

From: Megan Bedford
Sent: Thursday, 15 December 2016 4:57 p.m.
To: [REDACTED]
Cc: Arlene Goss
Subject: Information about the Green Island Landfill

Hello Jardine,

I have attached a copy of the Green Island Landfill consents.

The landfill was started in 1956. It was an unlined landfill in an estuary. It has since had a leachate collection system retro fitted and it also has a methane collection system.

Can you please be more specific about the information that you would like about operations of the landfill? The landfill is currently operated by Delta a local contractor.

Kind regards,

Megan

Megan Bedford
Asset and Contracts Engineer, Solid Waste
Dunedin City Council



DISCHARGE PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To discharge landfill and composting leachate to land in a manner that may enter water

For the purpose of sanitary landfill and composting facility operation

For a term expiring on: 1 October 2023

Location of activity: A 38 hectare area of the Green Island Sanitary Landfill bounded by a leachate collection drain. The Green Island Sanitary Landfill is located off Brighton Road, Green Island, Dunedin and is adjacent to the Kaikorai Stream.

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. That waters and bed sediments of the Kaikorai Stream and estuary shall be substantially free of contaminants due to activities of the Green Island landfill conducted after the first exercise of this permit, which adversely affect directly or indirectly water uses or adversely effect humans, plants, animals or aquatic life.
2. The groundwaters outside of the landfill and leachate collection system shall at all times be substantially free of contaminants, due to activities of the Green Island landfill conducted after the first exercise of this permit, which adversely affect, directly or indirectly water uses or adversely effect humans, plants, animals or aquatic life.
3. The leachate collector drain shall be installed and pumped to maintain a depression in the phreatic (zone of saturation) groundwater level surface at all times. The depression of the phreatic surface shall be sufficient to cause the drain to intercept phreatic groundwater which would ordinarily have flowed outward from the drain to adjacent groundwater and the Kaikorai Stream or associated water bodies. The presence of the depression shall be determined by measuring the slope of the phreatic groundwater level between the leachate collector drain and the Kaikorai Stream, and the leachate collector drain and the fluid level in the landfill. The slope shall be inward, towards the collector drain at all times.

4. The objectives to be met at all stages of this management is to ensure the effective long term containment, collection and monitoring of contaminated leachate and to protect the Kaikorai Stream and estuary, coastal waters and the uses and values associated with these waters, including those made by humans, plants, animals aquatic life.
5. During installation of the leachate collection trench the geology of the area surrounding the trench shall be physically assessed and logged, including an appropriate photographic record, and the Consent Authority shall be sent those records forthwith. Where necessary (due to high permeability of the ground form) appropriate additional monitoring wells and/or systems to prevent outflow of leachate from the collection trench shall be installed.
6. This consent shall be exercised in conformity with a landfill work programme prepared by the consent holder. The work programme shall be prepared within 6 months of the first exercise of this consent and shall thereafter be reviewed at least annually or at such lesser frequency as the Consent Authority may approve: The work program shall:
- (i) Review the exercise of the consent and the monitoring relating thereto (including: actions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [including toxic, biological, medical and radioactive wastes] and stormwater management and monitoring).
 - (ii) Evaluate and analyse trends and any matters having, or likely to have an adverse impact on water resources or the use of those resources, resulting from the operation of the landfill.
 - (iii) Present projections and intentions for landfill operations in relation to the future exercise of this consent (including: intentions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [as defined in 6(i)] and stormwater management and monitoring).
 - (iv) Describe sequencing of works, procedures to be adopted during construction and filling, and the maintenance and management of facilities.
 - (v) Describe measures to be taken so that the conditions of this consent will be met at all times, and that adverse effects on natural water are avoided or mitigated.
 - (vi) Describe the precautionary measures that prevent unauthorised discharges or other adverse effects on natural water and present a contingency plan which will describe how any event will be managed so as to avoid or mitigate any adverse effects on natural water.
 - (vii) Describe any additional monitoring necessary to identify the impacts of the exercise of this consent, and means of effective avoidance or mitigation of adverse effects both during and post closure of the landfill.

- (viii) Provide for the managed recycling of leachate over the landfill where and when this is practicable and will not result in adverse environmental effects.

7. (A) Monitoring Groundwater Levels

The consent holder shall establish a network of groundwater bores at the following locations (which are to be specified once the leachate collection system is installed) and, during one day, each ~~week~~ *month*, shall measure and record the groundwater level in each of the wells;

- (i) Leachate collection system: monitoring water level in each of the sumps, in the collection trench midway between each of the sumps, and at each end of the collector system.
- (ii) Groundwater outside landfill and collection system: monitor both shallow and deep groundwater levels outside of the landfill and leachate collection system. One shallow well type shall be located adjacent to the collection trench and midway between each of the pumps (giving a total of 8-10 external shallow wells). The wells should be 5-20 metres distance away from the leachate collection trench. In addition, a total of three deep well types should be located at representative sites outside the landfill. One of the sites should be adjacent to the existing well W78.
- (iii) If locations of high permeability (for example, gravel and coarse sand) are known, deep sampling wells shall be installed outside the leachate collection system at those locations.
- (iv) Surface water outside landfill and collector system: in situations where the "outside landfill groundwater wells" are located adjacent to Kaikorai Stream, the water level in the stream adjacent to each well shall be monitored.
- (v) Leachate and deep groundwater within landfill: monitor both shallow leachate and deep groundwater levels within the landfill and leachate collection system. At least one shallow well type shall be located within the landfill in such a position that it is representative of the leachate level.
- (vi) In addition, there shall be at least one deep groundwater well type within the landfill and located to represent deep groundwater levels and chemistry. This well shall be constructed in the geometric centre of the landfill.

The recorded water levels will be converted to reference level and the gradient into the leachate trench will be confirmed.

~~The results of monitoring shall be forwarded to the Consent Authority at three monthly intervals and the Consent Authority shall be notified immediately if outward gradients are identified.~~

7. (B) Monitoring of Pump Operation

The consent holder shall establish, operate and maintain a monitoring system of the operation of the leachate pumping system. The system shall automatically trigger an alert in the event of:

- (i) *A pump fault;*

- (ii) *A low water level in a pump wet well; and*
- (iii) *A high water level in a pump wet well.*

The system shall be continuously monitored. In the event of an alert being raised, the cause of the alert shall be investigated within twenty four hours and appropriate remedial measures shall be implemented. The following information shall be recorded for each alert:

- (i) *the date and time of the alert;*
- (ii) *the nature of the alert;*
- (iii) *the reason for the alert; and*
- (iv) *the date, time and nature of the action taken to remedy the cause of the alert.*

The information shall be made available to the Consent Authority on request.

8. Monitoring pumped leachate/groundwater volume

The consent holder shall continuously monitor and record the flow of the pumped discharge from the combined leachate collection sumps. ~~The results shall be forwarded to the Consent Authority at three monthly intervals.~~

9. Monitoring leachate chemistry

(A) Combined leachate discharge to sewer:

- (a) The consent holder shall, at least annually (and once every three months for the first year), collect a representative sample of the combined groundwater/leachate pumped from the leachate collector pumps (prior to discharge to the Green Island sewer). The sample shall be analysed for:
 - i) *Major cations (calcium, magnesium, potassium and sodium)*
 - ii) *Major anions (carbonate, bicarbonate, chloride and sulphate)*
 - iii) *cation/anion ratio*
 - iv) *pH*
 - v) *conductivity*
 - vi) *Chemical Oxygen Demand*
 - vii) *Biological Oxygen Demand (5 day)*
 - viii) *ammoniacal nitrogen*
 - ix) *nitrate nitrogen*
 - x) *alkalinity*
 - xi) *dissolved oxygen*
 - xii) *dissolved reactive phosphorus*
 - ~~xiii) iron, lead, zinc~~
 - xiv) *Total Organic Carbon*
 - xv) *acid soluble metals, including: aluminium, arsenic, barium, boron, cadmium, chromium, copper, iron, lead, nickel, manganese, zinc*
 - xvi) *total mercury*
 - xvii) *total cyanide*
 - xviii) *sulphide*

- xix) *total phenols*
- xx) *faecal coliforms*
- xxi) *organochlorine pesticides*
- xxii) *polychlorinated biphenyls*
- xxiii) *volatile fatty acids*
- xxiv) *volatile organic compounds*
- xxv) *semi-volatile organic compounds*

(b) *The consent holder shall collect a representative sample of the combined groundwater/leachate pumped from the leachate collector pumps (prior to discharge to the Green Island sewer), at least once every three months for the purpose of isotopic analysis. Isotopic enrichment/depletion of the following isotopes shall be determined:*

- i) *oxygen-18 in water from leachate ($\delta^{18}\text{O}-\text{H}_2\text{O}$), relative to Vienna standard mean ocean water*
- ii) *hydrogen-2 in water from leachate ($\delta\text{D}-\text{H}_2\text{O}$), relative to Vienna standard mean ocean water*
- iii) *carbon-13 in dissolved inorganic carbon from leachate ($\delta^{13}\text{C}-\text{DIC}$), relative to Vienna Pee Dee Belemite*
- iv) *nitrogen-15 in ammonium from leachate ($\delta^{15}\text{N}-\text{NH}_4^+$), relative to atmospheric nitrogen.*

~~(ii) On one occasion each two years the following parameters in the sample shall also be analysed:~~

- ~~• "USEPA" priority pollutants~~
- ~~• whole effluent toxicity screening using appropriate sensitive marine species~~

~~(iii) The results shall be forwarded to the Consent Authority at three monthly intervals for the first year and thereafter annually.~~

~~(iv) The Consent Authority may direct or agree in writing that additional sampling and analyses be undertaken if monitoring results indicate amendments are appropriate.~~

(B) Leachate collection pumps and shallow and deep groundwater/leachate wells:

(a) The consent holder shall, once every ~~week~~ *three months*, collect a representative sample of the groundwater/leachate from each of:

- i) the leachate collector sumps/pumps
- ii) the shallow and deep groundwater wells outside the landfill and leachate collection trench and
- iii) the shallow and deep groundwater/leachate wells within the landfill

(b) The sample shall be analysed for:

- i) pH
- ii) conductivity

- (c) On one occasion each year, during September or October, the following parameters shall also be analysed in the deep groundwater wells:
- i) Biological Oxygen Demand (5 day)
 - ii) *Major cations* (calcium, magnesium, potassium *and* sodium)
 - iii) *Major anions* (carbonate, bicarbonate, chloride *and* sulphate)
 - iv) cation/anion ratio
 - v) pH
 - vi) conductivity
 - vii) *ammoniacal nitrogen*
 - viii) *nitrate nitrogen*
 - ix) *dissolved iron*
 - x) *dissolved lead*
 - xi) *dissolved zinc*
 - xii) *dissolved oxygen*
 - xiii) *Total organic carbon*
- (d) *The consent holder shall collect a representative sample of groundwater from the deep groundwater monitoring wells MW2D, MW4D and MW9D, at least once every three months, for the purpose of isotope analysis. Isotopic enrichment/depletion of the following isotopes shall be determined:*
- i) *oxygen-18 in water from groundwater ($\delta^{18}\text{O}-\text{H}_2\text{O}$), relative to Vienna standard mean ocean water*
 - ii) *hydrogen-2 in water from groundwater ($\delta\text{D}-\text{H}_2\text{O}$), relative to Vienna standard mean ocean water*
 - iii) *carbon-13 in dissolved inorganic carbon from groundwater ($\delta^{13}\text{C}-\text{DIC}$), relative to Vienna Pee Dee Belemite*
 - iv) *nitrogen-15 in ammonium from groundwater ($\delta^{15}\text{N}-\text{NH}_4^+$), relative to atmospheric nitrogen.*
 - v) *nitrogen-15 in nitrate from groundwater ($\delta^{15}\text{N}-\text{NO}_3^-$), relative to atmospheric nitrogen.*
- ~~(iv) The results shall be forwarded to the Consent Authority at 3 monthly intervals and the Consent Authority shall be notified immediately if any sudden change in chemistry is detected or if a trend of increasing concentration is indicated. The Consent Authority shall advise interested parties accordingly.~~
- ~~(v) The Consent Authority may direct or agree in writing that additional sampling and analysis be undertaken if monitoring results indicate amendments are appropriate.~~

10. Monitoring Kaikorai Estuary

- (a) The consent holder shall, once every 3 months, collect a representative water sample from each of four sites in the Kaikorai Stream. *Sample collection shall be timed to coincide with an outgoing tide at Brighton Beach, within 3 hours of low tide, and shall not occur within 72 hours of any measurable rainfall event.*
- (b) The four water monitoring sites are
- i) GI 1 – Kaikorai Stream, at the first upstream bridge on Brighton Road;
 - ii) GI 2 - Abbots Creek, at the State Highway 1 bridge at Sunnyvale
 - iii) GI 3 - Kaikorai Stream adjacent to the landfill, approximately 100 metres below the Abbots Creek confluence
 - iv) GI 5 - Kaikorai Stream downstream of landfill, adjacent to the Green Island Wastewater Treatment Plant
- (c) The samples shall be analysed for the following parameters:
- i) pH
 - ii) conductivity
 - iii) chloride
 - iv) dissolved oxygen
 - v) ammoniacal nitrogen
 - vi) nitrate nitrogen
 - ~~vii) iron~~
 - viii) dissolved metals, including: aluminium, cadmium, chromium, copper, lead, and nickel.
 - ~~ix) zinc~~
 - ~~x) Biological Oxygen Demand (5 day)~~
 - xi) total cyanide
 - xii) total organic carbon
 - xiii) isotopic enrichment/depletion of oxygen-18 in water from samples ($\delta^{18}\text{O}-\text{H}_2\text{O}$), relative to Vienna standard mean ocean water
 - xiv) isotopic enrichment/depletion of hydrogen-2 in water from samples ($\delta\text{D}-\text{H}_2\text{O}$), relative to Vienna standard mean ocean water
 - xv) isotopic enrichment/depletion of carbon-13 in dissolved inorganic carbon from samples ($\delta^{13}\text{C}-\text{DIC}$), relative to Vienna Pee Dee Belemite
 - xvi) isotopic enrichment/depletion of nitrogen-15 in ammonium from samples ($\delta^{15}\text{N}-\text{NH}_4^+$), relative to atmospheric nitrogen.
 - xvii) isotopic enrichment/depletion of nitrogen-15 in nitrate from samples ($\delta^{15}\text{N}-\text{NO}_3^-$), relative to atmospheric nitrogen.
- (d) On each occasion, the consent holder shall qualitatively estimate the flow in the Kaikorai Stream, record the water level, the tidal stage, rainfall over the past 7 days (from nearest existing recorder) and whether the estuary mouth is open or closed.

- ~~(v) The results of each monitoring occasion shall be forwarded to the Consent Authority within 3 months of sample collection and the Consent Authority shall be notified immediately if a trend of increasing concentration is indicated.~~
- ~~(vi) The consent holder shall provide an information flow diagram and explanation describing the methods by which the monitoring results shall be used and actioned.~~
- ~~(vii) If monitoring data indicates adverse effects on water quality directly attributable to landfill leachate entering the Kaikorai Stream, the consent holder shall institute appropriate abatement procedures to avoid or mitigate these effects.~~
- ~~— (The Consent Authority may direct or agree in writing that additional sampling and analyses be undertaken if monitoring results indicate amendments are appropriate.~~

11. Reporting

- (a) The consent holder shall compile the results of any monitoring undertaken to satisfy the requirements of this consent (including any leachate, groundwater and surface water physiochemical monitoring, groundwater level monitoring, alerts from the leachate pumping system and monthly records of total leachate volumes pumped from the collection trench), into tables in digital format (excel spreadsheet file or comma separated value file). One table shall be compiled for each location that monitoring is undertaken. The tables shall be regularly updated and provided to the Consent Authority within 1 month of ongoing monitoring occurring.*
- (b) Should the results of any leachate, groundwater and surface water physiochemical monitoring, monitoring of the leachate pumping system and groundwater level monitoring show any sudden change in chemistry, or if a trend of increasing concentration is indicated, or should groundwater level monitoring identify outward gradients, or a risk identified that the gradient into the trench may not be maintained, the Consent Authority shall be notified immediately.*
- (c) If monitoring data indicates adverse effects on water quality directly attributable to landfill leachate from the consent holder's landfill entering the Kaikorai Stream, the consent holder shall institute appropriate abatement procedures to avoid or mitigate these effects.*
- (d) The consent holder shall provide the Consent Authority with a Landfill Monitoring Report by 1 October each year. At minimum this report shall include:*
 - i) The results obtained for all leachate, groundwater, surface water and leachate pumping system monitoring undertaken to meet the requirements of this consent for the previous year. Results shall be supplied in table format within the report, with a copy of all laboratory analytical reports appended.*
 - ii) A description of the dates of monitoring and climatic conditions on those dates, and any other pertinent field observations.*
 - iii) Interpretation of all the data, particularly with regard to landfill performance and development, and isotope analyses undertaken. Trends shall be identified and discussed.*

12. Section 128 Review

The conditions of this permit may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is, or there is likely to be, a significant adverse impact on the environment or, if the performance of the leachate collection differs significantly from that specified in the environmental impact assessment and information accompanying the application.

The Consent Authority may, in accordance with sections 128 and 129 of the Resource Management Act 1991, serve notice on the consent holder of its intention to review the conditions of this consent within 3 months of each anniversary of the commencement of this consent for the purpose of amending the monitoring programme to be undertaken if the record of monitoring indicates that the monitoring programme is inappropriate.

13. Five Yearly Review

This consent is to be reviewed at five yearly intervals.

14. Bond Provisions

In the event that the landfill changes to private ownership, the consent holder shall execute and maintain in existence a performance bond in the form set out in Schedule 1 and an annual monitoring bond in the form set out in Schedule 2 (the terms of which the consent holder has already agreed), with sureties acceptable to the Consent Authority.

15. All laboratory analyses undertaken in connection with this permit (*excluding stable isotope analyses*) must be performed at a ~~Telarc~~-registered laboratory that has achieved International Standards Organisation (ISO) standard 17025 and holds current accreditation, or otherwise as specifically approved by the Consent Authority in writing.

16. Closure Work Programme

Prior to the expiry or surrender of this consent, the consent holder shall prepare a management, monitoring and contingency plan for the future management of the landfill.

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17. Archaeological Survey

The consent holder shall carry out an archaeological survey of the site to criteria and within a time frame as agreed with the affected Runanga and provide the results of this survey to the Runanga.

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a update to the consent (originally issued as a single permit 3839 and now issued as 3839A_V1, 3839B_V1, 3839C_V1 and 3839D_V1), and to reflect a variation to the monitoring conditions 7, 8, 9, 10, 11, 12 and 15, (additions italicised, deletions struck out).



Christopher P Shaw
Manager Consents

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WATER PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To take groundwater and leachate from groundwater bores and from a leachate collection drain located at and around the Green Island Sanitary Landfill

For the purpose of managing a sanitary landfill and composting facility leachate discharge from the Green Island Landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream.

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. *This consent shall be exercised in conjunction with discharge permit 3839A_V1.*
2. The leachate collector drain shall be installed and pumped to maintain a depression in the phreatic (zone of saturation) groundwater level surface at all times. The depression of the phreatic surface shall be sufficient to cause the drain to intercept phreatic groundwater which would, ordinarily, have flowed outward from the drain to adjacent groundwater and the Kaikorai Stream or associated water bodies. The presence of the depression shall be determined by measuring the slope of the phreatic groundwater level between the leachate collector drain and the Kaikorai Stream, and the leachate collector drain and the fluid level in the landfill. The slope shall be inward, towards the collector drain at all times.
3. This consent shall be exercised in conformity with a landfill work programme prepared by the consent holder. The work programme shall be prepared within 6 months of the first exercise of this consent and shall thereafter be reviewed at least annually or at such lesser frequency as the Consent Authority may approve: The work program shall:

- (i) Review the exercise of the consent and the monitoring relating thereto (including: actions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [including toxic, biological, medical and radioactive wastes] and stormwater management and monitoring).
- (ii) Evaluate and analyse trends and any matters having, or likely to have an adverse impact on water resources or the use of those resources, resulting from the operation of the landfill.
- (iii) Present projections and intentions for landfill operations in relation to the future exercise of this consent (including: intentions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [as defined in 2(i)] and stormwater management and monitoring).
- (iv) Describe sequencing of works, procedures to be adopted during construction and filling, and the maintenance and management of facilities.
- (v) Describe measures to be taken so that the conditions of this consent will be met at all times, and that adverse effects on natural water are avoided or mitigated.
- (vi) Describe the precautionary measures that prevent unauthorised discharges or other adverse effects on natural water and present a contingency plan which will describe how any event will be managed so as to avoid or mitigate any adverse effects on natural water.
- (vii) Describe any additional monitoring necessary to identify the impacts of the exercise of this consent, and means of effective avoidance or mitigation of adverse effects both during and post closure of the landfill.
- (viii) Provide for the managed recycling of leachate over the landfill where and when this is practicable and will not result in adverse environmental effects.

4. (A) Monitoring Groundwater Levels

The consent holder shall establish a network of groundwater bores at the following locations (which are to be specified once the leachate collection system is installed) and, during one day each ~~week~~ *month*, shall measure and record the groundwater level in each of the wells;

- (i) Leachate collection system: monitoring water level in each of the sumps, in the collection trench midway between each of the sumps, and at each end of the collector system.
- (ii) Groundwater outside landfill and collection system: monitor both shallow and deep groundwater levels outside of the landfill and leachate collection system. One shallow well type shall be located adjacent to the collection trench and midway between each of the pumps (giving a total

of 8-10 external shallow wells). The wells should be 5-20 metres distance away from the leachate collection trench. In addition, a total of three deep well types should be located at representative sites outside the landfill. One of the sites should be adjacent to the existing well W78.

- (iii) If locations of high permeability (for example, gravel and coarse sand) are known, deep sampling wells shall be installed outside the leachate collection system at those locations.
- (iv) Surface water outside landfill and collector system: in situations where the "outside landfill groundwater wells" are located adjacent to Kaikorai Stream, the water level in the stream adjacent to each well shall be monitored.
- (v) Leachate and deep groundwater within landfill: monitor both shallow leachate and deep groundwater levels within the landfill and leachate collection system. At least one shallow well type shall be located within the landfill in such a position that it is representative of the leachate level.
- (vi) In addition, there shall be at least one deep groundwater well type within the landfill and located to represent deep groundwater levels and chemistry. This well shall be constructed in the geometric centre of the landfill.

The recorded water levels will be converted to reference level and the gradient into the leachate trench will be confirmed.

~~The results shall be forwarded to the Consent Authority at three monthly intervals and the Consent Authority shall be notified immediately if outward gradients are identified.~~

4. (B) Monitoring of Pump Operation

The consent holder shall establish, operate and maintain a monitoring system of the operation of the leachate pumping system. The system shall automatically trigger an alert in the event of:

- (i) *A pump fault;*
- (ii) *A low water level in a pump wet well; and*
- (iii) *A high water level in a pump wet well.*

The system shall be continuously monitored. In the event of an alert being raised, the cause of the alert shall be investigated within twenty four hours and appropriate remedial measures shall be implemented. The following information shall be recorded for each alert:

- (i) *the date and time of the alert;*
- (ii) *the nature of the alert;*
- (iii) *the reason for the alert; and*

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- (iv) *the date, time and nature of the action taken to remedy the cause of the alert.*

The information shall be made available to the Consent Authority on request.

5. Monitoring pumped leachate/groundwater volume

The consent holder shall continuously monitor and record the flow of the pumped discharge from the combined leachate collection sumps. ~~The results shall be forwarded to the Consent Authority at three monthly intervals.~~

6. Reporting

Reporting of the results of any monitoring undertaken to satisfy the requirements of this consent shall be undertaken in accordance with condition 11 of consent 3839A_V1.

7. Section 128 Review

The conditions of this permit may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is, or there is likely to be, a significant adverse impact on the environment or, if the performance of the leachate collection differs significantly from that specified in the environmental impact assessment and information accompanying the application.

The Consent Authority may, in accordance with sections 128 and 129 of the Resource Management Act 1991, serve notice on the consent holder of its intention to review the conditions of this consent within 3 months of each anniversary of the commencement of this consent for the purpose of amending the monitoring programme to be undertaken if the record of monitoring indicates that the monitoring programme is inappropriate.

8. Five Yearly Review

This consent is to be reviewed at 5 yearly intervals.

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a update to the consent (originally issued as a single permit 3839 and now issued as 3839A_V1, 3839B_V1, 3839C_V1 and 3839D_V1), and to reflect a variation to the monitoring conditions 4, 5, 6 and 7 (additions italicised, deletions struck out).



Christopher P Shaw
Manager Consents

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WATER PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To divert stormwater at a landfill and composting facility within a 38 hectare area bounded by a leachate collection drain

For the purpose of control of landfill and composting facility leachate at the Green Island Landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. *This consent shall be exercised in conjunction with discharge permit 3839A_V1.*
2. This consent shall be exercised in conformity with a landfill work programme prepared by the consent holder. The work programme shall be prepared within 6 months of the first exercise of this consent and shall thereafter be reviewed at least annually or at such lesser frequency as the Consent Authority may approve: The work program shall:
 - (i) Review the exercise of the consent and the monitoring relating thereto (including: actions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [including toxic, biological, medical and radioactive wastes] and stormwater management and monitoring).
 - (ii) Evaluate and analyse trends and any matters having, or likely to have an adverse impact on water resources or the use of those resources, resulting from the operation of the landfill.

- (iii) Present projections and intentions for landfill operations in relation to the future exercise of this consent (including: intentions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [as defined in 1(i)] and stormwater management and monitoring).
- (iv) Describe sequencing of works, procedures to be adopted during construction and filling, and the maintenance and management of facilities.
- (v) Describe measures to be taken so that the conditions of this consent will be met at all times, and that adverse effects on natural water are avoided or mitigated.
- (vi) Describe the precautionary measures that prevent unauthorised discharges or other adverse effects on natural water and present a contingency plan which will describe how any event will be managed so as to avoid or mitigate any adverse effects on natural water.
- (vii) Describe any additional monitoring necessary to identify the impacts of the exercise of this consent, and means of effective avoidance or mitigation of adverse effects both during and post closure of the landfill.
- (viii) Provide for the managed recycling of leachate over the landfill where and when this is practicable and will not result in adverse environmental effects.

3. Section 128 Review

The conditions of this permit may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is, or there is likely to be, a significant adverse impact on the environment.

4. Five Yearly Review

This consent is to be reviewed at 5 yearly intervals.

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a update to the consent (originally issued as a single permit 3839 and now issued as 3839A_V1, 3839B_V1, 3839C_V1 and 3839D_V1), (additions italicised, deletions struck out).



Christopher P Shaw
Manager Consents

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WATER PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To take stormwater from a landfill and composting facility within a 38 hectare area bounded by a leachate collection drain

For the purpose of control of landfill and composting facility leachate at the Green Island Landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. *This consent shall be exercised in conjunction with discharge permit 3839A_V1.*
2. This consent shall be exercised in conformity with a landfill work programme prepared by the consent holder. The work programme shall be prepared within 6 months of the first exercise of this consent and shall thereafter be reviewed at least annually or at such lesser frequency as the Consent Authority may approve: The work program shall:
 - (i) Review the exercise of the consent and the monitoring relating thereto (including: actions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [including toxic, biological, medical and radioactive wastes] and stormwater management and monitoring).
 - (ii) Evaluate and analyse trends and any matters having, or likely to have an adverse impact on water resources or the use of those resources, resulting from the operation of the landfill.

- (iii) Present projections and intentions for landfill operations in relation to the future exercise of this consent (including: intentions to minimise the working face; litter control; vermin and bird control; leachate collection, disposal and treatment; sampling and analytical protocols; management and control of hazardous waste [as defined in 1(i)] and stormwater management and monitoring).
- (iv) Describe sequencing of works, procedures to be adopted during construction and filling, and the maintenance and management of facilities.
- (v) Describe measures to be taken so that the conditions of this consent will be met at all times, and that adverse effects on natural water are avoided or mitigated.
- (vi) Describe the precautionary measures that prevent unauthorised discharges or other adverse effects on natural water and present a contingency plan which will describe how any event will be managed so as to avoid or mitigate any adverse effects on natural water.
- (vii) Describe any additional monitoring necessary to identify the impacts of the exercise of this consent, and means of effective avoidance or mitigation of adverse effects both during and post closure of the landfill.
- (viii) Provide for the managed recycling of leachate over the landfill where and when this is practicable and will not result in adverse environmental effects.

3. Section 128 Review

The conditions of this permit may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is, or there is likely to be, a significant adverse impact on the environment.

4. Five Yearly Review

This consent is to be reviewed at 5 yearly intervals.

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a update to the consent (originally issued as a single permit 3839 and now issued as 3839A_V1, 3839B_V1, 3839C_V1 and 3839D_V1), (additions italicised, deletions struck out).



Christopher P Shaw
Manager Consents

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WATER PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To divert stormwater from the non-working areas of a landfill

For the purpose of intercepting clean stormwater and silt control of stormwater at the Green Island Landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. *This consent shall be exercised in conjunction with discharge permit 3840C_V1.*

2. Landfill Management Plan

This consent shall be exercised in conformity with a Landfill Work Programme prepared by the consent holder. The work programme shall be prepared within 6 months of the first exercise of this consent and shall thereafter be reviewed at least annually or at such lesser frequency as the Consent Authority may approve. The work programme shall:

- i) Review the exercise of the consent and the monitoring relating thereto (including sampling and analytical protocols).
- ii) Evaluate and analyse trends and any matters having, or likely to have an impact on water resources or the use of those resources, including a schedule of the existing condition of the Kaikorai Stream and Estuary.
- iii) Present projections and intentions for landfill operations in relation to the future exercise of this consent (including: intentions to minimise the working face, sampling and analytical protocols, and stormwater management and monitoring).

- iv) Describe sequencing of works, procedures to be adopted during construction and filling, and the maintenance and management of facilities.
 - v) Describe measures to be taken so that the conditions of this consent will be met at all times, and that adverse effects on natural water are minimised.
 - vi) Describe the precautionary measures that prevent unauthorised discharges or other adverse effects on natural water and present a contingency plan which will describe how any such event will be managed so as to minimise any adverse effects on natural water.
 - vii) Describe any additional monitoring necessary to identify the impacts of the exercise of this consent, and means of effective rehabilitation both during and post closure of the landfill.
3. Appropriate silt retention pond(s) shall be in place prior to the exercise of this consent.
 4. All silt retention ponds shall be designed for the runoff arising from storms having a return period of 1 in 2 years with a design storm duration of 24 hours (from the control levels).
 5. The consent holder shall ensure that all practicable steps are taken to prevent contamination of stormwater by suspended solids or exposed landfill material or runoff via appropriate landfill management practices. Stormwater from the composting area shall be prevented from entering the silt retention ponds by diverting this to the leachate collection system. The objective to be met at all stages of this management is to ensure effective long term rehabilitation of the landfill to the extent that stormwater generated from the area is uncontaminated.
 6. Works associated with the exercise of this consent shall be designed, constructed and maintained in accordance with best engineering standards. All designs shall be submitted to the Consent Authority prior to construction.
 7. The conditions of this consent may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is, or is likely to be, a significant adverse impact on the environment or, if the performance of the stormwater diversion and treatment system differs significantly from that specified in the environmental impact assessment and information accompanying the application.
 8. **Five Yearly Review**
This consent is to be reviewed at 5 yearly intervals.

9. Bond Provisions

In the event that the landfill changes to private ownership, the consent holder shall execute and maintain in existence a performance bond in the form set out in Schedule 1 and an annual monitoring bond in the form set out in Schedule 2 (the terms of which the consent holder has already agreed), with sureties acceptable to the Consent Authority.

10. Closure Work Programme

Prior to the expiry or surrender of this consent, the consent holder shall prepare a management, monitoring and contingency plan for the future management of the landfill.

11. Archaeological Survey

The grantee shall carry out an archaeological survey of the site to criteria and within a time frame as agreed with the affected Runanga and provide the results of this survey to the Runanga.

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a update to the consent (originally issued as a single permit 3840 and now issued as 3840A_V1, 3840B_V1 and 3840C_V1), (additions italicised, deletions struck out).



Christopher P Shaw
Manager Consents

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WATER PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To take diverted stormwater from the non-working areas of a landfill

For the purpose of silt control of stormwater at the Green Island Landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. *This consent shall be exercised in conjunction with discharge permit 3840C_V1.*
2. Appropriate silt retention pond(s) shall be in place prior to the exercise of this consent.
3. All silt retention ponds shall be designed for the runoff arising from storms having a return period of 1 in 2 years with a design storm duration of 24 hours (from the control levels).
4. The conditions of this consent may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is, or is likely to be, a significant adverse impact on the environment or, if the performance of the stormwater diversion and treatment system differs significantly from that specified in the environmental impact assessment and information accompanying the application.

5. Five Yearly Review

This consent is to be reviewed at 5 yearly intervals.

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a update to the consent (originally issued as a single permit 3840 and now issued as 3840A_V1, 3840B_V1 and 3840C_V1), (additions italicised, deletions struck out).



Christopher P Shaw
Manager Consents

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DISCHARGE PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To discharge stormwater to the Kaikorai Stream

For the purpose of disposal of stormwater from a landfill facility, after treatment in silt retention ponds at the Green Island Sanitary Landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. Landfill Management Plan

This consent shall be exercised in conformity with a Landfill Work Programme prepared by the consent holder. The work programme shall be prepared within 6 months of the first exercise of this consent and shall thereafter be reviewed at least annually or at such lesser frequency as the Consent Authority may approve. The work programme shall:

- i) Review the exercise of the consent and the monitoring relating thereto (including sampling and analytical protocols).
- ii) Evaluate and analyse trends and any matters having, or likely to have an impact on water resources or the use of those resources, including a schedule of the existing condition of the Kaikorai Stream and Estuary.
- iii) Present projections and intentions for landfill operations in relation to the future exercise of this consent (including: intentions to minimise the working face, sampling and analytical protocols, and stormwater management and monitoring).
- iv) Describe sequencing of works, procedures to be adopted during construction and filling, and the maintenance and management of facilities.

- v) Describe measures to be taken so that the conditions of this consent will be met at all times, and that adverse effects on natural water are minimised.
 - vi) Describe the precautionary measures that prevent unauthorised discharges or other adverse effects on natural water and present a contingency plan which will describe how any such event will be managed so as to minimise any adverse effects on natural water.
 - vii) Describe any additional monitoring necessary to identify the impacts of the exercise of this consent, and means of effective rehabilitation both during and post closure of the landfill.
2. Appropriate silt retention pond(s) shall be in place prior to the exercise of this consent.
 3. All silt retention ponds shall be designed for the runoff arising from storms having a return period of 1 in 2 years with a design storm duration of 24 hours (from the control levels).
 4. The consent holder shall ensure that all practicable steps are taken to prevent contamination of stormwater by suspended solids or exposed landfill material or runoff via appropriate landfill management practices. Stormwater from the composting area shall be prevented from entering the silt retention ponds by diverting this to the leachate collection system. The objective to be met at all stages of this management is to ensure effective long term rehabilitation of the landfill to the extent that stormwater generated from the area is uncontaminated.
 5. Works associated with the exercise of this consent shall be designed, constructed and maintained in accordance with best engineering standards. All designs shall be submitted to the Consent Authority prior to construction.
 6. **Monitoring Silt Pond Discharge**
 - (i) *For the 12 months following the granting of the first variation of this consent, the consent holder shall collect a representative sample of discharge from each of the silt ponds at monthly intervals.*
 - (ii) *Trigger levels for stormwater discharge from these ponds shall be set for the parameters listed in condition 6(v), from the data obtained under condition 6(i). Using the data obtained under condition 6(i), these trigger levels shall be set to the value that is calculated as the mean value of the data set, plus or minus 3 standard deviations of the data set.*
 - (iii) *Discharge from the stormwater ponds shall not exceed the trigger levels set under condition 6(ii).*
 - (iv) *After the 12 months following the granting of the first variation of this consent, The consent holder shall, once every 3 months, collect a representative sample of the discharge from each of the silt ponds.*
 - (v) The samples collected under condition 6(i) or 6(iv) shall be analysed for:
 - pH

- conductivity
- ~~suspended solids~~
- ~~turbidity~~
- ammoniacal nitrogen
- ~~5 day biological oxygen demand (BOD₅)~~
- nitrate nitrogen
- alkalinity
- chloride
- potassium
- total organic carbon
- dissolved oxygen
- dissolved chromium
- dissolved copper
- dissolved lead
- dissolved nickel
- dissolved zinc

~~(vi) The results shall be forwarded to the Consent Authority within 3 months of sample collection, and the Consent Authority shall be notified immediately if any sudden change in chemistry is detected or if a trend of increasing concentration is indicated.~~

~~(vii) The Consent Authority may direct or agree in writing that additional sampling and analyses be undertaken if monitoring results indicate amendments are appropriate.~~

7. All laboratory analyses undertaken in connection with this permit must be performed at a ~~Telare~~ registered laboratory *that has achieved International Standards Organisation (ISO) standard 17025 and holds current accreditation*, or otherwise as specifically approved by the Consent Authority in writing.

8. The conditions of this consent may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is, or is likely to be, a significant adverse impact on the environment or, if the performance of the stormwater diversion and treatment system differs significantly from that specified in the environmental impact assessment and information accompanying the application.

9. **Reporting**

(a) *The consent holder shall compile the results of the silt pond discharge monitoring undertaken to satisfy the requirements of this consent into tables in digital format (excel spreadsheet file or comma separated value file). One table shall be compiled for each location that monitoring is undertaken. The tables shall be regularly updated and provided to the Consent Authority within 1 month of ongoing monitoring occurring.*

(b) *Should the results of any monitoring show any sudden change in chemistry, or if a trend of increasing concentration is indicated, the Consent Authority shall be notified immediately.*

- (c) *If monitoring data indicates adverse effects on water quality directly attributable to landfill leachate from the consent holder's landfill entering the Kaikorai Stream, the consent holder shall institute appropriate abatement procedures to avoid or mitigate these effects.*
- (d) *The consent holder shall provide the Consent Authority with a Landfill Monitoring Report by 1 October each year. At minimum this report shall include:*
 - i) *The results obtained for all stormwater monitoring undertaken to meet the requirements of this consent for the previous year. Results shall be supplied in table format within the report, with a copy of all laboratory analytical reports appended.*
 - ii) *A description of the dates of monitoring and climatic conditions on those dates, and any other pertinent field observations*
 - iii) *Interpretation of all the data, particularly with regard to the success of stormwater management at the site. Trends shall be identified and discussed.*

10. Five Yearly Review

This consent is to be reviewed at 5 yearly intervals.

11. Bond Provisions

In the event that the landfill changes to private ownership, the consent holder shall execute and maintain in existence a performance bond in the form set out in Schedule 1 and an annual monitoring bond in the form set out in Schedule 2 (the terms of which the consent holder has already agreed), with sureties acceptable to the Consent Authority.

12. Closure Work Programme

Prior to the expiry or surrender of this consent, the consent holder shall prepare a management, monitoring and contingency plan for the future management of the landfill.

13. Archaeological Survey

The grantee shall carry out an archaeological survey of the site to criteria and within a time frame as agreed with the affected Runanga and provide the results of this survey to the Runanga.

ORIGINAL

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a update to the consent (originally issued as a single permit 3840 and now issued as 3840A_V1, 3840B_V1 and 3840C_V1), and to reflect a variation to the monitoring required under conditions 6, 7 and 9 of this consent. Changes italicised, deletions struck out).



Christopher P Shaw
Manager Consents

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WATER PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To take groundwater (originating from the Kaikorai Stream) through a landfill leachate collection drain

For the purpose of maintaining groundwater levels within the contained landfill area at a lower level than within surrounding ground at the Green Island Landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. The rate of taking shall be nominally 23,400 litres per hour and shall not exceed 72,000 litres per hour.

2. Landfill Work Programme

This consent shall be exercised in conformity with a Landfill Work Programme prepared by the consent holder. The work programme shall be prepared within six months of the first exercise of this consent and shall thereafter be reviewed at least annually or at such lesser frequency as the Consent Authority may approve. The work programme shall:

- (i) Review the exercise of the consent and the monitoring relating thereto (including sampling and analytical protocols).
- (ii) Evaluate and analyse trends and any matters having, or likely to have an impact on water resources or the use of those resources.
- (iii) Present projections and intentions for landfill operations in relation to the future exercise of this consent (including leachate collection, disposal and treatment and sampling and analytical protocols).

- (iv) Describe sequencing of works, procedures to be adopted during construction and filling, and the maintenance and management of facilities.
- (v) Describe measures to be taken so that the conditions of this consent will be met at all times, and that adverse effects on natural water are minimised.
- (vi) Describe the precautionary measures that prevent unauthorised discharges or other adverse effects on natural water and present a contingency plan which will describe how any such event will be managed so as to minimise any adverse effects on natural water.
- (vii) Describe any additional monitoring necessary to identify the impacts of the exercise of this consent, and means of effective rehabilitation both during and post closure of the landfill.

3. Monitoring Pumped Leachate/Groundwater Volume

The consent holder shall continuously monitor and record the flow of the pumped discharge from the combined landfill leachate collection sumps undertaken pursuant to ~~special~~ condition 3 of *discharge* permit 3839A_V1, *condition 2 of water permit 3839B_V1*. The results shall be forwarded to the Consent Authority at 3 monthly intervals.

4. Five Yearly Review

This consent is to be reviewed at five yearly intervals.

- 5. The conditions of this consent may be reviewed annually and within six months of each anniversary of the date of this consent in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Consent Authority there is or is likely to be significant adverse effect on the environment or, if the performance of the leachate collection system differs significantly from that specified in the environmental impact assessment and information accompanying the application.

6. Closure Management Plan

Prior to the expiry or surrender of this consent, the consent holder shall prepare a management, monitoring and contingency plan for the future management of the landfill.

- 7. The objectives to be met at all stages of this management is to ensure the effective long term containment, collection and monitoring of contaminated leachate and to protect the Kaikorai Stream, coastal waters and the uses and values associated with these waters.

8. Archaeological Survey

The grantee shall carry out an archaeological survey of the site to criteria and within a time frame as agreed with the affected Runanga and provide the results of this survey to the Runanga.

Issued at Dunedin this 4th day of March 1994

Reissued at Dunedin this 5th day of July 2007, to reflect a variation to the consent numbers referred to in condition 3 of this consent, and a correction to the legal description and map reference. (Variations italicised or struck out).



Christopher P Shaw
Manager Consents
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DISCHARGE PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To discharge to air landfill gas, dust and odour generated from landfilling up to 100,000 cubic metres a year of compacted municipal, domestic, hazardous and industrial waste, and including a composting operation

For the purpose of operating a sanitary landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. The Consent Authority may, in accordance with section 129 of the Resource Management Act 1991, serve notice on the consent holder of its intention to review the conditions of this consent within two months of each anniversary of the commencement of this consent for the purposes of determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
2. This consent shall be exercised in conjunction with consent numbers 3839A_V1, 3839B_V1, 3839C_V1, 3839D_V1, 3840A_V1, 3840B_V1, 3840C_V1, 4139_V1, 4140, 4185, 94262_V1 and 94693_V1.
3. This consent shall be exercised in conformity with the landfill work programme prepared by the consent holder for consent numbers 3839A_V1, 3839B_V1, 3839C_V1, 3839D_V1, 3840A_V1, 3840B_V1, 3840C_V1, 4139_V1, and 94262_V1. The work programme shall be reviewed at least annually or as at such lesser frequency as the Consent Authority may approve, and submitted as soon as practicable to the Consent Authority for approval.

4. The consent holder shall adopt the best practicable option to avoid and/or mitigate any adverse effect on the environment resulting from the discharge of contaminants to air. This shall require that the consent holder operate, supervise and maintain the landfill and monitor the discharge so as to ensure that any adverse effect on the environment is avoided or mitigated.
5. The consent holders shall take all practicable steps to collect the landfill gas generated from refuse less than 12 years old at the commencement of this consent and to minimise the emission of landfill gas to atmosphere.
6. Beyond the boundary of the consent holders site there shall be no odour caused by discharges from the site, which, in the opinion of an enforcement officer of the Consent Authority is objectionable or offensive.
7. Dust emissions shall be kept to a practicable minimum. The consent holder shall ensure that dust emissions from the site do not create conditions beyond the boundary which, in the opinion of an enforcement officer of the Consent Authority are objectionable or offensive.
8. The intentional burning of rubbish is not allowed. Any unintentional fires must be extinguished as soon as possible. Fires lit on the landfill site specifically for training exercises will be allowed so long as all precautions are taken to avoid the fire spreading to the refuse and the amount of smoke generated is minimised.
9. Any hazardous waste accepted for disposal must be managed in accordance with the requirement of the landfill management plan provided in support of the application, including the deposition in an appropriate manner to prevent any adverse environmental effect due to discharges to air.
10. A log shall be kept recording any complaints due to discharges to air from the landfill. The log shall be available at all times for inspection by the Consent Authority.
11. Monitoring for methane and carbon dioxide and oxygen shall be undertaken monthly using portable gas detectors at the site identified in the application documents as gas tube 1 situated near to Clariton Avenue. The results of the monitoring shall be reported every 6 months to the Consent Authority.
12. All laboratory analysis undertaken in connection with this consent must be performed at a ~~Telarc-registered~~ laboratory *that has achieved International Standards Organisation (ISO) standard 17025 and holds current accreditation, or otherwise as specifically approved by the Consent Authority in writing.*

13. The consent holder shall undertake regular monthly inspections of the landfill for evidence of landfill gas such as odours, gas bubbling in puddles, or fissures in the landfill cover. The inspection shall comprise a minimum of walking around the perimeter and traversing the top of the landfill and where potential problems are identified, the consent holder shall investigate and remedy or mitigate the problem. Such actions may include where appropriate conducting gas tests and repairing any fissures in the landfill cover.
14. Any excavations carried out in the landfill shall be done in such a manner as to minimise the generation of odour. In the event of offensive odour being generated or a complaint of odour from the public being received during an excavation procedure the excavations must cease and the exposed refuse recovered until such time as the wind conditions are more favourable.
15. Only vegetation shall be included in the waste to be composted.
16. The composting operation shall be managed so as to minimise the production of odour by ensuring aerobic conditions are maintained at all times within the windrows.

Issued at Dunedin this 27th day of November 1995

Reissued at Dunedin this 5th day of July 2007, to reflect a variation to the consent numbers referred to in conditions 2 and 3, to update laboratory standards referred to in condition 12, and to reflect a correction to the legal description and map reference. (Variations italicised or struck out).



Christopher P Shaw
Manager Consents

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DISCHARGE PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To discharge up to 270 cubic metres per day of municipal, domestic, hazardous and industrial waste, including a composting operation, to land in circumstances which may result in contaminants entering natural water.

For the purpose of operating a sanitary landfill

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. This consent shall be exercised in conjunction with consent numbers 3839A_V1, 3839B_V1, 3839C_V1, 3839D_V1, 3840A_V1, 3840B_V1, 3840C_V1, 4139_V1, 4140, 4185 and 94262_V1.
2. The consent holder shall take appropriate measures to prevent landfilled material from moving off site.
3. The consent holder shall ensure that the placement of material pursuant to this consent shall not impair the flow of any natural watercourse on this site.
4. This consent shall be exercised in conformity with the landfill work programme prepared by the consent holder for consent numbers 3839A_V1, 3839B_V1, 3839C_V1, 3839D_V1, 3840A_V1, 3840B_V1, 3840C_V1 and 4139_V1. The work programme shall be reviewed at least annually or at such lesser frequency as the Consent Authority may approve.

5. Any hazardous waste accepted for safe disposal (special protection) must be managed in accordance with the requirements of the landfill management plan provided in support of the application, including its deposition in an appropriate manner to prevent any adverse environmental effect.
6. The disposal location and date of the deposit of hazardous waste accepted for safe disposal (special protection) must be recorded and available for inspection by the Consent Authority.
7. In accordance with section 128 of the Resource Management Act 1991, the conditions of this consent may be reviewed on and in the period within 3 months upon each fifth anniversary of the date of this consent, if on reasonable grounds the Consent Authority finds that:
 - (a) there is or is likely to be an adverse environmental effect as a result of the exercise of this consent, which was unforeseen when the consent was granted;
 - (b) monitoring of the exercise of the consent has revealed that there is or is likely to be an adverse environmental effect on the environment;
 - (c) there has been a change in circumstances such that the conditions of the consent are no longer appropriate in terms of the above Act.

Issued at Dunedin this 25th day of May 1995

Reissued at Dunedin this 5th day of July 2007, to reflect a variation to the consent numbers referred to in conditions 1 and 4 of this consent, and to correct the legal descriptions and map reference given. (Variations italicised or struck out).



Christopher P Shaw
Manager Consents

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DISCHARGE PERMIT

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: Civic Centre, 50 The Octagon, Dunedin

To discharge up to 270 cubic metres per day of municipal, domestic, hazardous, industrial waste and organic waste to land

For the purpose of operating a sanitary landfill and composting operation

For a term expiring on: 1 October 2023

Location of activity: The Green Island Sanitary Landfill, located off Brighton Road, Green Island, and adjacent to the Kaikorai Stream

Legal description of land: Secs 46, 47 Green Island Bush SD, Pt Secs 44 and 45 Green Island Bush SD, Secs 54, 63, 81 Blk VII Dunedin & East Taieri SD, Lot 1 DP 20582

Map Reference: centred on NZMS 260 I44:090-745

Conditions

1. This consent shall be exercised in conjunction with consent numbers 3839A_V1, 3839B_V1, 3839C_V1, 3839D_V1, 3840A_V1, 3840B_V1, 3840C_V1, 4139_V1, 4140, 4185 and 94693_V1.
2. The consent holder shall take appropriate measures to prevent landfilled material from moving off site.
3. The consent holder shall ensure that the placement of material pursuant to this consent shall not impair the flow of any natural watercourse on this site.
4. This consent shall be exercised in conformity with the landfill work programme prepared by the consent holder for consent numbers 3839A_V1, 3839B_V1, 3839C_V1, 3839D_V1, 3840A_V1, 3840B_V1, 3840C_V1 and 4139_V1. The work programme shall be reviewed at least annually or at such lesser frequency as the Consent Authority may approve.
5. Any hazardous waste accepted for safe disposal (special protection) must be managed in accordance with the requirements of the landfill management plan provided in support of the application, including its deposition in an appropriate manner to prevent any adverse environmental effect.

6. The disposal location and date of the deposit of hazardous waste accepted for safe disposal (special protection) must be recorded and available for inspection by the Consent Authority.
7. The consent holder shall not dispose of any material in the landfill by burning it. Should any fire arise in the landfill it shall be extinguished immediately upon being detected.
8. In accordance with section 128 of the Resource Management Act 1991, the conditions of this consent may be reviewed on and in the period within 3 months upon each fifth anniversary of the date of this consent, if on reasonable grounds the Consent Authority finds that:
 - (a) there is or is likely to be an adverse environmental effect as a result of the exercise of this consent, which was unforeseen when the consent was granted;
 - (b) monitoring of the exercise of the consent has revealed that there is or is likely to be an adverse environmental effect on the environment;
 - (c) there has been a change in circumstances such that the conditions of the consent are no longer appropriate in terms of the above Act.

Issued at Dunedin this 25th day of May 1995

Reissued at Dunedin this 5th day of July 2007, to reflect a variation to the consent numbers referred to in conditions 1 and 4 of this consent and to reflect a correction to the legal description and map reference. (Variations italicised or struck out).



Christopher P Shaw
Manager Consents

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WATER PERMIT**ORIGINAL**

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: P O Box 5045, Dunedin

to divert the Kaikorai Stream for the purpose of realignment of this natural watercourse to allow for the installation of the Green Island landfill leachate collection drain and sumps

for a term expiring on 1 October 2023

Legal description of land at site of realignment: CT 11C/1275 and CT 13A/566 Part sections 53, 100 and 101 of Block VII Dunedin and East Taieri SD

SPECIAL CONDITIONS

1. The grantee shall ensure all practicable steps are taken to prevent contamination of water by suspended solids during construction of all works. The new channel shall be excavated dry with both ends closed until the final work is completed.
2. Works associated with the exercise of this consent shall be designed, constructed and maintained in accordance with best practicable means to the satisfaction of the Regional Council.
3. The final channel and bank form shall approximate that of the existing channel and bank forms and provide sufficient depth (nominally 1 metre depth at low tide) to ensure fish passage and continued fish habitat.
4. The banks of the new channel shall be battered (to a 1:4 slope if practicable).
5. The margins of the new channel shall be planted in appropriate grass and native species along the guidelines proposed by Mr Peter Johnson of Landcorp, and additional stabilisation works shall be undertaken if required by the ORC.
6. The design of the diversion shall be such that in the long term, a corridor useable by the public shall be created in the vicinity.
7. The Regional Council and interested parties shall be consulted over the exercise of this permit.
8. The conditions of this permit may be reviewed in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Regional Council there is or there is likely to be a significant adverse impact on the environment.

Issued at Dunedin this 28 October 1993.

R W Scott
Director Corporate Services

Any enquiries concerning this permit or the provisions of the Resource Management Act 1991 should be made to the office of the Council, 70 Stafford Street (Private Bag), Dunedin.



ORIGINAL**WATER PERMIT**

Pursuant to Section 105 of the Resource Management Act 1991, the Otago Regional Council hereby grants consent to:

Name: Dunedin City Council

Address: P O Box 5045, Dunedin

to divert the existing Brighton Road Stream for the purpose of realignment of this watercourse to allow for the installation of the Green Island landfill leachate collection drain and sumps

for a term expiring on 1 October 2023

Legal description of land at site of realignment: CT 11b/1241 Section 63 of Block VII Dunedin and East Taieri SD

SPECIAL CONDITIONS

1. The grantee shall ensure all practicable steps are taken to prevent contamination of water by suspended solids during construction of all works.
2. Works associated with the exercise of this consent shall be designed, constructed and maintained in accordance with best engineering standards to the satisfaction of the Regional Council. The grantee shall provide the Regional Council with details of the design of the culvert and open channel before construction proceeds.
3. The grantee shall carry out rehabilitation and enhancement of the wetland upstream of the diversion in consultation with the Regional Council and interested parties.
4. The grantee shall carry out revegetation of the Kaikorai Stream margin adjacent to the landfill in consultation with the Regional Council and interested parties.
5. The grantee shall consult with the Regional Council and interested parties over land fill management aspects to ensure activities are compatible and complementary to the estuarine wetland.
6. There shall be provision for a low flow channel (nominally 0.5 metres depth) with flattened batters above the low flow channel (to a 1:4 slope if practicable).
7. The margins of the new channel shall be planted in appropriate grass and native species.
8. The conditions of this permit may be reviewed in accordance with Section 128 of the Resource Management Act 1991 if in the opinion of the Regional Council there is or there is likely to be a significant adverse impact on the environment.

Issued at Dunedin this 28 October 1993.

R W Scott
Director Corporate Services

Any enquiries concerning this permit or the provisions of the Resource Management Act 1991 should be made to the office of the Council, 70 Stafford Street (Private Bag), Dunedin.

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