidence as possible from MSC that there haven't been problems in the past and there's not likely to be problems in the future. If that isn't clearly demonstrated we could run into problems with approval or conditioning of cells 4 & 6.

Don't hesitate to call if you want to discuss.

Regards

Ian Florence

404-727

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RTI DL RELEASE EHP

CNS 1294.4

CNS 200 7/ 3790



Queensland
Government

Enquiries Ingrid Fomiatti Minnesma
Telephone (07) 40466724
Your reference
Our reference CNS1294

✓ CARMS

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

13 March 2007

Mareeba Shire Council
PO Box 154
MAREEBA QLD 4880



Attn: Trevor Adil

Dear Sir

I refer to the decision notice issued to Mareeba Shire Council on 21 March 2007 for development approval for the Mareeba Landfill. Further to our meeting today I have made an administrative amendment to the development approval to include a definition for Industrial Waste that includes the residue from the Bedminster Composting Facility. I have therefore enclosed a replacement decision notice.

In relation to the matter of Councils desire to include asbestos as an acceptable waste, I refer to a letter to Council dated 21 March 2007 from the Environmental Protection Agency (EPA) which sets out a procedure that must be undertaken for the EPA to consider such an amendment.

Should you have any questions in relation to this matter please call Chris Buckingham on 4046 6736.

Yours faithfully

sch4p4(6) Personal information

Mark Cavicchiolo
Operations Manager
Environmental Operations
Cairns District, Northern Region

Notice of Decision – Development Approval

This notice is issued by the Environmental Protection Agency pursuant to Section 3.5.15 of the Integrated Planning Act 1997 to advise of a decision or action.

Chief Executive Officer
Mareeba Shire Council
PO Box 154
MAREEBA QLD 4880

*Hand-delivered to Patrick O'Flaherty
21/03/07*

Our reference: 305420

Attention: Patrick O'Flaherty

Dear Sir

Re: Application for Development Approval

The Environmental Protection Agency, acting as assessment manager, wishes to advise that your application for development approval, received on 13-OCT-2006, has been assessed, and on 21 March 2007 it was approved with conditions.

Property/Location:

Lot/Plan - Lot 517 Plan CP851523

1. Details of the decision

Aspect of Development:

- Development approval for a MCU involving an ERA
- ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

Decision

- Approved with conditions

EPA Ref Number

- IPDE00493906A11

3. Effectiveness and currency periods

This development approval takes effect -

- From the time the decision notice is given, if there is no submitter and the applicant does **not** appeal the decision to the court; or

- Subject to the decision of the court, when the appeal is finally decided, if an appeal is made to the court.

[refer to sections 3.5.19 and 3.5.20 of the Integrated Planning Act 1997 for further details]

This approval will lapse unless substantially started within the standard currency periods stated in section 3.5.21 of the Integrated Planning Act 1997 applying to each aspect of development in this approval.

4. Other necessary development permits

This approval pursuant to the Integrated Planning Act 1997 **does not** remove the need to obtain any further approval for this development, required by this or other State and/or Commonwealth legislation. Applicants are advised to check with all relevant statutory authorities for such approvals as may be required. Applicants should also comply with all relevant legislation.

5. Codes for self-assessable development

Any self-assessable development for an environmentally relevant activity conducted in conjunction with this approval, must comply with the relevant code of environmental compliance.

6. IDAS referral agencies

The IDAS referral agencies and their response to each approval type required for this application **are:**
Concurrence Agencies: **Nil**

Advice Agencies: **Nil**

8. Submissions

This application did not trigger Public Notification.

9. Appeal rights

An attached extract from the *Integrated Planning Act 1997* details your appeal rights regarding this decision. You should seek independent advice to confirm all your available avenues.

If you require more information, please contact Ian Florence, the Project Manager, on the telephone number listed below.

Yours sincerely

sch4p4(6) Personal information

Ingrid Fomiatti Minnesma

Delegate
Environmental Protection Agency

21-MAR-2007

Enquiries:

Cairns District Office (EPA)
PO Box 2066
CAIRNS QLD 4870
Phone: (07) 4046 6734
Fax: (07) 4046 6606

Attachment – Appeal Rights (extract from the *Integrated Planning Act 1997*)

APPEAL RIGHTS - Extract from the Integrated Planning Act 1997

Division 8—Appeals to court relating to development applications

4.1.27 Appeals by applicants

- (1) An applicant for a development application may appeal to the court against any of the following -
 - (a) the refusal, or the refusal in part, of a development application;
 - (b) a matter stated in a development approval, including any condition applying to the development, and the identification of a code under section 3.1.6;
 - (c) the decision to give a preliminary approval when a development permit was applied for;
 - (d) the length of a currency period;
 - (e) a deemed refusal.
- (2) An appeal under subsection (1)(a) to (d) must be started within 20 business days (the “**applicant’s appeal period**”) after the day the decision notice or negotiated decision notice is given to the applicant.
- (3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.

4.1.28 Appeals by submitters

- (1) A submitter for a development application may appeal to the court only against -
 - (a) the part of the approval relating to the assessment manager’s decision under section 3.5.14 or 3.5.14A; or
 - (b) for an application processed under section 6.1.28(2) – the part of the approval about the aspects of the development that would have required public notification under the repealed Act.
- (2) To the extent an appeal may be made under subsection (1), the appeal may be against 1 or more of the following-
 - (a) the giving of a development approval;
 - (b) any provision of the approval including-
 - (i) a condition of, or lack of condition for, the approval; or
 - (ii) the length of a currency period for the approval.
- (3) However, a submitter may not appeal if the submitter-
 - (a) withdraws the submission before the application is decided; or
 - (b) has given the assessment manager a notice under section 3.5.19(1)(b)(ii).
- (4) The appeal must be started within 20 business days (the “**submitter’s appeal period**”) after the decision notice or negotiated decision notice is given to the submitter.

4.1.29 Appeals by advice agency submitters

- (1) Subsection (1A) applies if an advice agency, in its response for an application, told the assessment manager to treat the response as a properly made submission.
- (1A) The advice agency may, within the limits of its jurisdiction, appeal to the court about any part of the approval relating to the assessment manager’s decision under section 3.5.14 or 3.5.14A.
- (3) The appeal must be started within 20 business days after the day the decision notice or negotiated notice is given to the advice agency as a submitter.
- (4) However, if the advice agency has given the assessment manager a notice under section 3.5.19(1)(b)(ii), the advice agency may not appeal the decision.

4.1.30 Appeals for matters arising after approval given (co-respondents)

- (1) For a development approval given for a development application, a person to whom any of the following notices have been given may appeal to the court against the decision in the notice -
 - (a) a notice giving a decision on a request for an extension of the currency period for an approval;
 - (b) a notice giving a decision on a request to make a minor change to an approval.
- (2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.
- (3) Subsection (1)(a) does not apply if the approval resulted from a development application (superseded planning scheme) that was assessed as if it were an application made under a superseded planning scheme.

Division 9 - Appeals to court about other matters

4.1.31 Appeals for matters arising after approval given (no co-respondents)

- (1) A person to whom any of the following notices have been given may appeal to the court against the decision in the notice -
 - (a) a notice giving a decision on a request to change or cancel a condition of a development approval;
 - (b) a notice under section 3.5.33A(9)(b) or 6.1.44 giving a decision to change or cancel a condition of a development approval.
- (2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.

4.1.32 Appeals against enforcement notices

- (1) A person who is given an enforcement notice may appeal to the court against the giving of the notice.
- (2) The appeal must be started within 20 business days after the day notice is given to the person.

4.1.33 Stay of operation of enforcement notice

- (1) The lodging of a notice of appeal about an enforcement notice stays the operation of the enforcement notice until -
 - (a) the court, on the application of the entity issuing the notice, decides otherwise; or
 - (b) the appeal is withdrawn; or
 - (c) the appeal is dismissed.
- (2) However, subsection (1) does not apply if the enforcement notice is about -
 - (a) a work, if the enforcement notice states the entity believes the work is a danger to persons or a risk to public health; or
 - (b) carrying out development that is the demolition of a work.

4.1.34 Appeals against decisions on compensation claims

- (1) A person who is dissatisfied with a decision under section 5.4.8 or 5.5.3 for the payment of compensation may appeal to the court against -
 - (a) the decision; or
 - (b) a deemed refusal of the claim.
- (2) An appeal under subsection (1)(a) must be started within 20 business days after the day notice of the decision is given to the person.
- (3) An appeal under subsection (1)(b) may be started at any time after the last day a decision on the matter should have been made.

4.1.35 Appeals against decisions on requests to acquire designated land under hardship

- (1) A person who is dissatisfied with a designator's decision to refuse a request made by the person under section 2.6.19, may appeal to the court against -
 - (a) the decision; or
 - (b) a deemed refusal of the request.
- (2) An appeal under subsection (1)(a) must be started within 20 business days after the day notice of the decision is given to the person.
- (3) An appeal under subsection (1)(b) may be started at any time after the last day a decision on the matter should have been made.

4.1.37 Appeals from tribunals

- (1) A party to a proceeding decided by a tribunal may appeal to the court against the tribunal's decision, but only on the ground -
 - (a) of error or mistake in law on the part of the tribunal; or
 - (b) that the tribunal had no jurisdiction to make the decision or exceeded its jurisdiction in making the decision.
- (2) An appeal against a tribunal's decision must be started within 20 business days after the day notice of the tribunal's decision is given to the party.

4.1.38 Court may remit matter to tribunal

If an appeal includes a matter within the jurisdiction of a tribunal and the court is satisfied the matter should be dealt with by a tribunal, the court must remit the matter to the tribunal for decision.

Division 10 - Making an appeal to court

4.1.39 How appeals to the court are started

- (1) An appeal is started by lodging written notice of appeal with the registrar of the court.
- (2) The notice of appeal must state the grounds of the appeal.
- (3) The person starting the appeal must also comply with the rules of the court applying to the appeal.
- (4) However, the court may hear and decide an appeal even if the person has not complied with subsection (3).

4.1.41 Notice of appeal to other parties (div 8)

- (1) An appellant under division 8 must give written notice of the appeal to-
 - (a) if the appellant is an applicant-
 - (i) the chief executive; and
 - (ii) the assessment manager; and
 - (iii) any concurrence agency; and
 - (iv) any principal submitter whose submission has not been withdrawn; and
 - (v) any advice agency treated as a submitter whose submission has not been withdrawn; or
 - (b) if the appellant is a submitter or an advice agency whose response to the development application is treated as a submission for an appeal-
 - (i) the chief executive; and
 - (ii) the assessment manager; and
 - (iii) any referral agency; and
 - (iv) the applicant; or
 - (c) if the appellant is a person to whom a notice mentioned in section 4.1.30 has been given-
 - (i) the chief executive; and
 - (ii) the deciding entity; and
 - (iii) any entity that was a concurrence agency or building referral agency for the development application to which the notice relates.
- (2) The notice must be given within-
 - (a) if paragraph (b) does not apply-10 business days after the appeal is started; or
 - (b) if the appellant is a submitter or advice agency whose response to the development application is treated as a submission for an appeal-2 business days after the appeal is started.
- (3) The notice must state-
 - (a) the grounds of the appeal; and
 - (b) if the person given the notice is not the respondent or a co-respondent under section 4.1.43 -
 - (c) that the person may, within 10 business days after the day the notice is given, elect to become a co-respondent to the appeal by filing in the court a notice of election in the approved form.

4.1.42 Notice of appeal to other parties (div 9)

- (1) An appellant under division 9 must, within 10 business days after the day the appeal is started give written notice of the appeal to -
 - (a) if the appellant is a person to whom a notice mentioned in section 4.1.31⁷³ has been given - the entity that gave the notice; or
 - (b) if the appellant is a person to whom an enforcement notice is given - the entity that gave the notice and if the entity is not the local government, the local government; or
 - (c) if the appellant is a person dissatisfied with a decision about compensation - the local government that decided the claim; or
 - (d) if the appellant is a person dissatisfied with a decision about acquiring designated land - the designator; or
 - (e) if the appellant is a person who is disqualified as a private certifier - the entity disqualifying the person and if the entity disqualifying the person is not the accrediting body, the accrediting body; or
 - (f) if the appellant is a party to a proceeding decided by a tribunal - the other party to the proceeding.
- (2) The notice must state the grounds of the appeal.

4.1.43 Respondent and co-respondents for appeals under div 8

- (1) Subsections (2) to (8) apply for appeals under section 4.1.27 to 4.1.29.
- (2) The assessment manager is the respondent for the appeal.
- (3) If the appeal is started by a submitter, the applicant is a co-respondent for the appeal.
- (4) Any submitter may elect to become a co-respondent to the appeal.
- (5) If the appeal is about a concurrence agency response, the concurrence agency is a co-respondent for the appeal.
- (6) If the appeal is only about a concurrence agency response, the assessment manager may apply to the court to withdraw from the appeal.
- (7) The respondent and any co-respondents for an appeal are entitled to be heard in the appeal as a party to the appeal.
- (8) A person to whom a notice of appeal is required to be given under section 4.1.41 and who is not the respondent or a co-respondent for the appeal may elect to be a co-respondent.
- (9) For an appeal under section 4.1.30-
 - (a) the assessment manager is the respondent; and
 - (b) any entity that was a concurrence agency or a building referral agency for the development application to which a notice under section 3.6.3 relates may elect to become a co-respondent.

4.1.44 Respondent and co-respondents for appeals under div 9

- (1) This section applies if an entity is required under section 4.1.42 to be given notice of an appeal.
- (2) The entity given written notice is the respondent for the appeal.
- (3) However, if under a provision of the section more than 1 entity is required to be given notice, only the first entity mentioned in the provision is the respondent.
- (4) The second entity mentioned in the provision may elect to be a co-respondent.

4.1.45 How an entity may elect to be a co-respondent

An entity that is entitled to elect to be a co-respondent to the appeal may do so, within 10 business days after notice of the appeal is given to the entity, by following the rules of court for the election.

4.1.46 Minister entitled to be represented in an appeal involving a State interest

If the Minister is satisfied that an appeal involves a State interest, the Minister is entitled to be represented in the appeal.

4.1.47 Lodging appeal stops certain actions

- (1) If an appeal (other than an appeal under section 4.1.30) is started under division 8, the development must not be started until the appeal is decided or withdrawn.
- (2) Despite subsection (1), if the court is satisfied the outcome of the appeal would not be affected if the development or part of the development is started before the appeal is decided, the court may allow the development or part of the development to start before the appeal is decided.

21.3.07

CNS6564-2

Hand-delivered to Patrick
O'Leary 21/03/07

Section 78B(2) RTI Act

Section 3.5.15 Integrated Planning Act 1997

EPA Permit¹ number: IPDE00493906A11

EPA Permit¹ number:	IPDE00493906A11
Assessment Manager reference:	as above
Date application received by EPA:	13-OCT-2006
Permit¹ Type:	Development Approval for a MCU involving an ERA
Date of Decision:	21 March 2007
Decision:	Approval with conditions
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i> and any subordinate legislation

Development Description

Property

Mareeba Landfill Site

Lot/Plan

Lot 517 Plan CP851523

Aspect of Development

ERA 75(a)(vii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

Additional information for applicants

The standard currency periods stated in section 3.5.21 of the *Integrated Planning Act 1997* or the nominated currency period, apply to each aspect of development in this permit¹. For information on when this permit¹ takes effect and the relevant currency periods, please see point 3 in the Notice of Decision.

Contaminated Land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a Notifiable Activity (as defined by Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 30 days after becoming so aware, give notice to the Environmental Protection Agency.

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service



Environmentally Relevant Activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the *Environmental Protection Act 1994*. For the person to become a registered operator, they must apply for a registration certificate under section 73F of the *Environmental Protection Act 1994*.

sch4p4(6) Personal information

Ingrid Fomiatti Minnesma
District Manager
Cairns District, Northern Region
Environmental Protection Agency
Delegate
Environmental Protection Agency

21 March 2007

RTI DL RELEASE - EHP

CONDITIONS OF APPROVAL

ERA 75(a)(viii) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 75 000 t but not more than 100 000 t a year.

Agency Interest: General

(G1) Prevent and/or Minimise Likelihood of Environmental Harm

In carrying out an ERA to which this approval relates, all reasonable and practicable measures must be taken to prevent and / or to minimise the likelihood of environmental harm being caused.

(G2) Maintenance Of Measures, Plant and Equipment

The operator of an ERA to which this approval relates must:
install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval; and
maintain such measures, plant and equipment in a proper and efficient condition; and
operate such measures, plant and equipment in a proper and efficient manner.

(G3) Site Based Management Plan

From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all ERAs that are carried out.

The SBMP must address the following matters:

- (a) Environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals.
- (b) Identification of environmental issues and potential impacts.
- (c) Control measures for routine operations to minimise likelihood of environmental harm, including the following:
 - (i) diverting upstream stormwater away from disturbed or contaminated areas and any ponds or other structures used for the storage or treatment of contaminants or wastes;
 - (ii) containing contaminated stormwater on site;
 - (iii) minimising the size of contaminated areas;
 - (iv) provision of stormwater settling ponds and rubbish traps;
 - (v) minimising the size of disturbed areas by measures such as progressive restoration of disturbed areas;
 - (vi) a waste sampling and monitoring program to detect any prohibited wastes received at the site and to ensure that the wastes received for disposal or treatment at the site comply with the waste acceptance criteria stated in this approval.
- (d) Contingency plans and emergency procedures for non-routine situations including:
 - (i) fires;
 - (ii) cyclonic conditions;
 - (iii) the recovery and removal from the site for proper disposal of any prohibited wastes received at the site which cannot be accepted for storage, treatment or disposal at the site.
- (e) Organisational structure and responsibility.
- (f) Effective communication.
- (g) Monitoring of contaminant releases.
- (h) Conducting environmental impact assessments.

- (i) Staff training.
- (j) Record keeping.
- (k) Periodic review of environmental performance and continual improvement.
- (l) Leachate management
- (m) Identifying and monitoring a reference site that establishes background values for surface and ground waters.

(G4) The site based management plan must not be implemented or amended in a way that contravenes any condition of this approval.

(G5) Records

Record, compile and keep all monitoring results required by this approval and present this information to the administering authority when requested.

(G6) Waste Records

A record of all regulated waste accepted at and removed from the site must be kept detailing the following information:

- (a) date of receipt of the waste;
- (b) description of waste;
- (c) quantity of waste;
- (d) origin of the waste; and
- (e) destination of the waste.

(G7) Site Development Plan

All works at the site must be undertaken in accordance with a Site Development Plan. A Site Development Plan, identifying all activities to be carried out on the site during the period of the plan, must be prepared for each cell subject to this development permit. Each Site Development Plan must be finalised at least three (3) months before the expiry of the previous plan and must include details of at least the following:

- (a) dimensions of landfill units used for waste disposal or storage;
- (b) an accurate level survey of any area to be utilised for the disposal or storage of wastes. The levels must be reduced to a common datum and related to contour plans;
- (c) the dimensions of the active waste disposal face;
- (d) location of any new site infrastructure or extensions, such as a new leachate dam, pond, or pump well to be used on other plant and equipment, required to the leachate collection, storage and recirculation infrastructure to serve the new cell;
- (e) location of any new stormwater drains, diversion embankments or settling ponds required to serve the new cell;
- (f) location of any areas to be capped (both final and interim capping where the next stage on the completed cell will not commence within 12 months), the proposed capped surface levels and contours, surface drainage system and species of vegetation to be planted as part of a rehabilitation program;
- (g) location of any new groundwater and gas monitoring or collection bores required to serve the new cell; and
- (h) progressive recording of waste deposition such that the location of a deposited load can be readily identified.

(G8) Closure and Post-Closure Care

When the deposition of waste to the landfill unit ceases, a final cover system to the landfill unit must be installed which minimises:

- (a) infiltration of water into the landfill unit;
- (b) the likelihood of any erosion occurring to either the final cover system or the landfilled materials; and
- (c) uncontrolled release of landfill gas.

The specifications for the final cover system must be submitted to the Administering Authority at least 12 months prior to closure. The specifications and method used in the final cover system must meet the approval of the Administering Authority.

- (G9) Post-closure care of the landfill unit must be conducted following deposition of waste in the landfill unit, for:
- (a) a period of 30 years; or
 - (b) such shorter period until the landfill unit and surrounding site are geotechnically stable and that no release of waste materials, leachate, landfill gas or other contaminants to the environment is likely.

The post closure care element of the Closure and Post Closure Care Plan must include at least the following:

- (1) monitoring of:
 - (a) the leachate collection and recirculation system;
 - (b) the groundwater monitoring network;
 - (c) any installed landfill gas management system;
 - (d) leachate quality;
 - (e) groundwater quality;
 - (f) surface water quality;
 - (g) landfill gas;
- (2) maintenance of:
 - (a) the leachate collection and recirculation system
 - (b) the groundwater monitoring network;
 - (c) any installed landfill gas management system;
 - (d) the integrity and effectiveness of final cover systems

- (G10) A site management plan pursuant to Chapter 7, Part 8, Division 5 of the *Environmental Protection Act 1994* must be developed and provided to the administering authority at least 12 months before the expected final receipt of waste in the landfill unit. The site management plan must include, but is not to be limited to, the future land use and actions you intend to take for compliance with the closure and post-closure care requirements of this approval. In accordance with G8 the plan must include specifications for the final cover system for assessment by the Administering Authority.

(G11) Security

Measures must be taken to prevent unauthorised access to the site to which this approval relates.

(G12) Fire-Fighting Access

Clear access to the water supply for fire-fighting vehicles must be provided at all times and the water supply must be suitable and sufficient for the control of a large fire within the landfill and in accordance with the recommendations of the Queensland Fire Service.

- (G13) An effective fire break must be provided and maintained around the landfill site and all waste disposal and processing areas.

(G14) Third Party Environmental Auditing

Compliance with the conditions of this approval must be audited within 28 days of commencement of the activity and be carried out at least every two years thereafter.

- (G15) The audit detailed in condition G14 must be conducted by a suitably qualified third party auditor, nominated by the approval holder and accepted by the administering authority.

- (G16) In relation to the audit required by condition G14, the auditor must submit a final version of the auditor's report to the administering authority within 28 days of completing the audit.
- (G17) The total financial cost of the audit(s) **will be** the responsibility of the holder of this approval.
- (G18) **Notification.**
Telephone the EPA's Pollution Hotline or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this approval.
- (G19) **Investigation Into Alternative Waste Management Practices**
For the purpose of minimising the disposal of recyclable waste to landfill, in accordance with the waste management hierarchy and principles of the Environmental Protection (Waste Management) Policy 2000, you must implement a Waste Management Plan that addresses at least the following matters:
- (a) waste management practices that will ensure that recyclables are diverted from landfill;
 - (b) procedures for identifying and implementing opportunities to improve the waste management practices employed including information and education packages for waste generators to assist in maximising the diversion of recyclable materials from landfill;
 - (c) details of any accredited management system employed, or planned to be employed, to implement the waste management practices;
 - (d) training programs and guidance for waste transport contractors in the identification and source separation of recyclable materials;
 - (e) procedures for auditing waste loads to identify material to be removed for recycling;
 - (f) how often the performance of the waste management practices will be assessed (at least annually);
 - (g) the indicators or other criteria, taking into account economic, social and environmental factors on which the performance of the waste management practices will be assessed;
 - (h) the recovery of energy from any methane collected in a landfill gas collection system; and
 - (i) annual reporting by 31 August each year any new measures adopted or materials newly diverted from landfill disposal. This report must include the following:
 - (i) any new measures adopted or materials newly diverted from landfill disposal;
 - (ii) a summary (expressed in tonnes/year wherever appropriate) of the following information including wastes received, recyclable material recovered, fate of recyclables (e.g. transported off site for reuse/recycling, reused/recycled on site or stored on site) and calculated percentage diversion rate for the materials specified.
 - (1) Total amount of waste converted to useable energy;
 - (2) Amount of green and organic waste collected and recycled;
 - (3) Amount of green and organic waste disposed to landfill;
 - (4) Amount of green and organic waste recovered for energy;
 - (5) Amount of construction and demolition waste collected and recycled;
 - (6) Amount of construction and demolition waste disposed to landfill;
 - (7) Amount of commercial and industrial waste (including agricultural) recycled;
 - (8) Amount of commercial and industrial waste (including agricultural) disposed to landfill;
 - (9) Number of scrap tyres collected for recycling (Equivalent Passenger Units - EPUs);
 - (10) Amount of waste oil recycled;
 - (11) Total amount of paper, white office, newsprint and mixed paper waste recycled;
 - (12) Total amount of cardboard recycled;
 - (13) Total amount of mixed plastics recycled;
 - (14) Total amount of other plastics (please specify) recycled;
 - (15) Total amount of aluminium cans recycled;
 - (16) Total amount of steel cans & tins recycled;
 - (17) Other types and quantities of recyclables (please specify) recycled;
 - (18) Amount of waste disposed to landfill;
 - (19) Amount domestic waste disposed to landfill; and
 - (20) Total amount of landfill cover material used.

NOTE: The development of the local government's waste management strategic plan in accordance with the Environmental Protection (Waste Management) Policy 2000 which addresses the above matters will be deemed to satisfy the requirements of this condition.

(G20) Spill Kit

An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site.

(G21) Spill Kit Training

Anyone operating under this approval must be trained in the use of the spill kit.

Agency Interest: Air

(A1) Nuisance

The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.

(A2) Cells 4 and 6 are only to be used for non-putrescible waste until the time that the approval holder submits results of comprehensive odour modelling and evidence of the lack of previous odour complaints that demonstrates to the satisfaction of the Administering Authority that an odour nuisance is unlikely at nearby nuisance sensitive or commercial places.

(A3) Dust Nuisance

The release of dust and/or particulate matter resulting from the ERA must not cause an environmental nuisance at any nuisance sensitive or commercial place.

(A4) Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place:

- (a) Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 of 2003 (or more recent editions); OR
- (b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, when monitored in accordance with:
 - Australian Standard AS 3580.9.6 of 2003 (or more recent editions) 'Ambient air - Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet - Gravimetric method'; or
 - any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

(A5) When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include:

- (a) for a complaint alleging dust nuisance, dust deposition; and
- (b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.

(A6) Management of Landfill Gas

The release of landfill gas must not cause environmental harm.

- (A7)** Landfill gas is not considered to cause environmental harm if:
- (a) a landfill gas collection system is installed and maintained when the landfill unit is sufficiently elevated to allow adequate drainage of gas lines; and/or
 - (b) landfill gas monitoring shows that the release of methane does not exceed the following limits:
 - (i) 500 parts per million at a height of 50mm above the final and intermediate cover surface including the batter slopes of the landfill unit;
 - (ii) 25 percent of the lower explosive limit when measured in facility structures (but excluding facility structures used for landfill gas control and landfill gas recovery system components); and
 - (iii) the lower explosive limit at the landfill facility boundary.
- (A8)** Where landfill gas monitoring shows the release of methane as being above 500 parts per million at a height of 50mm, an effective landfill gas collection system must be designed, installed, operated and maintained on all landfill areas. Any gas collected in this system should, if it all possible, be reused in an energy recovery system, otherwise it must be actively vented or flared using only enclosed flares.
- (A9) Landfill Gas Monitoring**
- The assessment of compliance with the methane limit at a height of 50mm above the final and intermediate cover surface of the landfill unit prescribed by A7 must be undertaken at the following locations:
- (a) on a grid pattern where the grid lines are no more than 50 metres apart; and
 - (b) at any other locations where visual observations indicate potentially elevated concentrations of landfill gas, for example cracks, seeps in cover and distressed vegetation.
- (A10)** A landfill gas monitoring network must be installed for each landfill unit to assess compliance with methane limits for facility structures and at the boundary. The network must consist of gas monitoring devices, such as monitoring bores and be developed by a person possessing appropriate qualifications and experience in the fields of hydrogeology and landfill gas monitoring program design to be able to competently make recommendations about these matters.
- (A11)** Conduct and keep records of landfill gas monitoring which is performed at the following frequencies:
- (a) at least every three months to assess compliance with the methane limit at a height of 50mm above the cover surface of the landfill unit prescribed by A7; and
 - (b) at least every three months to assess compliance with methane limits for facility structures and at the boundary prescribed by A7.
- (A12)** Landfill gas monitoring referred to in the above conditions must be undertaken for at least the following parameters:
- (a) methane;
 - (b) oxygen;
 - (c) carbon dioxide;
 - (d) hydrogen sulphide; and
 - (e) atmospheric pressure.

Agency Interest: Land

- (L1)** Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.

- (L2) Land Rehabilitation**

The site must be rehabilitated (including all disturbed areas associated with waste storage, treatment, disposal and borrow pits and any stockpile and screening areas) in a manner such that:

- (a) suitable native species of vegetation are planted and established that are compatible with the vegetation community of the adjacent remnant regional ecosystem;
- (b) potential for erosion of the site is minimised;
- (c) the quality of stormwater, water and seepage released from the site is such that releases of contaminants are not likely to cause environmental harm;
- (d) the likelihood of environmental nuisance being caused by release of dust is minimised;
- (e) the final landform is stable and not subject to slumping.

(L3) Rehabilitation of disturbed areas must take place progressively as waste disposal cells are completed, areas of borrow pits are worked out and new areas for waste disposal or borrow pits are developed.

(L4) Access to areas awaiting rehabilitation or being rehabilitated must be restricted by suitable barriers to prevent disturbance of these areas.

(L5) Waste Disposal Cell Interim Cover and Rehabilitation

You must implement an interim cover and rehabilitation program for waste disposal cells not forming part of the final surface level of the site and not likely to receive their next layer of waste within 12 months. This program must include at least the following:

- (a) the installation of an interim cover system:
 - (i) of at least an additional 300 mm of compacted clayey material;
 - (ii) with a maximum permeability of 4×10^{-6} metres per second;
 - (iii) designed with effective surface water management systems to prevent water ponding; and
- (b) a stabilisation program including measures such as revegetation and or mulching to prevent erosion.

Agency Interest: Noise and Vibration

(N1) Noise Nuisance

Noise from the ERA must not cause an environmental nuisance at any nuisance sensitive place or commercial place

(N2) All noise from activities must not exceed the levels specified in Table One - Noise limits at any nuisance sensitive or commercial place.

Table One - Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Noise sensitive place'					
L _{A10} , adj, 10 mins	65	55	50	65	55	50
L _{A1} , adj, 10 mins	70	60	55	70	60	55
	Noise measured at a 'Commercial place'					
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Commercial place'					
L _{A10} , adj, 10 mins	70	65	55	70	65	55
L _{A1} , adj, 10 mins	75	65	60	75	65	60

(N3) Noise Monitoring

When requested by the administering authority, noise monitoring must be undertaken to investigate any

complaint of noise nuisance, and the results notified within 14 days to the administering authority.
Monitoring must include:

- [- airblast overpressure (dB (Lin) Peak);]
- LA 10, adj, 10 mins
- LA 1, adj, 10 mins
- the level and frequency of occurrence of impulsive or tonal noise;
- atmospheric conditions including wind speed and direction;
- effects due to extraneous factors such as traffic noise; and
- location, date and time of recording.

(N4) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

(N5) Vibration emitted from activities must not cause a nuisance at any vibration sensitive place.

Agency Interest: Social

(S1) Complaint Response

The operator of the ERA must record the following details for all complaints received and provide this information to the administering authority on request:

- (a) Time, date, name and contact details of the complainant;
- (b) reasons for the complaint;
- (c) any investigations undertaken;
- (d) conclusions formed; and
- (e) any actions taken.

Agency Interest: Waste

(WT1) Waste Records

Records of the source, volumes and composition of all waste materials accepted at the landfill facility, recyclable materials recovered, fate of recyclable materials (e.g. transported off site for reuse / recycling, reused / recycled on site or stored on site), calculated percentage diversion rates for the materials must be kept and maintained and reported, in a specified format, to the administering authority by 31 August each year.

Note: The submission of these values in an annual report for the local government's waste management strategic plan or otherwise required by the administering authority will be deemed to satisfy the reporting requirement of this condition.

(WT2) Site Control

At all times while the ERA is operating, at least one person must be present who is responsible for the control and operation of the facility and whose duties must include but not be limited to:

- (a) controlling the reception, storage and removal of waste;
- (b) maintaining the facility;
- (c) controlling all employees working in the facility; and
- (d) supervising all persons entering the facility.

(WT3) Waste Acceptance

The following wastes may be received at the site for disposal:

- (a) domestic waste;
- (b) commercial waste;
- (c) industrial waste;
- (d) construction and demolition waste;
- (e) solid inert waste;
- (f) waste from the pre-existing (prior to March 21 2007) landfill at a rate of 10,000tonne per annum; and
- (g) limited regulated waste (except those prohibited in WT6).

- (WT4)** Waste received at the site for disposal under this approval must have had recyclable materials either segregated at the source or have been processed in a materials recovery facility to remove reusable and recyclable materials.
- (WT5)** Segregated recyclable materials, including wastes such as tyres, must not be disposed of in the landfill area but should be dealt with in accordance with the following hierarchy with the preference reducing down the list:
- (a) reuse;
 - (b) recycling;
 - (c) energy recovery; and
 - (d) recoverable buried storage in a separate portion of the site, but only where such burial and subsequent recovery is unlikely to cause any environmental harm.
- (WT6)** Notwithstanding any condition of this approval, except where sourced from the pre-existing landfill, the following waste materials are not permitted or allowed to be deposited in the landfill unit:
- (a) regulated waste (other than limited regulated waste);
 - (b) liquid or semiliquid waste other than liquid or semiliquid waste which has been produced in carrying out the ERA;
 - (c) hot ash;
 - (d) material that is smouldering or aflame;
 - (e) material containing a substance which is ignitable, corrosive, reactive or toxic (other than materials containing a toxic substance from domestic premises) unless this material is to be deposited into a dedicated monocell approved in writing by the administering authority;
 - (f) all radioactive wastes, unless otherwise approved under the *Radiation Safety Act 1999*;
 - (g) an explosive;
 - (h) Soils contaminated with regulated waste;
 - (i) ammunition, other than ammunition that no longer contains explosives, pyrotechnics or propellants apart from trace residues that are no longer capable of supporting combustion or an explosive reaction;
 - (j) fish processing waste;
 - (k) food processing waste;
 - (l) poultry processing waste;
 - (m) tallow;
 - (n) vegetable oils;
 - (o) putrescible kitchen wastes from commercial operations;
 - (p) liquid or semi-liquid waste other than liquid or semi-liquid waste which has been generated
 - (q) any substance listed under Schedule 8 of the Poisons Regulation 1978;
 - (r) tyres;
 - (s) filled or partly filled drums containing liquid wastes;
 - (t) car bodies;
 - (u) waste paints and solvents;
 - (v) gas bottles;
 - (w) green waste;
 - (x) Biosolids
 - (y) Asbestos
- (WT7)** If a waste load is contaminated with any waste type listed in WT6 you must take all possible steps to identify the source of the contaminated load and implement the necessary practices and procedures to minimise the potential for a reoccurrence, including but not necessarily limited to:
- (a) providing written advice to transporters on the requirement to collect appropriate loads;
 - (b) providing information sheets to generators on the segregation of recyclable wastes;
 - (c) monitoring and audit procedures for loads received at site; and

- (d) review data to identify particular industries or locations which are prone to delivering contaminated loads, taking appropriate measures as outlined in a), b) and c) above to address the problem.

Should the measures outlined in a) to d) above prove unsuccessful in preventing contamination, further deliveries of waste from the same source must not be accepted on site.

(WT8) Burning of Waste

You must not:

- (a) burn waste at or on the site; nor
- (b) allow waste to burn or be burnt at or on the site; nor
- (c) remove waste and burn such waste elsewhere unless the burning is carried out at a facility appropriately licensed under the provisions of the *Environmental Protection Act 1994*.

(WT9) Vector Control

You must take all measures necessary to ensure that operations on the site do not cause environmental nuisance in relation to nuisance vectors, including fly breeding, mosquito breeding, and harbourage and/or breeding of rats and other pest organisms.

- (WT10) In the event of environmental nuisance from nuisance vectors due to operations on the site, you must do all such acts and things and carry out any such works as may be necessary to:
 - (a) abate such adverse effects and such nuisance; and
 - (b) prevent the likelihood of any recurrence of the circumstances which gave rise to such adverse effects and/or nuisance.

(WT11) Active Waste Disposal Cell Management

You must ensure that waste disposal activities do not extend beyond the boundary of the site.

- (WT12) You must take effective measures to ensure that all wastes accepted for disposal at the site are not disposed of:
 - (a) outside any active waste disposal cell; and
 - (b) beyond the catchment of any leachate collection drains installed as part of a leachate collection system, except for the separate disposal of asbestos waste.

(WT13) All wastes must be deposited in lifts not exceeding a vertical height of 2 metres after initial compaction.

(WT14) Every lift of waste deposited in the active waste disposal cell must be evenly and properly consolidated by mechanical plant to a density of at least 0.7 tonnes per cubic metre.

(WT15) Large items for disposal, must be compacted before and/or after being deposited to minimise residual void space in the landfill.

(WT16) Wastes deposited in any active waste disposal cell must be consolidated, compacted and covered with a layer of inert earthen material, biodegradable plastic sheeting or shredded green wastes as often as is necessary, but at least daily for cells 4 and 6 and every forty-eight hours for other cells, to effectively minimise the quantity of wind blown litter, odour and fly nuisance resulting from exposure of putrescible waste.

(WT17) Cover material

Cover material must be stored and be readily available at the site in a quantity sufficient for not less than two weeks normal operation of the site.

(WT18) Litter Management

Where litter is blown or washed from the site you must:

- (a) retrieve the litter and ensure that it is disposed of in an appropriate manner; and
- (b) implement measures to prevent a recurrence of litter being blown or washed from the site.

(WT19) Access roads

You must ensure all weather access roads are installed and maintained so that, at all times whilst the site is open for receiving wastes, vehicles have access to any areas required for the normal operation of the site.

(WT20) Removal of intermediate cover

You must ensure that any intermediate cover on a cell is removed immediately prior to any subsequent waste disposal on top of that cell and exposed compacted waste is ripped to allow percolation of leachate through the full depth of waste deposited in the landfill.

(WT21) Waste Handling, Storage, Treatment and Reprocessing

In the event of you becoming aware of any prohibited waste being received at the site you must:

- (a) cease depositing such waste if it is still occurring;
- (b) remove the prohibited waste and store in a covered and bunded area; and
- (c) arrange for a person who can lawfully transport such waste to collect it within 24 hours of it being identified and remove it to a facility that can lawfully accept it.

(WT22) All storage, treatment and reprocessing of wastes, including green waste, must only be carried out on a hard stand area(s):

- (a) constructed of compacted clay or other low permeable material to minimise soil infiltration;
- (b) graded to prevent rainwater ponding;
- (c) bunded to contain the materials stored; and
- (d) graded to facilitate collection of leachates and contaminated stormwater runoff for discharge to the leachate collection system or Council sewer.

(WT23) Tyre Storage

Waste tyres may be stored:

- (a) by recoverable burial in cells in a designated area of the site with any cell containing no more than 500 equivalent passenger-tyre units (ERU); or
- (b) in temporary above ground heaps on the site provided that there are no more than 500 equivalent passenger-tyre units (EPU) at any time in any one heap.

(WT24) Where there is more than one heap or buried cell of waste tyres, a separation distance between the cells or heaps must be established and maintained so as to effectively prevent fire from spreading:

- from one tyre storage cell or heap or to another; and
- to other waste stored or disposed of at the site.

(WT25) Battery Storage

Waste wet cell batteries may only be temporarily stored on the site in a covered enclosure that has been bunded to contain spillages and leakages.

(WT26) Waste Oil Storage

Waste oil may be temporarily stored in drums or other containers at the site, provided that the drums or containers are:

- (a) stored in a roofed area designated for this purpose;
- (b) bunded to contain spillages and leakages; and
- (c) securely sealed when full to prevent spillage if knocked over.

(WT27) Equipment Containing Ozone Depleting Gases

Waste refrigerators, freezers, air conditioners or any other equipment containing ozone depleting gases received at the site must be either degassed by an appropriately qualified person at the site or, if degassed off the site, accompanied by a degassing certificate signed by a qualified person.

(WT28) Car Bodies

Car bodies stored at the site must be drained of all oils, fuels and hydraulic fluids prior to compaction.

Agency Interest: Water

(W1) Sediment Management

Prevent the release of sediment to waters or a build up of sediment in any stormwater drain.

(W2) Control of Off-Site Movement of Mud and Waste on Vehicles

Prevent vehicles from carrying waste, mud or dirt off the site and depositing these materials on any road or in any location likely to be washed into waters.

Release of Contaminants to Surface Waters

(W3) Authorised release point.

Contaminants must only be released to surface waters at a discharge point from the sedimentation ponds to the grassed area north of the site via a spillway constructed to prevent erosion at the discharge point.

(W4) The sediment pond must be monitored for the parameters contained in Tables Two and Three not less frequently than monthly and releases to waters from authorised release point must be monitored at the discharge location for the parameters contained in Tables Two and Three not less frequently than once per day whilst discharging for all parameters except suspended solids which must be measured at commencement of discharge and weekly thereafter.

(W5) All determinations of the quality of contaminants released must be:

- (a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; and
- (b) made in accordance with methods prescribed in the latest edition of the Environmental Protection Agency Water Quality Sampling Manual; and
- (c) carried out on samples that are representative of the discharge.

(W6) If discharge waters from the sediment pond exceed any of the contaminant trigger levels stated in Table Two, the environmental authority holder must:

- (a) complete an investigation in accordance with the ANZECC (2000) methodology, or any updated ANZECC guidelines, into the potential for environmental harm; and
- (b) provide a written report to the administering authority within 3 months of the date of the original exceedence, outlining:
 - details of the investigations carried out; and
 - actions taken to prevent environmental harm.

Table Two – Sediment Pond Discharge Water Contaminant Trigger Levels

Parameter	Unit	Trigger Levels	Level Type
Turbidity	NTU	80 th percentile ¹ of reference ² or 6NTU ³ , whichever is higher.	Median ⁵
pH	pH units	Minimum – 6.0 ³ or 20 th percentile ¹ of reference ² whichever is lower. Maximum 7.5 ³ or 80 th percentile ¹ of reference ² whichever is higher.	Median ⁵
Dissolved oxygen	Percentage saturation	80 th percentile ¹ of reference ² or 90% ³ saturation, whichever is lower	Median ⁵
Electrical conductivity	µS/cm	80 th percentile ¹ of reference ² or 250µS/cm ⁴ , whichever is higher	Median ⁵

¹Trigger levels based on the 80th or 20th percentile are derived using ANZECC (2000) and QWG methodology and are based on the reference sites defined in 2 below.

² Reference sites must:

- be from the same biogeographic and climatic region; and
- have similar geology, soil types and topography; and
- contain a range of habitats similar to those at the test sites; and
- a similar flow regime; and
- not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
- refer to QWG guidelines page 76 for further guidance

³ Limits based on values contained in the Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline values for physio-chemical indicators – Wet Tropics Region

⁴ Limits based on ANZECC Table 3.3.5 – upper salinity limits for upland rivers of slightly disturbed ecosystems in tropical Australia.

⁵ The median must be determined based on a maximum of ten (10) consecutive samples.

- (W7) The discharge waters from the sediment pond must not exceed any of the contaminant limits defined in Table Three

Table Three – Sediment Pond Discharge Contaminant Limits

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4 - 9 ¹	Range
Total suspended solids	mg/L	50	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

(W8) Management of Sedimentation Ponds

The sedimentation pond installed as part of the stormwater diversion system must be maintained in an effective operating condition and managed so that stored stormwater volumes are minimised following each rainfall event to reinstate holding capacity in readiness for the next rainfall event. The size of any sedimentation pond must be sufficient to contain the run-off expected from a 24 hour storm with an average recurrence interval of 1 in 10 years.

(W9) Landfill Liner Construction

Waste may only be disposed of in areas that have been prepared and constructed in accordance with Section 6.4 of the submitted Mareeba Landfill Site Based Management Plan and specifications of drawing numbers 60018386-101 to 60018396-108 prepared by Maunsell Australia Pty Ltd and dated September 2006. This landfill liner system must be installed and maintained at the site to effectively:

- (a) prevent any release of contaminants to groundwaters; and
- (b) prevent subsurface migration of landfill gas from the landfill.

(W10) Leachate Management

You must operate the site in a manner that minimises the generation of leachate.

(W11) Leachate Collection

A leachate collection system must be installed and maintained at the site to effectively and efficiently:

- (a) collect any leachate generated in the landfill;
- (b) convey the collected leachate to Mareeba Shire Council's sewage treatment plant or recirculate it within the landfill at the working face;
- (c) control the leachate head so that it does not exceed 1.5 metres on any leachate collection sump liner serving the landfill, except during a pump failure, when it may exceed 1.5 metres for a period not exceeding 48 hours.

(W12) Leachate Disposal

Leachate or contaminated stormwater intercepted by the leachate collection system may only be disposed of:

- (a) by recirculation back into the landfilled waste ; or
- (b) by irrigation over exposed wastes on the site that have not received their final cover; or
- (c) to a sewage treatment plant.

(W13) Landfill Gas Condensate Disposal

Any landfill gas condensate collected must be treated as leachate.

(W14) Leachate Pumping Stations

Leachate pumping stations must be fitted with pump-failure alarms as well as high-level alarms to warn of imminent pump station overflow. Suitably sized backup pumps must be readily available on site in the event of pump system failure. All alarms must be able to operate without mains power if such power failure occurs and, when in operation, must notify the appropriate person to respond to the alarm.

(W15) Leachate Management and Monitoring

You must develop and implement a leachate quality and quantity management and monitoring program for the leachate generated at the site that includes at least:

- (a) daily rainfall or rainfall events (if an event is longer than daily) must be measured and recorded for the site;
- (b) the quantity of leachate extracted must be calculated and recorded daily;
- (c) weekly calculation of the volume of leachate in the landfill based on monitoring of the level of the leachate at any leachate collection sump or monitoring well, correlated to both AHD (Australian

- Height Datum) and the level of the top of the closest perimeter bund to the sump or monitoring well;
- (d) calculation of weekly water balances for the landfill to include, but to not necessarily be limited to, incident rainfall and leachate extraction rate;
 - (e) a sufficient number of monitoring locations to establish the composition and volume of leachate generated within the landfill; and
 - (f) sampling of leachate from the landfill at least in April and October of each year; and
 - (g) analysis of leachate samples for the quality characteristics identified in Table Four.

Table Four - Monitoring Requirements

Quality Characteristic	Leachate	Surface Water	Groundwater
pH	X	X	X
electrical conductivity	X	X	X
Total dissolved solids	X	X	X
dissolved oxygen	X	X	
bicarbonate (HCO ₃)	X		X
oxidised nitrogen	X	X	X
ammonia	X	X	X
calcium		X	X
sulphate	X	X	X
chloride	X		X
hexavalent chromium	X	X	
cadmium	X	X	
manganese	X	X	X
total iron	X	X	X
copper	X	X	X
lead	X	X	X
zinc	X	X	X
pesticides (organochlorines and organophosphates)	X	X	X
Polycyclic Aromatic Hydrocarbons (PAHs)	X	X	X
Total Petroleum Hydrocarbons	X	X	X
BTEX (Benzene, Toluene, Ethyl Benzene and Xylene)	X	X	X
Chemical Oxygen Demand (COD)	X	X	X
5-Day Biological Oxygen Demand (BOD ₅)	X	X	
Total Organic Carbon (TOC)	X		

(W16) Surface Water Monitoring

An effective surface water monitoring program must be developed and implemented for the site. The program must include, but not be limited to, a sufficient number of monitoring locations to:

- (a) establish the reference quality of surface waters upstream from the landfill; and
- (b) detect any impact on surface waters as a consequence of landfill operation.

(W17) The surface water monitoring program specified in condition number (W16) must monitor and record the quality of surface water for at least the quality characteristics identified in Table Four.

(W18) Surface water quality samples must be collected from sample points in accordance with the surface water monitoring program at least in January, April, July and October of each year, or, in the event of no sample being obtainable in ephemeral systems at this time, during the next period of flow of the watercourse.

(W19) Groundwater Monitoring

An effective groundwater monitoring program must be developed and implemented for the site. The program must include:

- (a) installation of a groundwater monitoring network which:
 - (i) establishes the background quality of groundwater upgradient and downgradient of the landfill site;

- (ii) are installed and maintained by a person possessing appropriate qualifications and experience in the fields of hydrogeology and groundwater monitoring program design to be able to competently make recommendations about these matters;
 - (iii) include a sufficient number of "bore(s) of compliance" to detect any impact on groundwater as a consequence of landfill operation, constructed in accordance with the "Minimum Construction Requirements for Water Bores in Australia" (Agricultural and Resource Management Council of Australia and New Zealand 1997), that are located not more than 150 metres from the landfill area or at the boundary of the landfill facility whichever is the closer; and
 - (iv) provides representative groundwater samples for the aquifers being sampled;
 - (v) includes monitoring of water from the perched groundwater found in the sand lens in the North west corner of the site identified during cell construction and situated beneath the landfill liner
- (b) analysis of groundwater samples for at least the quality characteristics identified in Table Four;
 - (c) collection of groundwater quality samples from groundwater at least in January, April, July and October of each year; and
 - (d) assessment of monitoring results to determine whether or not there has been any adverse change for each groundwater quality characteristic at locations hydraulically down gradient of the landfill unit above when compared to background values.

(W20) Groundwater Quality

If groundwater monitored under condition W19 for parameters specified in Table Four, exceed any of the contaminant trigger levels stated in Table Five, the environmental authority holder must:

- (a) complete an investigation in accordance with the ANZECC (2000) methodology, into the potential for environmental harm;
- (b) provide a written report to the administering authority within 3 months of the date of the original exceedence, outlining:
 - (i) details of the investigations carried out; and
 - (ii) actions taken to prevent environmental harm.

Table Five - Groundwater Contaminant Trigger Levels - Unfiltered

Parameter	Unit	Limit	Limit Type
EC	µS/cm	80 th percentile of reference or 250 ¹ , whichever is higher.	Median ³
pH	pH units	Minimum – 6.0 ³ or 20 th percentile of reference whichever is lower.	Median ³
		Maximum 7.5 ³ or 80 th percentile of reference whichever is higher.	Median ³
Ammonia N	µg/L	80 th percentile of reference or 6 ² , whichever is higher.	Median ³
Total N	µg/L	80 th percentile of reference or 250 ² , whichever is higher.	Median ³
Copper	µg/L	1.4 ⁴	95 th percentile ³
Lead	µg/L	3.4 ⁴	95 th percentile ³
Zinc	µg/L	8 ⁴	95 th percentile ³
Manganese	µg/L	1900 ⁴	95 th percentile ³
Benzene	µg/L	950 ⁴	* 95 th percentile ³
Polycyclic Aromatic Hydrocarbons (PAHs)		Above limit of detection	95 th percentile ³

pesticides (organochlorines and organophosphates)		Above limit of detection	95 th percentile ³
Total Petroleum Hydrocarbons		Above limit of detection	95 th percentile ³

¹ Trigger levels based on ANZECC Table 3.3.5 – upper EC limit for upland rivers of slightly disturbed ecosystems in tropical Australia

² Trigger levels based on values contained in the *Queensland Water Quality Guidelines - Table 2.5.3.1 Regional guideline vales for physio-chemical indicators – Wet Tropics Region*

³ The median and the 95th percentile must be determined based on a maximum of ten (10) consecutive samples.

⁴ ANZECC (2000) trigger levels for aquatic ecosystems of slightly – moderately disturbed systems – table 3.4.1 level of protection 95% - tropical Australian upland rivers.

- (W21) The groundwater monitored under condition W19 for parameters specified in Table Four must not exceed any of the contaminant limits defined in Table Six

Table Six - Groundwater Contaminant Limits - Unfiltered

Parameter	Units	Limit	Limit Type
EC	µS/cm	1000	Maximum
pH	pH units	4.5-8.5	Range
Total N	mg/L	5 ¹	Maximum
Sulphate	mg/L	1000 ¹	Maximum
Copper	mg/L	0.2 ¹	Maximum
Lead	mg/L	0.1 ¹	Maximum
Zinc	mg/L	2 ¹	Maximum

¹ Limits set for parameters using ANZECC Guidelines 2000 (Chapter 4) for water use by Primary Industries. Where limits for irrigation and livestock drinking water differ the most stringent value has been selected.

- (W22) Notwithstanding the above conditions, should groundwater monitoring show a statistically significant adverse change of levels of contaminants over background values at locations hydraulically down gradient of the landfill unit then the Environmental Protection Agency must be notified within 14 days. (Information on the interpretation of groundwater monitoring data at landfills can be found in the EPA's *Guideline - Recording, interpretation & analysis of monitoring results. ERA 75 – Waste disposal*).

DEFINITIONS

Words and phrases used throughout this permit¹ are defined below. Where a definition for a term used in this permit¹ is sought and the term is not defined within this permit¹ the definitions provided in the relevant legislation shall be used.

"administering authority" means the Environmental Protection Agency or its successor.

"annual return" means the return required by the annual notice (under section 316 of the *Environment Protection Act 1994*) for the section 73F registration certificate that applies to the development approval.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Integrated Planning Act 1997*.

"approved plans" means the plans and documents listed in the approved plans section in the notice attached to this development approval.

"artificial waterway" means an artificial channel, lake or other body of water. Artificial waterway includes --

- an artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land;
- other artificial channels subject to the ebb and flow of the tide; and
- any additions or alterations to an artificial waterway.

"authorised place" means the place authorised under this development approval for the carrying out of the specified environmentally relevant activities.

"clinical waste" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"commercial place" means a place used as an office or for business or commercial purposes.

"dwelling" means any of the following structures or vehicles that is principally used as a residence --

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"Environmental Protection Agency" means the department or agency (whatever called) administering the *Coastal Protection and Management Act 1995* or the *Environmental Protection Act 1994*.

"infectious waste" means waste containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.

"intrusive noise" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration --

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.
- In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 -- 1997 Acoustics -- Description and Measurement of Environmental Noise Part 2 -- Application to Specific Situations.

" L_{A10} , adj, 10 mins" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

" L_{A1} , adj, 10 mins" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.

" $L_{A,max}$, adj, T" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

"mg/L" means milligrams per litre.

"noxious" means harmful or injurious to health or physical well being.

"NTU" means nephelometric turbidity units.

"nuisance sensitive place" includes –

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"regulated waste" means non-domestic waste mentioned in Schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes –

- for an element - any chemical compound containing the element; and
- anything that has contained the waste.

"site" means land or tidal waters on or in which it is proposed to carry out the development approved under this development approval.

"watercourse" means a river, creek or stream in which water flows permanently or intermittently-

- in a natural channel, whether artificially improved or not; or
- in an artificial channel that has changed the course of the watercourse.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

"works" or "operation" means the development approved under this development approval.

"you" means the holder of this development approval or owner / occupier of the land which is the subject of this development approval.

"50th percentile" means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.

"80th percentile" means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

END OF CONDITIONS



**Queensland
Government**

B/C District Manager, Environmental Operations
Environmental Protection Agency
PO Box 2066
CAIRNS Q 4870

Department of
**Natural Resources,
Mines and Water**

For your information.

sch4p4(6) Personal information

Rosalinde Tullio
A/Land Administration Officer
State Land Asset Management
Land and Vegetation Services
North Region

RECEIVED	
RECORDS SECTION	
3 DM (ENV OPS)	
26 OCT 2007	
CNS	6564
CNS 2007/8044	
EPA / QPWS	
CAIRNS	

✓ CARMS

1-28-07
RTI DL RELEASE - EHP

25 October 2007

Department of
**Natural Resources,
Mines and Water**

The Chief Executive Officer
Mareeba Shire Council
PO Box 154
MAREEBA QLD 4880

ATTN: PATRICK O'FLAHERTY

Dear Mr O'Flaherty

Proposed increase in Licenced Landfill operations within Lot 517 on CP851523 being Reserve for Local Government (Refuse Disposal and Recreation)

Reference is made to your Development Application dated 07 September 2007 regarding a development application requiring consent in terms of the *Integrated Planning Act 1997*.

As you may be aware, the *Integrated Planning Act 1997* (IPA) was amended on the 5 October 2004 which made changes to Owner's Consent and Resource Entitlement Consent. This Department now only provides Resource Entitlement Consent to a development application **not** Owner's Consent. Section 3.2.1(5) states that if the development interferes with a State Resource prescribed under Schedule 10 of the regulations, evidence must be provided that the Department is satisfied:

- a) the development is consistent with an allocation of, or **entitlement to**, the resource; OR
- b) the development application may proceed in the absence of an allocation of, or entitlement to, the resource

In terms of Section 3.2.1(5) of IPA, it was determined that your development application interferes with a State Resource, being Reserve for Local Government (Refuse Disposal and Recreation).

It is confirmed that the Chief Executive is satisfied that the development application may proceed on the basis that the development is consistent with an allocation of, or entitlement to such resource.

Please find enclosed a copy of the abovementioned completed development application form proposing to increase the Licenced landfill operations for ERA 75 (a) more than 20,000 but less than 100,000 tonnes per annum, which has been signed by the Delegated officer. This consent expires on **25 April 2008** and the development application should be lodged prior to this date. Should this not occur, a new **resource entitlement consent** will need to be obtained from this Department.

This Department also requires that the Trustee Lessees of Trustee Lease no. 706968301 be consulted in this matter. As the proposal is for an Environmentally Relevant Activity (ERA) it is also a requirement that advice from the Environmental Protection Agency be sought.

Further, in signing the development application the department requires that your agency suitably addresses native title implications relative to the proposal, and ensures that the matter does not proceed in a manner inconsistent with the *Native Title Act 1993 (Cth)* and the *Native Title (Queensland) Act 1993*.

In Queensland, Aboriginal cultural heritage is protected whether or not it has been identified or listed. Cultural heritage can exist on an area of land regardless of the land tenure. Substantial penalties exist for unlawfully harming Aboriginal cultural heritage. Under section 23 of the *Aboriginal Cultural Heritage Act 2003* a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage (the "cultural heritage duty of care"). A copy of the cultural heritage duty of care guidelines gazetted under the *Aboriginal Cultural Heritage Act 2003* can be found at www.nrm.qld.gov.au/cultural_heritage/. You will comply with duty of care in relation to cultural heritage if you act in accordance with:

- the cultural heritage duty of care; or
- the duty of care guidelines; or
- an agreement with the Aboriginal party for the area; or
- a cultural heritage management plan approved under part 7 of the *Aboriginal Cultural Heritage Act 2003*.

To determine whether future development works need to be preceded by a cultural heritage survey or Cultural Heritage Management Plan you should contact the Cultural Heritage Coordination Unit on (07) 3238 3835 for further advice.

Please address any correspondence relative to this matter to Rosalinde Tullio, A/Land Administration Officer, at the address below quoting reference number 2006/012578. Should you have any questions in regard to this matter, please contact me on telephone 4039 8419, or by email to cairns.slam@nrm.qld.gov.au

Yours sincerely

sch4p4(6) Personal information

Rosalinde Tullio
A/Land Administration Officer
State Land Asset Management
Land and Vegetation Services
North Region

enc

FILE NOTE:**Environmental Protection Agency
Cairns District, Northern Region**

Date: 13 April 2007
Subject: Mareeba Landfill
Officer: Chris Buckingham

File No: CNS6564

Meeting with:

Mick Borzi Chairman Mareeba Shire Council
 Trevor Adil – Engineer Mareeba Shire Council
 Colin – Maunsells – Brisbane (telephone)
 Ingrid Minnesma
 Dean Sharpe
 Chris Buckingham

The meeting was to discuss a number of the conditions of the new development approval for the Mareeba Landfill.

The definition of the ERA was mentioned as being incorrectly described on page 3 – CB advised that this had already been changed and a new DA had been sent to MSC (which TA had a copy of)

Condition WT3 – MSC were concerned that Bedminster residue was not included as an acceptable waste. DS advised that the issue of how to describe Bedminster residue had been sorted out with CWMG a couple of years ago and that it was “Industrial Waste”. EPA will agree to include a definition of Industrial Waste to include Bedminster residue. This can be performed without an amendment to the conditions of the DA. All agreed to this.

Condition WT6 – MSC wanted to exclude (j), (k), (l) and (o) from the excluded wastes. There was general discussion on this matter and EPA advised that the intent was that where reasonable and practical these wastes must not be accepted. In the case of for example a load of food processing waste arriving at the tip it must be rejected, however, if there was 5-10% food processing waste in a load of commercial waste from a fish shop this would be considered commingled waste and be acceptable. EPA would not agree to this change.

Condition WT6(y) – asbestos – wanted to include this as an acceptable waste. – the previous letter advising Council of the procedure to follow if they wanted to make this change was reiterated. Council agreed to this.

In the event of a failure of the Bedminster facility MSC wanted to be certain that they could take this waste under an EMP – EPA agreed that this would be the process to be followed in this eventuality.

The meeting ended.

Signature: sch4p4(6) Personal information

Page: 1

PLEASE FORWARD COPY TO FILE.



✓ CARMS

to file
Mareeba Shire Council
P.O. Box 154
65 Rankin Street
Mareeba Qld 4880

Telephone (07) 4030 3900
Facsimile (07) 4092 3323
Email ceo@msc.qld.gov.au
Web www.msc.qld.gov.au

Mr Ian Florence
Environmental Operations
Cairns District Northern Region
Environmental Protection Agency
5b Sheridan Street
Cairns Qld 4870

CNS *6564.2*

CNS 200 *7/5401*

Our Ref: W8/4
NPB:POF:vpl
Your Ref:

21 March 2007

Dear Mr Florence

**MAREEBA SHIRE COUNCIL - MAREEBA LANDFILL - DRAFT LICENCE
CONDITIONS REVIEW**

The General Council Meeting held on 20 March 2007 reviewed the draft licence conditions received from you on Friday 9 March 2007. Council reviewed the conditions favourably though was concerned to note the inclusion of 'Asbestos' as a prohibited item in condition WT6.

The inclusion of asbestos as a prohibited item appeared inconsistent with the current EPA issued operating licence for the Mareeba landfill site where asbestos is an allowable waste. It was further noted that since there has been a significant increase in landfill liner technology being implemented at the site, this would provide a quantum increase in any environmental or potential risk mitigation compared with historical waste handling practices.

It was certainly never Council's intention to limit or remove a safe waste disposal option from the local community where it already existed.

Mareeba is an older rural community where significant quantities of asbestos have been used historically as construction materials. This can be seen where past history has shown rural sites becoming unofficial dumping grounds for quantities of regulated and other wastes. While legislative and operational changes have been adopted by Council, the practicalities of disposal options have seen incremental changes being adopted by the community. Removing the Mareeba landfill site will only prove to decrease the available asbestos disposal options.

This can only serve to perpetuate illegal disposal sites and create significant handling and disposal issues for Council staff when site remediation becomes necessary for these unlicensed sites.

Council has taken a directed and responsible approach to address these environmental concerns. This has been achieved through information dissemination, practical access to a legal disposal option and a carefully structured and sensitive approach to the local community. Council's success in this area to date can be seen with no staff or resident complaints or any suspected or confirmed issues occurring as a result of asbestos disposal. Council has also proactively addressed recent legislative changes to health, environmental and OH&S requirements by providing formal asbestos handling training to its staff to facilitate a safe working environment.

It is Council's grave concern through their extensive local experience that the practical application of removing 'Asbestos' from condition WT6 is not likely to achieve its intended aim.

It was identified as part of the review that removing the option to dispose of asbestos to the Mareeba landfill site would likely achieve the following:

1. Removal of an existing, safe and legal option for asbestos waste disposal;
2. Facilitation of alternate illegal disposal sites;
3. Increased risk to the local community, Council staff and the environment;
4. Create a local commercial monopoly in Mareeba shire as the Springmount landfill would be the only local disposal alternative;
5. The planned remediation of the current waste at the Mareeba landfill site would become an increased community risk requiring off-site removal and disposal.

Council would ask that consideration be given to the abovementioned issues and that 'Asbestos' be removed from condition WT6. It is further requested that 'Asbestos' be added as a regulated waste that is able to be accepted to the Mareeba landfill site.

Should you have any queries with regard to the matters raised, please direct them to Patrick O'Flaherty Manager Water & Waste on 4030 3984.

Yours faithfully

sch4p4(6) Personal information

Noel Briggs
CHIEF EXECUTIVE OFFICER