REPORT

Tonkin+Taylor

Victoria Flats Landfill - Establishment of a gas capture and destruction system

Prepared for
Queenstown Lakes District Council
Prepared by
Tonkin & Taylor Ltd
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Schedule 4 Requirements

Schedule 4 of the RMA sets out the information required in an application for a resource consent. All relevant matters required to be included have been addressed in the assessments and descriptions in this AEE. The following table provides a summary of the information required in Schedule 4 and a quick reference to its location in this report.

Schedule 4 Item	Location within report
A description of the activity	Section 3.1
A description of the site at which the activity is to occur	Section 2.2
The full name and address of each owner or occupier of the site	Section 1.3
A description of any other activities that are part of the proposal to which the application relates	Section 3.1 and 4
A description of any other resource consents required for the proposal to which the application relates	Section 4.4
An assessment of the activity against the matters set out in Part 2	Section 6.1.1
An assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b). This must include: • Any relevant objectives, policies, or rules in a document • Any relevant requirements, conditions, or permissions in any rules in a document • Any other relevant requirements in a document (for example, in a national environmental standard or other regulations)	Section 6.1
An assessment of the activity's effects on the environment that includes the following information: • If it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity. • An assessment of the actual or potential effect on the environment of the activity. • If the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use. • If the activity includes the discharge of any contaminant, a description of— – The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and – Any possible alternative methods of discharge, including discharge into any other receiving environment. • A description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect.	Section 5
• Identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted. • If the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved.	Section 6.4

Schedule 4 Item	Location within report
• If the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).	N/A
An assessment of the activity's effects on the environment that addresses the following matters: • Any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects. • Any physical effect on the locality, including any landscape and visual effects. • Any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity. • Any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations. • Any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants. • Any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	Section 5
For applications involving permitted activities	
If any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)).	Section 4.2

1 Introduction

1.1 Overview of proposed works

This Assessment of Effects on the Environment (AEE) report has been prepared on behalf of Queenstown Lakes District Council (QLDC) to support a resource consent application to authorise the discharge of odour associated with the installation of landfill gas (LFG) collection and destruction system at the Victoria Flat Landfill (VFL).

This report has been prepared in fulfilment of section 88 of the Resource Management Act 1991 (RMA), and in accordance with Tonkin & Taylor Ltd's (T+T) letter of engagement dated 13 December 2019.

1.2 Background

The VFL is located approximately 27 km from Frankton, near the Gibbston Valley. The Landfill is owned and operated by Scope Resources and accepts waste from both QLDC and the Central Otago District Council (CODC) and accepted approximately 53,000 tonnes of waste in 2018.

QLDC holds three resource consents from Otago Regional Council (ORC) that authorise the operation of the landfill. This includes two permits to discharge solid waste and leachate to land, and one to discharge landfill gas, odour and dust to air. Permit 97164 (for the discharges to air) was reviewed by ORC in May 2019 and the consent was reissued in August 2019 with amended conditions. These amended conditions impose a requirement for QLDC to commission a landfill gas collection and destruction system by 1 December 2020. This condition has been imposed as a result of regulations 25-26 of the National Environmental Standards for Air Quality (NES Air Quality), which requires landfills with a total capacity of more than 1,000,000 tonnes and containing more than 200,000 tonnes of waste to collect and destroy landfill gas. QLDC and Scope Resources are working together to design and install this system into the existing landfill, with design now completed.

While the landfill gas collection and destruction system is expected to result in a long-term decrease in landfill-gas related discharges (following installation) the applicant acknowledges that the installation of this system is likely to cause a temporary increase in odour. This increase in odour is not covered by the existing discharge permit and forms the subject of this consent application.

1.3 Applicant and property details

Table 1.1: Applicant and property details

Applicant	QLDC
Owner and occupier of application site	Scope Resources Limited
Site address / map reference	NZMS 260 F41: 968-657
Site area	331,226 m^2
Legal description	Fee Simple, 1/1, Section 2-4 Survey Office Plan 24512
Certificate of Title reference	OT18C/580
District Council / Plans	QLDC
Regional Council / Plans	Otago Regional Council (ORC)
Address for service during consent processing	Tonkin & Taylor Ltd, PO Box 2083, Wellington 6140 Attention: Alastair Meehan Phone: (04) 806 4964 Email: AMeehan@tonkintaylor.co.nz

Address for service during consent implementation and invoicing	QLDC, 10 Gorge Road, Queenstown Attention: Laura Gledhill Phone: (03) 441 0484 Email: Laura.Gledhill@qldc.govt.nz

We attach copies of the application forms in **Appendix A**, a copy of the relevant Record of Title in **Appendix B** and the relevant technical drawings and plans in **Appendix C** and the Odour Management Plan (OMP) in **Appendix D**.

1.4 Existing consents

QLDC holds several consents which authorising the operation of the landfill. These comprise the following permits, all of which expire on 1 October 2032:

- 97163 Discharge Permit – Land (solid waste)
- 97165 Discharge Permit – Land (leachate)
- 97164 Discharge Permit – Air

The conditions of the air discharge permit were reviewed in May 2019 under s128 of the RMA, with consent reissued in August 2019. This reissued permit imposed a condition requiring the consent holder to commission a landfill gas collection and destruction system by 1 December 2020.

1.5 Existing designation

The landfill site is subject to Designation 76 under the QLDC District Plan for the purpose of a landfill and an associated landfill buffer zone.

1.6 Overview of resource consent requirements

Resource consent is required for the discharges to air associated with the establishment of the landfill gas collection and destruction system from Otago Regional Council under Rule 7.6.1 of The Regional Plan: Waste for Otago (the Waste Plan) as a Discretionary Activity.

1.7 Consent duration

Resource consent is sought for a duration of 2 years for the discharge of landfill gas associated with establishment of the collection and destruction system.

The 2-year term is being sought in recognition that the increased discharge of landfill gas to air is expected to be temporary during construction of the landfill gas system. Construction is currently expected to be completed by December 2020, as required by Condition 7A of Discharge Permit 97164. However, a 2-year term provides additional resilience in the event that construction of the gas capture system experiences any unforeseen delays.

2 Environmental setting

2.1 Site location

Victoria Flats Landfill is located approximately 27 km from Frankton, near the Gibbston Valley. The site has a legal description of Section 2-4 Survey Office Plan 24512 and is located approximately 120 metres from the Victoria Bridge on the true right bank of the Kawarau River.

The site is shown in Figure 2.1 below.

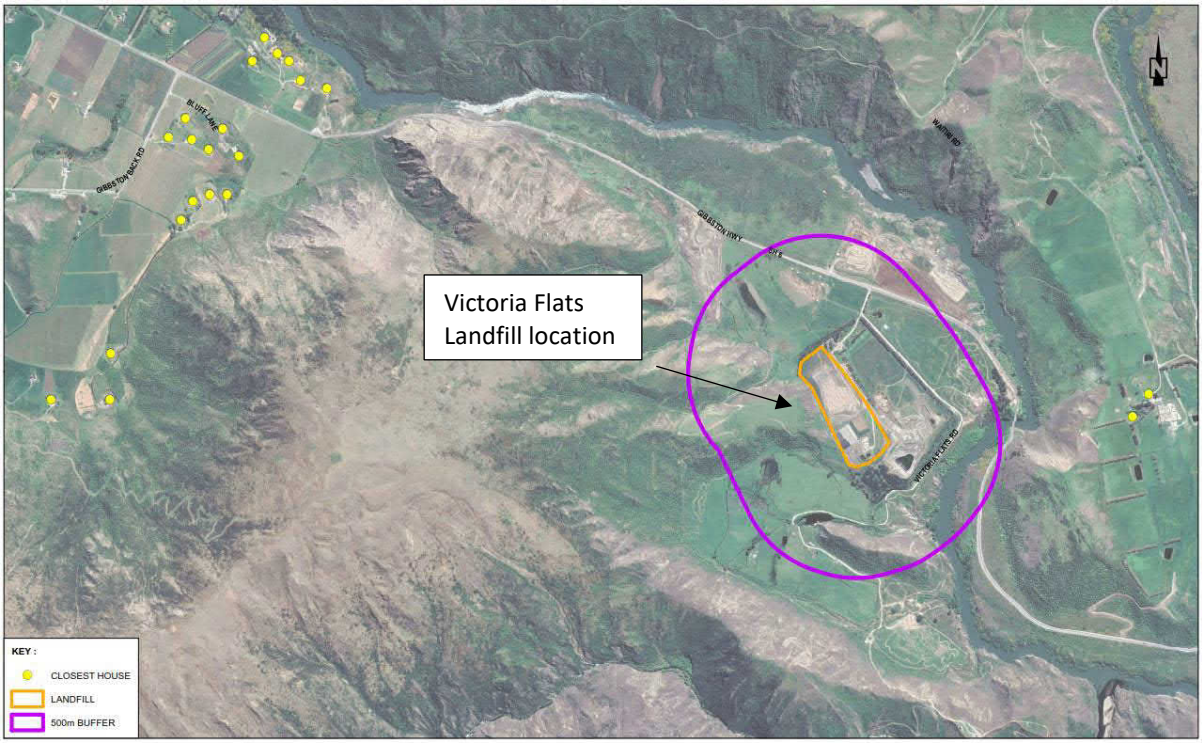

Figure 2.1 Location plan *Source: PDP Ltd Odour Management Plan*

2.2 Site description

2.2.1 Natural environment

The site is located on the true right bank of the Kawarau River in the Gibbston Valley. The site is located on the valley flats, is situated amongst a wider context of the Crown Range and is located immediately upstream of the Kawarau Gorge. The surrounding environment is largely rural in nature with a multitude of wineries located elsewhere in the valley to the east-north-east of the subject site.

Central Otago is a continental climate, with generally large diurnal and seasonal variations in temperature. The summer months generally comprise of hot and dry weather (average high of approximately 20 to 22°C and low of 8 to 9°C), while winters months are generally cold with frosts and snow a regular possibility (average high of 8 to 10°C and low of 0°C).

2.2.2 Receiving environment

The landfill is located proximate to several receivers with varying degrees of sensitivity with respect to potential odour generation. These nearby receivers have been identified include:

- Users of State Highway 6 (SH6);

- Users of the Wakatipu Gun Club (caveat against operation regarding odour);
- Users of a newly consented commercial activity (caveat against operation regarding odour); and
- Residences within the wider Gibbston Valley Community (located approximately 3 km to the west and 1.1 km to the east of the landfill, as shown in Figure 3 of the OMP and attached as Appendix D to this AEE).

The applicant considers that the identified receivers have a varying degree of sensitivity, with SH6, the Gun Club and the commercial activity all receivers with a lower sensitivity. SH6 exhibits this lower level of sensitivity due to users of the road being transient and experiencing odour for only short durations, while the OMP notes that the gun club and commercial activity both have caveats on their operations acknowledging that odour may be present and preventing them from lodging odour complaints with ORC. Notwithstanding the low sensitivity of these land-uses the applicant has identified odour mitigations to mitigate the potential effects upon these users during construction works.

The applicant acknowledges that the residences within the Gibbston Valley represent receivers of higher sensitivity, and notes that Gibbston Valley residents have been the source of numerous odour complaints in previous years. A description of the measures to address concerns of this community regarding potential odour issues arising from the landfill gas collection and destruction works is outlined in Sections 3, 5 and 7 of this AEE.

3 Description of proposed works

3.1 Proposed works

The general design philosophy of the proposed landfill gas system will involve the establishment of vertical extraction wells drilled into the existing landfill cells and horizontal collectors around the perimeter of the existing landfill cells to actively extract landfill gas. The applicant proposes to retrospectively install 30 landfill gas vertical extraction wells into the existing landfill cells and will then progressively install future wells as the landfill footprint expands. The extracted landfill gas will be conveyed in a header pipe to the flare where it will be destroyed. In order to improve the operational efficiency of the landfill gas extraction system a low permeability capping system is to be installed. In order to maintain adequate slope stability of the capping system there will need to be reprofiling of some of the existing waste batter slopes.

Therefore, the proposed works includes:

- Drilling test wells;
- Reprofiling existing waste batter slopes;
- Excavation into waste cells, drilling of the vertical wells and installation of horizontal collectors required for the system to work;
- Installation of pipework and the associated landfill gas collection infrastructure; and
- Installation of a primary flare (used to destroy the collected landfill gas) and a back-up flare.

This work will be completed by 1 December 2020. A more detailed breakdown of the interim construction works associated with each stage of works is provided under subheadings 3.1.1 to 3.1.5 below.

3.1.1 Stage 1: Drilling of wells

The initial stage of works involves the drilling of wells. This work will be completed by a sub-contractor (Speights Drilling) and will involve the following steps:

- Set up drill rig on site including worksite boundaries with tape, signs, cones, hazard board, windsocks and BiOx spray cannon. This will involve closing off the areas in which drilling is to occur;
- Set up locations, drill and install 30 wells at 700 mm diameter, approximately 20 m deep at GPS identified locations; and
- Demobilise rig from site.

The drilling will involve excavation of landfill waste, and the contractor (Speight Drilling) has identified how it intends to manage the excavation of this material. Upon being uncovered this material will be pushed from the immediate location by a front loader towards a compactor, with the waste then compacted and placed elsewhere in the active landfill area before being covered.

3.1.2 Stage 2: Earthworks to reform batter slopes and install horizontal collectors

This stage of works will involve cutting into the landfill to reduce the batter slope angles. The proposed works will extend the landfill footprint horizontally by 4 m in order to achieve a design batter slope of 1V:2.5H.

To complete the works it is proposed for a bench to be cut halfway up the batter slope. One digger will start from the bench and excavate waste that will then be placed further up the batter slope for a second digger (located atop the cell) to place into its final location. Waste extracted from batters will either be:

- spread and compacted on top of Cell 4 and 5 to bring height of waste to potential modified design level; or
- used to modify batter of cells 2, 3 and 4 to 1V:2.5H slope or disposed of in active cell

Loaders/compactors will spread and compact the waste to final level, while horizontal collectors will be installed at base of batter slope. Construction will proceed in 30 m strips from bottom to top. 100 mm of daily cover will be placed on open areas each day and then when strip is completed scalpings (a granular fill material) will be placed to either:

- the base of the clay as designed or
- up to first geo-textile layer.

The scalpings will be rolled and then staff will move on to next strip. Once the full batter has been completed the final capping will be placed. This will assist in managing the odour, in conjunction with those procedures identified in Section 5.3 of this AEE.

3.1.3 Stage 3: Installation of low permeability landfill cap

The landfill gas system requires the installation of a geomembrane as part of the capping system on the waste cells. This will be constructed by the contractor in accordance with the final design.

3.1.4 Stage 4: Installation of pipework to the flare

Installation of the collection pipework on the surface of the cells will occur once capping is in place and will involve placement of pipe support blocks at the required gradient and spacing, attachment of the bracket and laying the pipe. The pipes will then be joined using electro-fusion couplings.

3.1.5 Stage 5: Installation of flare

The primary and backup flares will then be installed. Condition 7A of consent 97164.V2 issued by ORC requires that this is commissioned by 1 December 2020.

3.2 Consideration of alternatives

The discharge of landfill gas and odour is considered an unavoidable part of landfill operations, however the establishment and operation of a landfill gas collection and destruction system represents a standard way to control and minimise the associated discharge to air of landfill gas, and is driven by the requirements of the National Environmental Standard for Air Quality (NES Air Quality). The installation and operation of a flare will enable the landfill operators to capture and combust methane that would otherwise be discharged directly to air. This converts the methane to CO_2, which is a much less potent greenhouse gas.

Discharging into an alternative receiving environment is not considered feasible for the purpose of these works. Operational mitigations (as outlined in Section 5 of this AEE and the OMP detailed in Appendix D) are considered to represent the best practicable option in mitigating potential effects associated with the discharge of landfill gas associated with the construction works.

4 Resource consent requirements

The requirements for resource consents are determined by the rules in the Regional Waste Plan. The rules which apply are determined by the zoning of the site, any identified notations in the plan and the nature of the activities proposed. The site is identified in Map 13 of the QLDC District Plan.

For completeness the applicant notes that Section 16.2.2 of the Regional Air Plan explicitly notes that the rules contained within that plan do not apply to the discharge of contaminants into air associated with new or operating landfills.

Table 4.1: Zoning and planning notations

Zoning/planning limitation	Comment
Queenstown Lakes District Plan	
Designation 76	The site and its surrounds are designated for the purpose of landfill operations under the QLDC District Plan

4.1 Regional Waste Plan

Table 4.2: Resource consents required

Proposed activity	Rule reference / description	Activity status
Discharge to air of landfill gas and associated odour associated with construction and operation of the LFG system	Rule 7.6.1 New or operating landfills [excluding cleanfill landfills, offal pits, farm landfills and greenwaste landfills] (discretionary activity) 1. The discharge of any contaminant into or onto land; or 2. The discharge of any contaminant or water into water; or 3. The discharge of any contaminant to air, As a result of the operation of any landfill (except for a cleanfill landfill, offal pit, farm landfill or greenwaste landfill covered by Rules 7.6.3 – 7.6.11) are discretionary activities, provided that no burning of waste is undertaken.	Discretionary activity

4.2 Existing resource consents

A summary of the existing consents held for the landfill operation can be found in Section 1.4 of this AEE.

5 Assessment of effects on the environment

5.1 Introduction

The following assessment identifies and assesses the types of effects that may arise from the proposed works. This assessment also outlines the measures that the applicant proposes to avoid, remedy or mitigate any potential adverse effects on the environment.

Actual and potential effects on the environment have been identified as including:

- Positive effects; and
- Air quality effects.

5.2 Positive effects

Following the landfill gas extraction system becoming operational the applicant expects a reduction in landfill gas emissions and an associated reduction in the odour associated with these emissions. The installation and operation of a flare will enable the landfill operators to capture and combust methane that would otherwise be discharged directly to air. This converts the methane to CO_2, which is a much less potent greenhouse gas.

This is considered to have a broadly positive effect on the environment - both with respect of positive impacts relating to climate change adaptation and the reduction of odour for nearby sensitive receivers in the Gibbston Valley.

5.3 Air quality effects

5.3.1 Overview of the potential odour effects

To support the installation of the landfill gas extraction system the applicant will need to retrospectively install components of the system into existing cells containing waste material. This will require drilling and excavation into those cells (as described in Section 3 of this AEE) and is expected to result in a temporary increase in odour and landfill gas discharge as putrescible material is temporarily exposed and the associated discharge of odorous gas is increased. This is expected to be particularly prevalent when excavating into historic areas of fill.

Notwithstanding this potential effect, the works are required to meet Condition 7A of the existing discharge permit (91464) and the requirements of the Air Quality NES. While there is no way to entirely avoid the potential effects upon air quality in the short-term, the consent holder will rely upon best-practice measures to mitigate the potential for adverse effects. These mitigations have been outlined in the Odour Management Plan (OMP) that has been prepared by Pattle Delamore Partners Ltd (PDP Ltd) and is attached to this AEE in Appendix D. The mitigations suggested within the OMP are summarised as follows:

- The applicant's current schedule would see much of the works undertaken in Summer, Autumn and Spring. This is proposed to maximise the potential for dispersion and minimise the potential for works to be undertaken during wintertime as far as practicable. While some works may still necessarily be undertaken in wintertime, this scheduling aims to minimise exposure to the frequent cold-calm weather conditions that are prevalent in winter and which give rise to poor dispersions and dilution of odour;
- The contractor will minimise the area of excavation open at any one time by staging the works to strip back, retrofit the landfill gas extraction system and then rehabilitate the open area by recovering before commencing work within another area. This will reduce the volume of odour being discharged;

- The contractor will utilise temporary cover material to contain open areas at the close of each day. This may include soil, mulch or spray-on pulp as appropriate;
- A BiOx spray cannon deodoriser will be located in the drilling / earthworks area. Deodoriser will be misted into the air when landfill gas is indicated by the landfill gas monitors or when noticeable odour is smelt by contractors; and
- The applicant will undertake daily odour monitoring in accordance with the procedures set out in Section 6.2 of the OMP.

The OMP identifies that the proposed retrofit of the landfill gas extraction system may result in increased odour when localised areas within the existing landfill are being opened, however it notes that these effects will be temporary and are necessary to minimise the future potential odour generation associated with landfill gas discharge, and to reduce the greenhouse gas emissions from the landfill (in the form of methane). As identified within the OMP, the operational mitigations identified represent best-practice measures to managing odour and will result in the adverse effects being appropriately mitigated at the source.

The majority of the odour complaints received in recent history have been from either users of SH6 or residents within Gibbston Valley (with residences located approximately 3 km to the west and 1.1 km to the east). Determining the level of effect associated with the generation of odour can generally be assessed using the FIDOL method, which includes characterising the frequency, intensity, duration, offensiveness and location of any odour to determine the associated level of effect. Considering the nature of the nearby receivers (as described in Section 2.2.2 of this AEE) and the fact that the majority of historic odour complaints have been received by either SH6 users or Gibbston residents, this assessment focuses upon the expected level of effect upon these two receivers.

5.3.2 SH6 users

The applicant notes that any effect upon the users of SH6 will be temporary in nature as users travel within the immediate vicinity of the landfill, with the severity of effect expected to dissipate as users travel further from the source. While the nearest point of SH6 is located proximate to the odour source and may result in a higher intensity of odour, users will experience the odour infrequently (with any one user expected to make only a small number of trips past the landfill each day) and will experience the odour within the context of a location that is not considered to be particularly sensitive (i.e. the amenity expectations of a road user can generally be considered lesser than those users of a park or reserve). As such the effects upon users of SH6 are expected to be less than minor, subject to the works being undertaken in general accordance with those mitigation measures identified within the OMP prepared by PDP Ltd.

5.3.3 Gibbston Valley residences

Residential receivers within the Gibbston Valley will be separated from the immediate source of odour by approximate 3 km (to the west) and 1 km (to the east) respectively. While a residential receiver represents a relatively sensitive receiving location (due to the higher level of amenity people expect to experience within their homes) the odour from existing landfill operations has generally been experienced on an infrequent basis during specific weather conditions. Furthermore, the separation distance to the nearby residences of approximately 3 km (to the west) and 1.1 km (to the east) both meet the guidance contained within the *Separation Distances for Industry* document prepared for Auckland Council. Subject to the works being undertaken in accordance with operational mitigations identified within the OMP prepared by PDP Ltd, these significant separation distances mean that any change in the intensity of perceived odour at these locations and associated with the proposed works would be negligible. This is considered to equate to a less than minor effect upon these residents.

5.4 Mitigation and monitoring

The applicant has appended to this application an OMP prepared by PDP Ltd that details the proposed approach to mitigation and monitoring.

6 Statutory assessment

6.1 RMA assessment

Section 104 of the RMA sets out the matters to which a consent authority must have regard to, subject to Part 2 of the RMA, when considering an application for resource consent. These are:

- Any actual and potential effects on the environment of allowing the activity (refer Section 5 above);
- Any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;
- Any relevant provisions of:
  - a national environmental standard;
  - other regulations;
  - a national policy statement;
  - a New Zealand coastal policy statement;
  - a regional policy statement or proposed regional policy statement;
  - a plan or proposed plan; and
- Any other matter the consent authority considers relevant and reasonably necessary to determine the application.

6.1.1 Part 2 of the RMA

Part 2 of the RMA sets out the purpose and principles of the Act. The purpose of the RMA is to promote the sustainable management of natural and physical resources.

Recent Court of Appeal case law (RJ Davidson Family Trust v Marlborough District Council [2018] NZCA 316) has found that the decision in Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd [2014] 1 NZLR 593 does not extend to preventing recourse to Part 2 in the case of resource consent applications under s104. The reference to Part 2 in section 104(1) "enlivens ss 5-8 in the case of applications for resource consent". But, where a plan is clear and directive and clearly deals with Part 2 subject matter, then recourse to Part 2 may not add much in the final judgement.

While acknowledging *Davidson* [2018], we have not undertaken an assessment of whether the plans have been competently prepared. Therefore, an assessment against Part 2 is provided below to assist if it is determined that a Part 2 assessment is required.

6.1.1.1 Section 5 – Purpose of the RMA

The proposed works are intended to improve and provide for the long-term use and sustainability of Victoria Flats Landfill, in turn providing for the health and safety of the community. The works are intended to meet the foreseeable needs of future generations and any adverse effects will be appropriately avoided, remedied or mitigated. The temporary nature of the work and associated effects, and long-term benefits of reducing greenhouse gases will provide for the protection of life-supporting capacity of air. The proposal is therefore found consistent with the purpose of the RMA.

6.1.1.2 Section 6 – Matters of National Importance

There are no matters of national importance found relevant to this application.

6.1.1.3 Section 7 – Other Matters

The following matters are considered relevant to this proposal:

c) the maintenance and enhancement of amenity values

f) maintenance and enhancement of the quality of the environment

i) the effects of climate change

Amenity values experienced by Gibbston Community associated with potential odours will be appropriately avoided, remedied and mitigated as outlined in Section 5.2 above. Additionally, the proposed works will minimise the effects of future odour emissions to enhance the quality of the environment. The LFG collection system will lessen greenhouse gas emission impacts in the medium to long term and associated contributions to the effects of climate change. For these reasons the proposal is considered to be consistent with section 7 matters.

6.1.1.4 Section 8 – Treaty of Waitangi

There is nothing within the proposal which is found contrary to the principles of Te Tiriti o Waitangi.

6.1.2 National Environmental Standard for Air Quality

The Resource Management (National Environmental Standard for Air Quality) Regulations 2004 (Air Quality NES) provide a regulatory framework which aims to guarantee a minimum level of health protection throughout New Zealand. The Air Quality NES requires that landfills over 1 million tonnes of refuse to collect landfill gas, which has triggered the requirement of works sought to be undertaken as part of this proposal.

Regulations 25 to 27 outline the control of landfill gas emissions at landfills, where the discharge of gas from a landfill is allowed if the landfill has a system for collection of the gas. Under regulation 26 the system must be designed and operated to ensure that any discharge of gas from the surface of the landfill does not exceed 5000 parts of methane per million parts of air, and the gas is flared in accordance with regulation 27 or used as a fuel for electricity generation.

The works associated with this resource consent application will enable QLDC to meet the requirements of the Air Quality NES, and the associated conditions placed upon its existing air discharge permit (97164.V2).

6.1.3 National Policy Statements

There are no National Policy Statements relevant to this application.

6.1.4 Otago Regional Policy Statement 2019

The Partially Operative Otago Regional Policy Statement 2019 is a strategic document outlining resource management issues facing the region, setting direction for future management of the regions natural and physical resources.

An assessment of the application against the relevant objectives and policies of the RPS are provided in **Table 6.1** below. Overall, the assessment finds that the application is consistent with the objectives and policies.

Table 6.1: Regional policy statement objectives and policies assessment

Objective/Policy	Comment
Objective 4.6 – Hazardous substances, contaminated land waste materials do not harm human health or the quality of the environment in Otago	Discharges from the proposed works will not cause harm to human health or degrade the quality of the environment. The development of a landfill gas extraction system will reduce greenhouse gas emissions, improving environmental quality long-term. Releases of landfill gas and additional odour during construction will be temporary, and works will be staged to mitigate these effects as far as practicable. Overall the proposed work is found consistent with Objective 4.6 and Policy 4.6.8[43]
Policy 4.6.8[43] – Waste Management *Waste storage, recycling, recovery, treatment and disposal of waste materials by undertaking all of the following:* *a) providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of waste materials;* *b) ensuring the health and safety of people;* *c) minimising adverse effects on the environment;*	
Objective 5.4 – Adverse effects of using and enjoying Otago's natural and physical resources are minimised	The effects of landfill gas and associated waste odours produced during retrofitting of the landfill gas extraction system will be appropriately managed where works will be undertaken at times of the year to maximise dispersion, excavations will be undertaken using a staged approach and open areas will be covered using temporary materials such as sprays and tarpaulins. The landfill gas extraction system is intended to minimise greenhouse gas emissions arising from the landfill and provide for better long-term ambient air quality. The proposed work is found consistent with Policies 5.4.1[48] and 5.4.4, and Objective 5.4
Policy 5.4.1[48] – Offensive or Objectionable Discharges *Manage offensive or objectionable discharges to land, water and air by:* *a) avoiding significant adverse effects of those discharges;* *c) avoiding, remedying or mitigating other adverse effects of those discharges*	
Policy 5.4.4 – Emission Standards *Apply emission standards within airsheds, to achieve ambient air quality that supports good human health*	

6.1.5 Regional Plan assessment

The Waste Plan promotes the sustainable management of waste within the Otago Region through the setting of objectives, policies and methods which address waste issues with an integrated approach that aims to reduce the adverse effects associated with Otago's waste stream.

An assessment of the application against the relevant objectives and policies of the Waste Plan are provided in **Table 6.2** below. Overall, the assessment finds the application is consistent with the objectives and policies.

Table 6.2: Regional Air Plan objectives and policies assessment

Objective/Policy	Comment
Objective 7.3.1 – To avoid remedy or mitigate the adverse environmental effects arising from the discharge of contaminants at and from landfills	Localised effects from the discharges to air associated with construction of the new landfill gas extraction system will be appropriately avoided, remedied or mitigated through the use of the best-practice mitigations identified in the OMP and in Sections 3 and 5 of this AEE. This will, to the extent possible, mitigate the effects of landfill gas discharge and the associated waste odour on the receiving environment during construction.
Policy 7.4.1 – To recognise and provide for the relationship Kai Tahu have with Otago's natural and physical resources through: *a. Providing for the management and disposal of Otago's waste in a manner that takes into account Kai Tahu cultural values; and*	

b. Supporting waste disposal methods which avoid, remedy or mitigate adverse effects on the environment and the mauri of its natural and physical resources; and *c. Protecting waahi tapu and waahi takoa from waste management practices; and* *d. Ensuring Kai Tahu access to waahi tapu and waahi takoa is not compromised by waste management practices; and* *e. Acknowledging that future generations will inherit the results of good and bad waste management practices; and* *f. Maintaining consultation with Kai Tahu on issues relating to landfill management.*	Once the landfill gas extraction and destruction system is operational the landfill is expected to have a significantly reduced environmental effect when compared to the existing operation. The installation and operation of a flare will enable the landfill operator to capture and combust methane that would otherwise be discharged directly to air. This converts the methane to CO_2, which is a much less potent greenhouse gas, resulting in a lesser greenhouse effect from the associated discharge of landfill gas to the atmosphere. This will assist in mitigating the effects of climate change and protecting Otago's natural resources into the future, enabling future generations to inherit an improved waste management system. Overall the proposed works are found consistent with Objective 7.3.1 and Policies 7.4.1 and 7.4.7 of the Waste Plan.
Policy 7.4.7 – To upgrade where possible or close those landfill sites causing adverse effects	
Policy 7.4.4 – To monitor discharges to land, water and air from new, operating and closed landfills	As detailed within the OMP, the applicant has volunteered a comprehensive approach to monitoring the odour associated with the establishment of the LFG collection system, and the proposal is therefore considered consistent with Policy 7.4.4 of the Waste Plan.

6.2 Sections 105

Sections 105 is relevant to applications for discharges under section 15. Section 105 requires the consent authority to have regard to the nature of the discharge and the sensitivity of the receiving environment, the applicant's reasons for the proposed choice and possible alternative methods of discharge. These matters have been addressed throughout this report, particularly in Section 2 which describes the receiving environments, Section 5 which assesses the effects on the environment, and Section 3.2 which addresses potential alternatives.

6.3 Other matters

There are no other matters considered relevant to this application.

6.4 Notification assessment

6.4.1 Public notification

Section 95A of the RMA is relevant when a consent authority is considering whether a consent application should be considered with or without public notification.

Section 95A identifies a four-step process. In relation to these steps we note the following:

- The applicant does not request public notification of the application;
- There is no rule or national environmental standard that precludes or requires public notification of this application;
- An assessment of effects on the environment is provided in Section 5 of this AEE report. This assessment concludes that the adverse effects on the environment are likely to be no more than minor;

- The application is not for any of the activities identified in section 95A(5)(b) (i.e. a controlled activity, subdivision of land or a residential activities, a boundary activity, or an activity prescribed in section 360H(1)(a)(i));
- No special circumstances are considered to exist in relation to the application.

Based on this assessment, we consider that this proposal meets the tests of the RMA to be processed without public notification.

6.4.2 Limited notification

For applications that are not publicly notified, under section 95B, the consent authority must determine whether to give limited notification of an application to any affected parties. Section 95B identifies a four step process. In relation to these steps we note the following:

- The application does not need to be notified to any parties under section 95B(4). The proposed change will not affect any customary rights;
- The proposed activity is not on or adjacent to, or does not affect, land that is the subject of a statutory acknowledgement;
- There are no applicable rules or national environmental standards precluding limited notification;
- No special circumstances are considered to exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification.

Section 95E(1) states that a consent authority must consider a person to be an affected person if the activity's adverse effects on the person are minor or more than minor (but not less than minor). Taking into account the nature and significance of the likely odour effects (described in Section 5 of this AEE) there are not considered to be any affected parties.

Based on this assessment, we consider that this proposal meets the tests of the RMA to be processed without limited notification.

6.4.3 Section 95 conclusions

Following the steps set out in sections 95A and 95B, we consider that the application should be processed without public or limited notification.

7 Consultation

The applicant acknowledges that odour generation from the VFL has been an issue that has resulted in numerous odour complaints to ORC over the past several years. In light of this, QLDC has undertaken communication with numerous parties – as outlined below:

7.1 Gibbston Valley Community engagement

QLDC has been engaging with the Gibbston Valley community to inform them of the work required to install the landfill gas extraction and destruction system.

This community is represented by the Gibbston Community Association, which is run by a committee elected by the community. QLDC invited the committee to visit the landfill, view the operations and have the LFG system explained to them, so that they could feed that information back to the community. The Chairman of the committee accepted the offer and has visited the site, with communications continuing following that visit. There is an agreement between the Chairman and QLDC that each party will update the other on what's happening with respect to this project, including any issues or concerns as the works progress. Agreement has been reached that if there are any odour issues associated with the works that QLDC will remain in contact with the Gibbston Community through the Chairman and the committee. It is expected that this will provide an avenue to inform that community of how works are progressing, what forms of odour mitigation are in place and whether any further opportunities exist to further mitigate odour, along with providing community members with an avenue to voice their own concerns or raise questions.

7.2 Otago Regional Council presentation

QLDC staff and its advisors presented to ORC Councillors in August 2019, outlining the need for a landfill gas capture and destruction system and the progress made with regards to design and proposed construction works. This presentation also provided councillors with the opportunity to ask questions about the project.

7.3 Signage installed on SH6

Two signs have been installed on SH6 informing users that a Landfill Upgrade Project is underway between November 2019 and December 2020, and that odour is possible.

7.4 Media release

A media release was made in December 2019 informing the wider community of the project and providing interested parties with the contact details of the QLDC communications team. This release was also shared with Central Otago District Council (CODC).

8 Conclusion

This AEE report has been prepared on behalf of QLDC to accompany a resource consent application to authorise the discharge of landfill gas, dust and odour to air associated with the installation of a landfill gas extraction and destruction system, as detailed in Section 3 of this AEE. This requires resource consent from ORC as a discretionary activity under Rule 7.6.1 of the Waste Plan.

This AEE report draws the following conclusions:

- The works are consistent with Part 2 of the Resource Management Act 1991;
- The works are consistent with the relevant objectives and policies of the Air Quality NES, the Regional Policy Statement and the Waste Plan;
- The proposed works are expected to have broadly positive effects on the environment. The project will enabling landfill gas to be appropriately captured and destroyed and resulting in a long-term decrease in landfill-gas related discharges; and
- The proposed works are expected to have a no more than minor adverse effect on the environment at the source, and a less than minor at any nearby sensitive receiver.

Accordingly, we respectfully request that this resource consent application be granted on a non-notified basis, subject to fair and reasonable conditions. We would appreciate the opportunity to comment on draft conditions prior to any consent being granted.

9 Applicability

This report has been prepared for the exclusive use of our client Queenstown Lakes District Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that this report will be submitted to ORC in support of an application for resource consent for the works described herein, and that council will rely on this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
	
.....	.....
Alastair Meehan Planner	Simonne Eldridge Project Director

30-Jan-20

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Appendix A: Consent application forms

1 Resource Consent Application

Otago Regional Council

This application is made under Section 88 of the Resource Management Act 1991.

(For Office Use Only)
Deposit Paid: $

Charges / Deposits

A deposit **must** accompany the application (see page **8** for amounts). The applicant will be invoiced for all costs incurred in processing this application that exceed the deposit.

Council can accept electronic lodgement of applications if sent to consents.applications@orc.govt.nz. Include "consent application" in the subject line.

Please complete the application in pen. For questions marked with an * you will find notes on page 4

1.* Applicant(s) Details

Applicant(s) name(s) in full: Queenstown Lakes District Council

OR Company Name (in full) _____

OR Names of Trustees (in full) if Applicant is a Trust _____

or Name of Incorporation _____

Postal Address 10 Gorge Road, Queenstown

Post Code _____

Street Address
(not a P O box number) _____

Post Code _____

Phone Number Business (03) 441 0484 Private _____

Mobile _____ Fax _____

Email Address Laura.Gledhill@qldc.govt.nz

Please provide a valid and clear email address. Otago Regional Council is moving to a paperless consenting process – therefore any correspondence including decision documents and consent (if granted) will be sent via email, unless you request a paper copy.

If you do not prefer contact by electronic means, please tick ☐

1(a). Key Contact for Applicant Details

If the applicant consists of multiple parties (e.g. multiple consent holders, Trust etc) please outline who the key contact for the consent will be, if granted.

Key contact name(s) in full: Laura Gledhill

Postal Address 10 Gorge Road, Queenstown

Post Code _____

Street Address _____
(not a P O box number) _____
_____ Post Code _____

Phone Number Business (03) 441 0484 Private _____
Mobile Fax _____

Email Address Laura.Gledhill@qldc.govt.nz

Please provide a valid and clear email address. Otago Regional Council is moving to a paperless consenting process – therefore any correspondence including decision documents and consent (if granted) will be sent via email, unless you request a paper copy.

If you do not prefer contact by electronic means, please tick ☐

2.* Consultant/Contact Details (if not applicant)

Name of Consultant/ Contact Person: Tonkin + Taylor (C/- Alastair Meehan)

Postal Address PO Box 2083, Wellington
Post Code 6140

Phone Number Business (04) 806 4964 Private _____
Mobile 027 469 8034 Fax _____

Email Address _____

Please provide a valid and clear email address. Otago Regional Council is moving to a paperless consenting process – therefore any correspondence including decision documents and consent (if granted) will be sent via email, unless you request a paper copy.

If you do not prefer contact by electronic means, please tick ☐

3. On Site Supervisor/Manager Contact Details (if applicable)

Name of On Site Supervisor/Manager Person:

Postal Address _____
_____
_____ Post Code _____

Phone Number Business _____ Private _____
Mobile _____ Fax _____

Email Address _____

Please provide a valid and clear email address. Otago Regional Council is moving to a paperless consenting process – therefore any correspondence including decision documents and consent (if granted) will be sent via email, unless you request a paper copy.

If you do not prefer contact by electronic means, please tick ☐

4.* a) Are there any current or expired resource consents relating to this proposal?

X Yes ☐ No

If yes, give Consent Number(s) and Description: Refer to the attached AEE

_____
_____

b) Do you agree to your current consent automatically being surrendered should a replacement consent be issued.

☐ Yes ☒ No

c) Has there been a previous application for this activity that was returned as incomplete?

☐ Yes ☒ No

If yes, give Consent Number(s) and Description: _____

_____

_____

d) Have you a pre-application lodged with Council for this activity?

☐ Yes ☒ No

If yes, give pre-application Number(s) and Description: _____

_____

_____

e) Have you spoken to a Council staff member about this application prior to lodging this application?

☒ Yes ☐ No If yes, please state name of staff member _____

5. The applicant is (tick one): ☒ owner ☐ leasee ☐ prospective purchaser **of the land on which the activity occurs.**

6*. Who is the owner of the land on which the activity occurs/is to occur? (only complete if applicant is not the landowner)

Name of landowner: _____

Postal Address _____

_____

_____ Post Code _____

Phone Number Business _____ Private _____

Mobile _____ Fax _____

Email Address _____

7*. Who is the occupier of the land on which the activity occurs/is to occur? (only complete if the applicant is not the land occupier)

Name of land occupier Scope Resources Ltd (C/- Vanessa) _____

Postal Address _____

_____

_____ Post Code _____

Phone Number Business _____ Private _____

Mobile 027 229 6008 Fax _____

Email Address vanessa@absolved.co.nz _____

8*. Who leases the land on which the activity occurs/is to occur? (only complete if land is leased and it is not leased to the applicant)

Name of land leasee _____

Postal Address _____

_____

_____ Post Code _____

Phone Number Business _____ Private _____

Mobile _____ Fax _____

Email Address _____

9. Tick the consents required in relation to this proposal:

Water

☐ Take Surface Water ☐ Divert

☐ Take Groundwater ☐ Dam

Discharge onto or into:

☐ Land ☐ Water ☒ Air

Land Use:

☐ Bore construction ☐ Bore alteration

☐ Activities in or on beds of lakes or rivers or floodbanks

☐ Disturbance of contaminated land

Coastal: ☐ Activities in the coastal marine area (i.e., below mean high water spring tide)?

Where you have indicated the type of consent that is required, you must complete the appropriate Application Form before your application can be processed. Application Forms can be found on the Council's website: www.orc.govt.nz.

10. What is the maximum term of consent you are seeking? 2 years

11.Territorial Local Authority in which activity is situated?

☐ Dunedin City Council ☒ Queenstown Lakes District Council

☐ Clutha District Council ☐ Waitaki District Council

☐ Central Otago District Council

12*. Do you require any other resource consent from any local authority for this activity?

☐ Yes ☒ No

If Yes, please list: _____

Have these consents been applied for/issued? ☐ Yes ☐ No If Yes

If Yes, please give the date applied for or issued: _____

Notes on Application Form Details

1. **Applicant(s) Details**

A resource consent can only be held by a legal organisation or fully named individual(s). A legal organisation includes a limited company, incorporated group or registered trust. If the application is for a trust the full names of all trustees are required. If the application is not for a limited company, incorporated group or trust, then you must use fully named individual(s).

2. **Consultant/Contact Details**

If you are using a consultant/agent for this application put their details here. If you are not, leave question 2 blank.

4 Previous Consent

Do you currently have a resource consent to do the activity that you are applying to renew with this application? If so, please enter the permit number if known and a brief description including the date of issue and the expiry date.

6-8 **Landowner, occupier and leasee**

If you are not the landowner, land occupier or leasee of the land where the activity will be undertaken, you may be required to obtain their unconditional written approval to your application. On pg 6 there is a form that can be used.

12. **Additional Consents**

If you are carrying out earthworks or building work you may need other consents from either the ORC or your Territorial Local Authority.

Declaration

Before signing the declaration below, in order to provide a complete application have you remembered to:

Fully completed this Form 1 and the necessary Application Forms ☑

Attached the required deposit.(or pay on line) (see page 8 for deposit that is payable) ☑
Cheques payable to Otago Regional Council

Please note: your deposit may not cover the entire cost of processing your application. At the end of the application process you will be invoiced for any costs that exceed the deposit. Interim invoices may be sent out for applications, where appropriate.
If the required deposit does not accompany your application, staff will contact you on the phone number provided on this form to request payment, and after 3 working days your application will returned if no payment is made for the required deposit.

I/we hereby certify that to the best of my/our knowledge and belief, the information given in this application is true and correct.

I/we undertake to pay all actual and reasonable application processing costs incurred by the Otago Regional Council.

Name/s LAURA GLEDHILL
(BLOCK CAPITALS)

Signature/s _____
(or person authorised to sign on behalf of applicant)

Designation CONTRACTS MANAGER Date 28/01/2020
(e.g., owner, manager, consultant)

Otago Regional Council Postal Address: 70 Stafford St, Private Bag 1954, Dunedin 9054

Consultation

– (consultation is not compulsory, but it can make a process easier and reduce costs).

Under Section 95E of the Resource Management Act 1991 (the Act) the Council will identify affected parties to an application and if the application is to be processed on a non-notified basis the unconditional written approval of affected parties will be required. Consultation with potentially affected parties and interested parties can be commenced prior to lodging the application.

Consultation may be required with the appropriate Tangata Whenua for the area. The address of the local Iwi office is: Aukaha, 258 Stuart Street, P O Box 446, Dunedin, Fax (03)477-0072, Phone (03) 477-0071, email: info@aukaha.co.nz. If you require further advice please contact the Otago Regional Council.

Good consultation practices include:

- Giving people sufficient information to understand your proposal and the likely effects it may have on them
- Allowing sufficient time for them to assess and respond to the information
- Considering and taking into account their responses

Written approval forms are appended to this form on Page 9.

Information Requirements

In order for any consent application to be processed efficiently in the minimum time and at minimum cost, it is critical that as much relevant information as possible is included with the application**. Where an application is significantly incomplete, the Consent Authority may decide not to accept the application for processing.**

Resource Management Act 1991
FOURTH SCHEDULE—ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

(Below are the provisions of the 4th schedule of the Act, which describes what must be in an application for resource consent, as amended in 2015.)

1 Information must be specified in sufficient detail

Any information required by this schedule, including an assessment under clause 2(1)(f) or (g), must be specified in sufficient detail to satisfy the purpose for which it is required.

2 Information required in all applications

(1) An application for a resource consent for an activity (the **activity**) must include the following:

(a) a description of the activity:

(b) a description of the site at which the activity is to occur:

(c) the full name and address of each owner or occupier of the site:

(d) a description of any other activities that are part of the proposal to which the application relates:

(e) a description of any other resource consents required for the proposal to which the application relates:

(f) an assessment of the activity against the matters set out in Part 2:

(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b). *("document" includes regional & district plans, regulations*, *national policy statements, iwi plans*)

(2) The assessment under subclause (1)(g) must include an assessment of the activity against—

(a) any relevant objectives, policies, or rules in a document; and

(b) any relevant requirements, conditions, or permissions in any rules in a document; and

(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).

(3) An application must also include an assessment of the activity's effects on the environment that—

(a) includes the information required by clause 6; and

(b) addresses the matters specified in clause 7; and

(c) includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

3 Additional information required in some applications

An application must also include any of the following that apply:

(a) if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):

(b) if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):"(c) if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)

4 (relates to subdivisions- *not included here as subdivisions not ORC jurisdiction.)*

5 Additional information required in application for reclamation

An application for a resource consent for reclamation must also include information to show the area to be reclaimed, including the following:

(a) the location of the area:

(b) if practicable, the position of all new boundaries:

(c) any part of the area to be set aside as an esplanade reserve or esplanade strip.

Assessment of environmental effects

6 Information required in assessment of environmental effects

(1) An assessment of the activity's effects on the environment must include the following information:

(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:

(b) an assessment of the actual or potential effect on the environment of the activity:

(c) if the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment that are likely to arise from such use:

(d) if the activity includes the discharge of any contaminant, a description of—

(i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and

(ii) any possible alternative methods of discharge, including discharge into any other receiving environment:

(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:

(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:

(g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:

(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).

(2) A requirement to include information in the assessment of environmental effects is subject to the provisions of any policy statement or plan.

(3) To avoid doubt, subclause (1)(f) obliges an applicant to report as to the persons identified as being affected by the proposal, but does not—

(a) oblige the applicant to consult any person; or

(b) create any ground for expecting that the applicant will consult any person.

7 Matters that must be addressed by assessment of environmental effects

(1) An assessment of the activity's effects on the environment must address the following matters:

(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:

(b) any physical effect on the locality, including any landscape and visual effects:

(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:

(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:

(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:

(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or the use of hazardous substances or hazardous installations.

(2) The requirement to address a matter in the assessment of environmental effects is subject to the provisions of any policy statement or plan.

Set out below are details of the amounts payable for those activities to be funded by fees and charges, as authorised by s36(1) of the Resource Management Act 1991.

Resource Consent Application Fees (from 1 July 2018)

Note that the fees shown below are a **deposit** to be paid on lodgement of a consent application and applications for exemptions in respect of water metering devices. This deposit will not usually cover the full cost of processing the application, and further costs are incurred at the rate shown in the scale of charges. GST is included in all fees and charges.

If you wish to make a payment via internet banking, or on line, the details are below. Please note the applicants name and "consent application" should be used as reference when paying the deposit -

For on line payments go to www.orc.govt.nz and go to Home/ Rates/ Way to Pay and follow prompts

Publicly Notified Applications: [3]	**$**
First application	5,000.00
Concurrent applications	225.00

Non Notified Applications and Limited Notified Applications: [3]	**$**
First application (except those below)	1,000.00
Concurrent applications [1]	50.00
Variation to conditions – s127	1,000.00
Administrative variation – s127	500.00
Exemptions from water measuring Regulations	200.00
Bores	500.00
Gravel	500.00

Hearings	Per Note 2 below
Payment for Commissioner request – s100A	Per Note 4 below

Objections	
Payment for Commissioner request – s357AB	Per Note 4 below

Transfers and Certificates Deposits:	**$**
Transfer of permits and consents	100.00
Priority Table	100.00
Section 417 Certificate	200.00
Certificate of Compliance	200.00
Section 125 – Extension of lapse date	100.00
All Other Costs	As per Scale of Charges

Scale of Charges:	**From 1 July 2018 $**
Staff time per hour:	
* Executive staff	235.00
* Senior Technical/Scientist	170.00
* Technical/Scientist	125.00
* Field Staff	100.00
* Administration	85.00
Disbursements	Actual
Additional site notice	Actual
Advertisements	Actual
Vehicle use per kilometre	0.70
Travel and accommodation	Actual
Testing charges	Actual
Consultants	Actual
Commissioners	Actual
Photocopying and printing	Actual
Councillor hearing fees per hour	
*Chairperson	100
*Member	80
*Expenses	Actual

Notes

1. For additional permits in respect of the same site, activity, applicant, time of application, and closely related effect as the first application.

2. The deposit payable shall be 90% of the cost of a hearing as calculated by Council in accordance with information contained in the application file and using the scale of charges. The amount payable will be due at least 10 working days before the commencement of the hearing. If the amount is not paid by the due date, then the Otago Regional Council reserves the right under S36 (7) of the Resource Management Act to stop processing the application. This may include cancellation of the hearing.

Should a hearing be cancelled or postponed due to the non payment of the charge, the applicant will be invoiced for any costs that arise from that cancellation or postponement.

Following completion of the hearing process, any shortfall in the recovery of hearing costs will be invoiced, or any over recovery will be refunded to the applicant.

Under Section 100A of the RMA, one or more submitters may make a request to have a resource consent application heard by one or more hearing commissioners who are not members of Council. In this case the applicant will pay the amount that Council estimates it would cost for the application to be heard had the request not been made, and the submitter(s) who made the request will pay, in equal shares, the cost of the application being heard that exceeds that amount payable by the applicant.

Further, the applicant may request to have a resource consent application heard by one or more hearing commissioners who are not members of Council. In this case, the applicant will pay the full costs.

3. Where actual and reasonable costs are less than the deposit paid, a refund will be given.

4. Where an applicant requests under s100A (for a consent hearing) or under s357AB (for the hearing of an objection) an independent commissioner(s); the applicant will be required to pay any increase in cost of having the commissioner(s).

   Where a submitter(s) requests under s100A an independent commissioner(s) any increase in costs that is in addition to what the applicant would have paid shall be paid by the submitter. If there is more than one submitter who has made such request the costs shall be evenly shared.

Administrative Charges
The following one-off administration charges shall apply to all resource consent applications received:

Publicly Notified and Limited Notified Applications	**$**
First application	100.00
Concurrent applications	50.00

Non-Notified Applications	**$**
First application	50.00
Concurrent applications	25.00

Other	**$**
Certificate of Compliance	25.00
Section 417 Certificate	25.00
Exemptions from water metering regulations	25.00

Review of Consent Conditions
Following the granting of a consent, a subsequent review of consent conditions may be carried out at either request of the consent holder, or, as authorised under Section 128, as a requirement of Council. Costs incurred in undertaking such reviews will be payable by the consent holder at the rates shown in the Scale of Charges above.

Reviews initiated by Council will not be charged to consent holders.

Compliance Monitoring Charges (from 1 July 2017)

1. Performance Monitoring
The following charges will apply to the review of performance monitoring reports for all consent holders, except those listed in section 1.6 below. The charges shown are annual fixed fees per performance monitoring report or plan, and are inclusive of GST.

		From 1 July 2017
1.1 Discharge to Air Consent		***$***
Measurement of contaminants from a Stack report		86.00
Ambient air quality measurement of contaminants report		100.00
Management plans and maintenance records		33.50
Annual Assessment report		66.50
1.2 Discharge to Water, Land and Coast		***$***
• Effluent Systems	Environmental Quality report	46.50
	Installation producer statements	60.00
	Return of flow/discharge records	60.00
• Active Landfills	Environmental Quality report	58.00
	Management Plans	130.00
• Industrial Discharges	Effluent quality report	42.00
	Environmental report	92.50
	Return of flow/discharge records	60.00
Annual Assessment report		50.00
Management Plans – minor environmental effects		130.00
Management Plans – major environmental effects		260.00
Maintenance records		30.00

1.3 Water Takes

Verification reports	60.00
Annual assessment report	50.00
Manual return of data per take	80.00
Datalogger return of data per take sent to the ORC	50.00
Telemetry data per consent	35.00
Administration fee – water regulations	100.00
Low flow monitoring charge*	
- Kakanui at McCones	327.00
- Unnamed Stream at Gemmels	1,431.00

*Charge for monitoring sites established by the ORC specifically to monitor consented activities in relation to river flows.

1.4 Structures

Inspection reports for small dams	130.00
Inspection reports for large dams	260.00
Structure integrity reports	80.00

1.5 Photographs

Provision of photos	60.00

1.6 Set Fees for Specific Consent Holders

Performance monitoring fees will be charges as 75% of actual costs for the following consent holders

Dunedin City Council
Central Otago District Council
Clutha District Council
Queenstown Lakes District Council
Waitaki District Council
Ravensdown
Contact Energy
Trustpower
Pioneer Generation

Additional charges may be incurred for new consents granted during the year.

2. Audit

Audit work will be charged at half of the actual cost incurred, with the actual costs being calculated using the Scale of Charges.

3. Non-Compliance, Incidents and Complaints

Enforcement work on consent conditions, and remedying negative effects from permitted activities – Scale of Charges.

Gravel Inspection and Management

Gravel extraction fee – $0.66 per cubic metre (incl. GST). Where more than 10,000 cubic metres of gravel is extracted within a prior notified continuous two month period, the actual inspection and management costs will be charged, as approved by the Director Corporate Services.

Written Approvals of Persons Likely to be Adversely Affected

I/We (Please print full name/s)_____ _____

of (Address) _____

I /we have read the full application for the proposal by (Applicant)

_____

for a Resource Consent (Number) _____ to _____

_____
and give my/our written approval to the proposed activity/activities.

In signing this written approval I/we understand that:

- The consent authority must decide that I/we am/are no longer an affected person, and disregard adverse effects on me/us
- That /we I may withdraw my/our written approval in writing before the hearing, or if no hearing before a decision is made on the application.

Signature/s_____ Date _____
(or person authorised to sign on behalf of affected party/parties)

Phone _____ Fax _____ Email _____

Please note: If this application is subsequently notified the above approval does not constitute a submission as required under Section 96 of the Resource Management Act 1991.

Written Approvals of Persons Likely to be Adversely Affected

I/We (Please print full name/s)_____ _____

of (Address) _____

I /we have read the full application for the proposal by (Applicant)

_____

for a Resource Consent (Number) _____ to _____

_____
and give my/our written approval to the proposed activity/activities.

In signing this written approval I/we understand that:

- The consent authority must decide that I/we am/are no longer an affected person, and disregard adverse effects on me/us
- That /we I may withdraw my/our written approval in writing before the hearing, or if no hearing before a decision is made on the application.

Signature/s_____ Date _____
(or person authorised to sign on behalf of affected party/parties)

Phone _____ Fax _____ Email _____

Please note: If this application is subsequently notified the above approval does not constitute a submission as required under Section 96 of the Resource Management Act 1991.

8 Application To Discharge Contaminants To Air

Otago Regional Council

(For Office Use Only)

Consent No.: _____

Please provide an accurate plan showing the location of the site, existing works or works to be constructed, property boundaries and neighbouring properties.

Part A: General

1. **Process Details**

   (a) Please supply a detailed flow chart and description of the process that results in either a discharge to the atmosphere, or could potentially result in a discharge to air.

2. **Discharge Details**

   (a) Describe the contaminant discharged and quantities: _____

   Landfill gas and odour - please refer to attached AEE for more information

   (b) Has there been carried out, or do you have access to, any discharge, monitoring, or monitoring of impacts of the discharges? Yes [x] No [ ]

   (If yes, please supply a copy of the information obtained.)

   (c) Has any meteorological data relevant to the site been obtained? Yes [x] No [ ]

   (If yes, please give details and, if possible, a copy/summary of the information obtained.)

   (d) Describe the type of land use surrounding the site (eg. north, residential – closest 500m; south, industrial, etc): Refer to Section 2 of the AEE

   (e) What alternative methods of disposal or discharge have you considered? Refer to the attached AEE

   (f) How is the equipment controlling the discharge operated and maintained to prevent equipment failure, and what measures are implemented to ensure that the effects of any malfunction are remedied? Refer to Section 3 of the AEE

   (g) What, if any, monitoring do you carry out to ensure that the discharge does not have an adverse effect? Refer to Section 5 of the AEE and the associated Odour Management Plan (OMP)

   (h) Please provide the following discharge information relevant to your process. (See overleaf)

Air Discharge Permit Information

Combustion Processes (metric units should be used)

- Type of fuel, sulphur content, amount used.
- Describe combustion processes and details of boiler or heat unit.
- Maximum heat release rate (kilowatts, megawatts).
- Concentration of contaminants in discharge (mg/m^3).
- Height of discharge point (chimney(s)).
- Height of building the chimney is attached to.
- Describe fitting on top of chimney(s), cone, rain excluded, Chinaman's hat).
- Frequency of discharge (hours of operation).
- Describe air pollution control equipment.
- Velocity of flue gas (m/s).
- Monitoring system (for checking and recording discharge).
- Location of discharge points in relation to factory and boundaries.
- Condition of boiler or heat unit, chimney and details of last service.
- Insulation of chimney.

Quarries

- Describe quarrying process.
- Type of rock being mined.
- Open cast extraction capacity (tonnes/hour).
- Size reduction and screening capacity (tonnes/hour).
- Storage capacity (tonnes/hour).
- Dust control measures.
- Monitoring systems (for checking and recording dust emissions).
- Frequency of discharge (i.e., hours of operation).
- Quarry management plan.

Wood Processing Industries

- Describe the process.
- Describe air pollution control equipment (including height of discharge point(s), exhaust flow and velocity).
- Monitoring system (for checking and recording discharge(s)).
- Particulate emission test (to determine dust concentration and mass emission levels discharged from the vent, measured over three runs, with all wood sanding equipment working at the same time).
- Frequency of discharge (i.e., hours of operation).
- Location of discharge points in relation to the premises and neighbouring premises.

Chemical Manufacturing Blending Processes/Electroplating

- Describe the process.
- Describe air pollution control equipment including fan flow rates.
- Monitoring system (for checking and recording discharge).
- Frequency of discharge (i.e., hours of operation).
- Distance of discharge points from neighbouring premises.
- Raw material capacity of operation? or product rate.
- Height of discharge points.

Air Discharge Permit Information (continued)

Abrasive Blasting

- Describe the process and details of blasting chamber, blasting media used.
- Describe air pollution control equipment and height of discharge points, velocity of gases, fitting on top of vent(s).
- Particulate emission tests (to determine dust concentration and mass emission levels discharged from the vent, measured over three runs).
- Monitoring system (for checking and recording discharge).
- Frequency of discharge (i.e., hours of operation).
- Distance of discharge points from neighbouring premises.

Wool Scourers and Tanneries

- Describe the process.
- Describe air pollution control equipment and height of discharge point(s), fitting on top of vent(s).
- Monitoring system (for checking and recording discharge).
- Describe raw material capacity of operation.
- Frequency of discharge (i.e., hours of operation).
- Distance of discharge points from neighbouring premises.

Spray Painting Process

- Describe the process and details of spray painting booth.
- Describe air pollution control equipment and height of discharge point(s), velocity of gases, fitting on top of vent(s).
- Describe paints and solvents used (provide MSDS where available).
- Paint and solvent usage rates.
- Distance of discharge points from neighbouring premises.

Concrete Manufacturing Plants

- Describe the process.
- Give details of raw material capacity (tonnes/hour).
- Dust control measures.
- Hours of operation.
- Monitoring system (for checking and recording dust).

Foundries

- Describe the process, raw materials used, products made and equipment used.
- Give details of raw material capacity (tonnes/hour) and tonnes/hour product made.
- Hours of operation.
- Describe air pollution control equipment and height of discharge point(s), velocity of gases, fitting on top of vent(s).
- Monitoring system for discharges.

Air Discharge Permit Information (continued)

Rendering Process

- Describe the rendering process (high/low temperature, drying, etc.).
- Describe combustion process (if applicable, i.e., type of combustion process, fuel used, fuel combustion rate, contaminants released to air, exit velocity, concentration).
- Describe air pollution control equipment.
- Height and number of discharge point(s) and any fitting on top of vent(s).
- Hours of operation.
- Distance of discharge points from neighbouring premises.

Asphalt Production

- Describe the process, including dust control equipment.
- Give details of raw material capacity (tonnes/hour).
- Hours of operation.
- Monitoring systems.

Coffee Roasting Processes/Vegetable Frying Processes

- Describe roasting process (roast or frying cycle, maximum raw material capacity (kg/hr).
- Describe combustion process (if applicable, i.e., type of combustion processes, fuel used, fuel combustion rate).
- Describe air pollution control equipment.
- Height and number of discharge point(s) describe fitting on top of vent(s).
- Hours of operation.
- Monitoring system (for checking and recording discharge).
- Distance of discharge points from neighbouring premises.

Other Processes

- Describe the process.
- Describe air pollution control equipment.
- Hours of operation.
- Monitoring systems, for recording discharges.

Part B: Assessment of Effects on the Environment

Where your activity could have an effect on the environment an assessment of environmental effects is required in accordance with the Fourth Schedule of the Resource Management Act 1991.

1. Comment on all possible effects the discharge may have on the quality of the receiving air, persons living in the area and local plant and animal life:

Please refer to the attached AEE - in particular Sections 3 (describing the proposal) and 5 (describing the likely effects)

(Continue on a separate sheet if necessary)

2. In the vicinity of the discharge are there any:

		Yes	No
(a)	Residential developments?	x	☐
(b)	Production land (eg., crops, dairy farming)?	x	☐
(c)	Recreational activities carried out (eg sports grounds, parks etc)?	x	☐
(d)	Sources of similar on other discharges to air?	☐	x
(e)	Areas of particular aesthetic or scientific value (e.g., scenic views etc)?	☐	x
(f)	Areas or aspects of significance to Iwi?	☐	x
(g)	Commercial activities (eg. office blocks)?	x	☐

If you have answered yes to any of the above, describe what effects your discharge may have and the steps you propose to mitigate these:

Refer to Section 5 of the AEE

(Continue on a separate sheet if necessary)

Appendix B: Certificate of Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

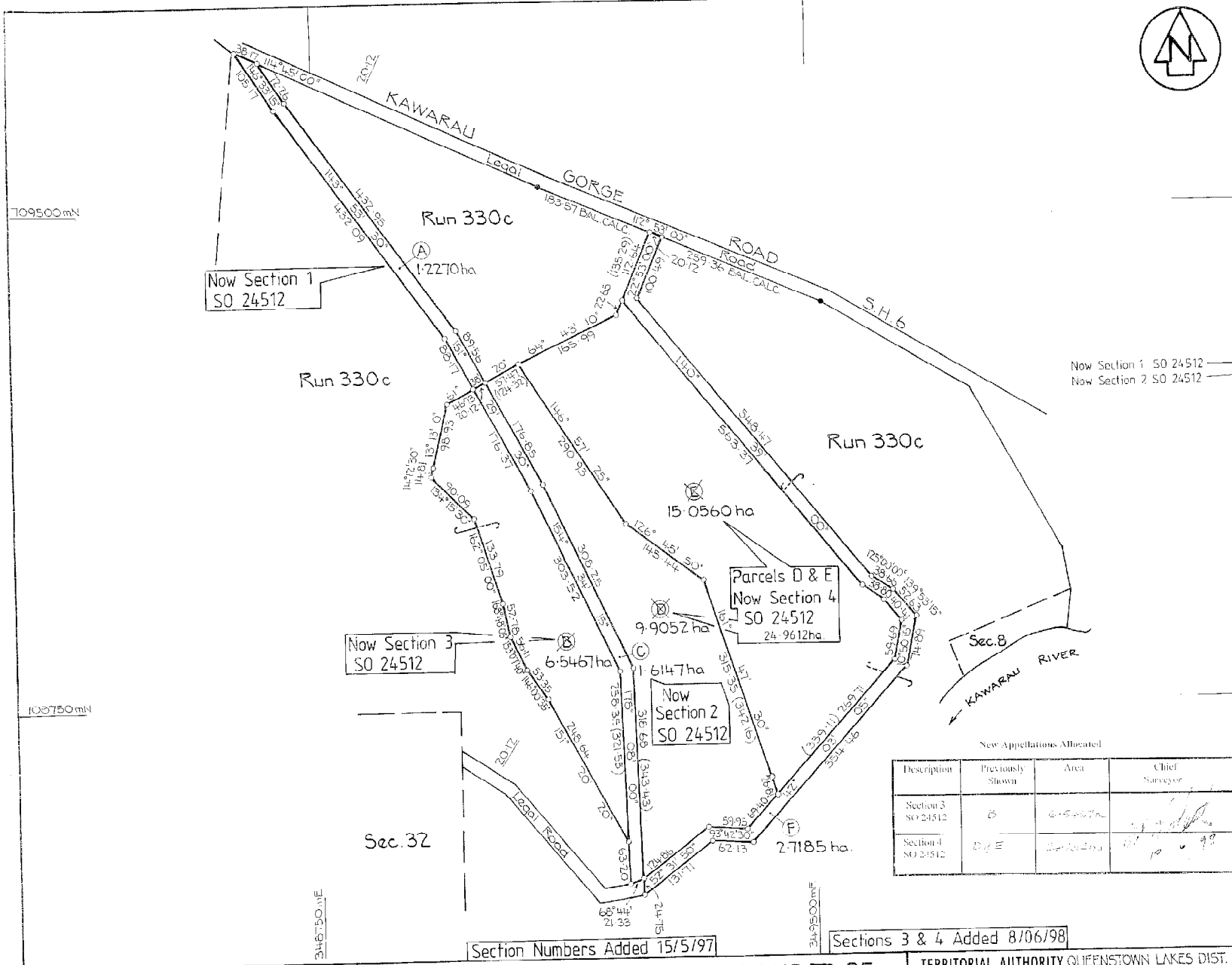
Identifier	**OT18C/580**
Land Registration District	**Otago**
Date Issued	15 June 1998

Prior References
GN 930237.1

Estate	Fee Simple
Area	33.1226 hectares more or less
Legal Description	Section 2-4 Survey Office Plan 24512
Purpose	Local Purpose Reserve (Landfill)

Registered Owners
Queenstown Lakes District Council

Interests



Approvals

SCHEDULE OF AREAS

ROAD TO BE STOPPED

SHOWN	ADJOINING	AREA
A	Part Run 330C Block II Kawarau S.D.	1.2270ha
C		1.6147ha.

LAND TO BE TAKEN FOR ROAD

SHOWN	DESCRIPTION	C.T.	AREA
F	Part Run 330C Block II Kawarau S.D.	338/69	2.7185ha.

LAND TO BE TAKEN FOR LOCAL PURPOSE RESERVE (LANDFILL)

SHOWN	DESCRIPTION	C.T.	AREA
B	Part Run 330C Block II Kawarau S.D.	338/69	6.5467ha.
D			9.9052ha.
E			5.0560ha

Now Section 1 SO 24512
Now Section 2 SO 24512

GEODETIC 1949 DATUM
Coordinates in terms of FALSE ORIGIN
MT. NICHOLAS
7000000mN 300000mE

Total Area 37·0681 ha.

Comprised in Legal Road CT. 338/69 Pt.

I, NEIL THOMAS McDONALD of Queenstown, Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Queenstown this 18th day of December 1996 Signature

Field Book p. Traverse Book p.
Reference Plans
Examined Correct

Approved as to Survey
24/2/97 Deputy Chief Surveyor

Deposited this ..... day of ..... 19 ....
District Land Registrar

File
Received 20/2/96
Instructions

SO 24512

6693

New Appellations Allocated

Description	Previously Shown	Area	Chief Surveyor
Section 3 SO 24512	B		
Section 4 SO 24512	D & E		

Section Numbers Added 15/5/97

Sections 3 & 4 Added 8/06/98

LAND DISTRICT OTAGO
SURVEY BLK. & DIST. 11, KAWARAU
NZMS 261 SHT F41 RECORD MAP No 6·4

PLAN OF ROAD TO BE STOPPED, LAND TO BE TAKEN FOR ROAD AND LAND TO BE TAKEN FOR LOCAL PURPOSE RESERVE (LANDFILL)

TERRITORIAL AUTHORITY QUEENSTOWN LAKES DIST.
Surveyed by CLARK FORTUNE McDONALD & ASSOCIATES
REGISTERED LAND SURVEYORS LAND DEVELOPMENT & RESOURCE MANAGEMENT CONSULTANTS
Scale 1:4000 Date SEPTEMBER 1996

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

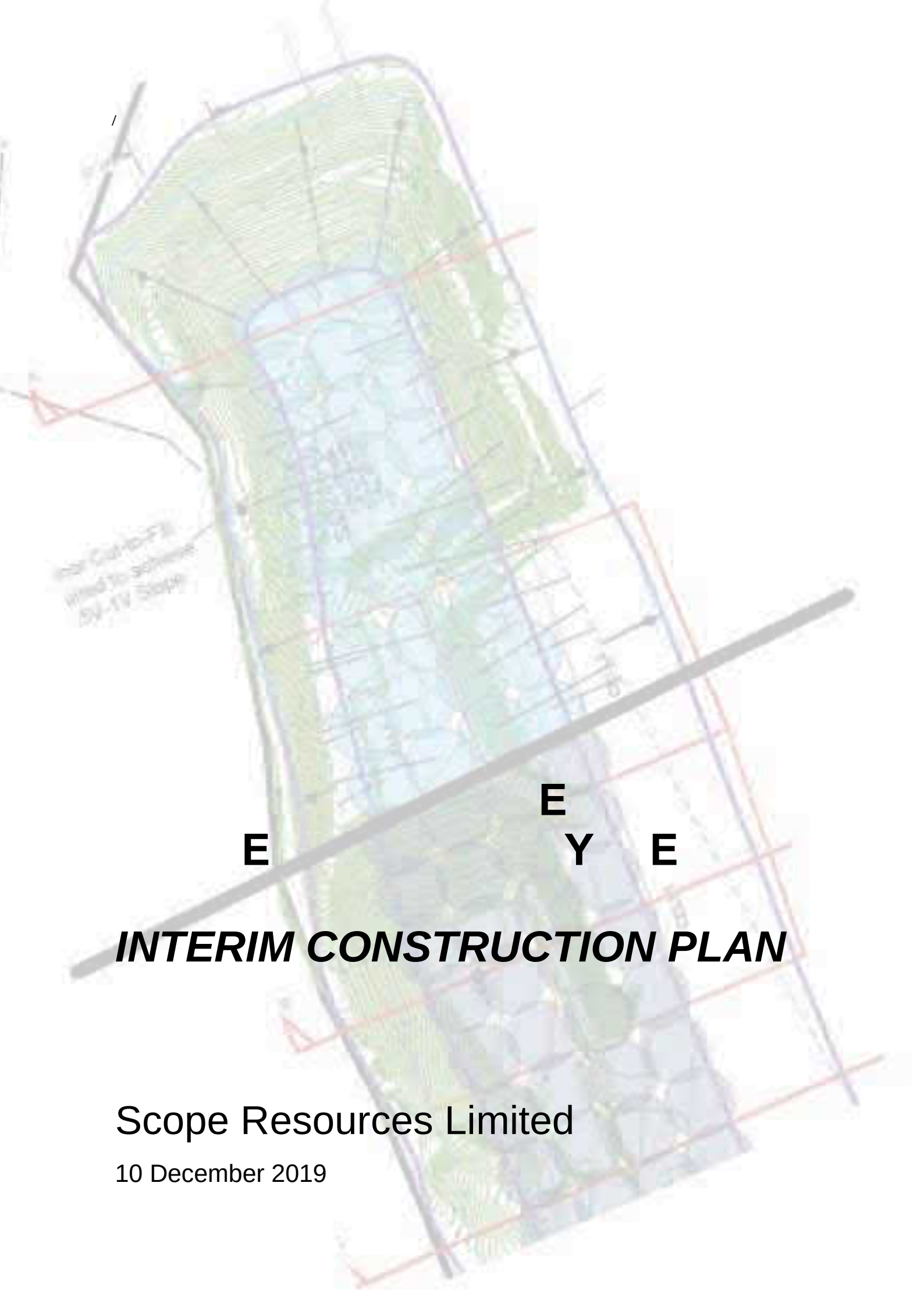
Dosli Form D16 "Approved (LM) 94/3"

Alliance

A3 A2

Appendix C: Interim Construction Plan

/



E

E Y E

INTERIM CONSTRUCTION PLAN

Scope Resources Limited

10 December 2019

The Victoria Flats Landfill occupies a site adjacent to State Highway 6 about halfway between Cromwell and Queenstown and is located at 12 Victoria Flats Road. The Landfill serves the Queenstown Lakes and Central Otago communities.

The landfill commenced operations in July 1999 and operates under various Resource Consents from Otago Regional Council (ORC). Consent 97164.V2 for discharges to air of landfill gas, odour and dust from depositing mixed solid waste to land was recently reviewed by ORC resulting in the requirement to install and commission a landfill gas collection and destruction system as required by the National Environmental Standard for Air Quality 2004.

- Project Director: Grant Hensman – responsible for all on site construction activities in compliance with approved plans
- Beaver on site Foreman Carlo Holbrook – responsible for co-ordinating Beaver activities on site
- Site Manager: Bill Boyd responsible for matters relating to the active operation and day to day activities
- Drilling Manager: Kevin Speight responsible for all drilling activities on site

Day to day operational changes authorised by Landfill Site Manager and advised to Contract Manager
Project changes authorised by Project Director and advised to Landfill Site Manager

Toolbox meeting	Daily	On site staff Contractors and their staff	Verbal	Landfill Manager
Directors Update	As required		Email	Landfill Manager/Contract Manager
Update to Council	Monthly		Monthly Reports to QLDC	Contract Manager

:

As required by the review of consent 97164.V2 a Landfill Gas Collection and Destruction system will be constructed at the Landfill commencing in December 2019 and to be commissioned by December 2020.

The construction will proceed in the following stages:

:

Completed by sub-contractor, Speights Drilling, and will involve the following steps:

- All staff inducted on to site
- Set up drill rig on site including worksite boundaries with tape, signs, cones, hazard board, windsocks etc
- Set up locations, drill and install 30 wells at 700mm diameter, approximately 20 metres deep at GPS identified locations
- Demobilise rig from site

Risks:
A Site-Specific Safety Plan has been prepared by Speights Drilling for this stage.
The following risks and mitigation measures have been identified:

	:
Time – deadline for commissioning is December 2020	Start work as soon as possible
Other contractors and daily operations – moving traffic	Comply with site speed limit 25km/hour Flashing lights on all vehicles CB radios in vehicles Drive to conditions
Unauthorised person/vehicles entering drill works area	Secure no-go drill area with cones and signage Shut down/isolate rig and remove from site
Emergency exit pathways obstructed	Back up emergency exit use – specified path down batter of cell
Drilling into unknown waste including sewage sludge, asbestos	Full body contamination suits Staff immunised for Hep A & B and tetanus Appropriate PPE worn Run rig at slower operation to allow time for response to unknown material
Gas release from wells causing fire/explosion	Personal gas monitors Windsocks on site to identify gas direction and changes Gas migration site will be a no-go area

	Digger on site can be used to extinguish Pond adjacent to pump shed constructed including installation of pumps and hydrants
Gas release from wells causing odour	Complete as much work as possible during summer when conditions are more favourable Personal gas monitors will indicate when gas present BiOx spray cannon deodoriser will be located in the drilling area so it is readily available when needed. Deodoriser will be misted into air when gas indicated by monitors or smelt. Spray cannon is mobile and will be moved around as required
Puncturing liner	GPS marked gas well locations have been surveyed to ensure enough distance from liner
Dust	Remote control drilling BiOx spray cannon deodoriser on site to spray mist/deodoriser into air Appropriate PPE

:

Completed by sub-contractor. Southern Beaver Ltd and Scope Resources Ltd staff. Refuse extracted from batters will either be:

a) spread and compacted on top of Cell 4 and 5 to bring height of refuse to potential modified design level or
b) used to modify batter of cells 2, 3 and 4 to 1:2.5 slope or
c) disposed of in active cell

This stage will be completed as follows:
All staff inducted onto site and a Job Safety Analysis completed with all staff.
A bench will be cut halfway up the batter slope. One digger will start from the bench and reach to bottom to pull up refuse and throw to the digger on the top of the cell. The top digger will either spread the refuse on cell or load trucks to cart further over the cell. Loaders/compactors will spread and compact the refuse to final level. Horizontal collectors will be installed at base of batter

Construction will proceed in 30-meter strips from bottom to top, 100 mm of daily cover will be placed on open areas each day and then when strip is completed scalpings will be placed to either of:

a) the base of the clay as designed or
b) up to first geo-textile layer,

The Scalpings will be rolled and then staff will move on to next strip.
Once the full batter has been completed the final capping will be placed.

Risks:
A Job Safety Analysis will be prepared by Southern Beaver Ltd and Scope Resources Ltd for this stage.
The following risks and mitigation measures have been identified:

	:
Time – deadline for commissioning is December 2020	Start work as soon as possible All materials required are on site prior to start of stage when it will be required
Working on steep/slippery slopes	Use of benching to lessen angle of slope, two diggers to remove fill to right so no tracking and throwing just stationery throwing Experienced operators
Two diggers could swing into each other	Operate outside or each other's radius (working one way),
Digger to dump truck/ loader/ compactor/ little digger collide	Digger operates in an exclusion zone Eye contact between operators CB radios between vehicles
Other contractors and daily operations – moving traffic	Comply with site speed limit 25km/hour Flashing lights on all vehicles CB radios in vehicles Drive to conditions
Unauthorised person/vehicles entering drill works area	Secure construction area with cones and signage
Emergency exit pathways obstructed	Back up emergency exit use around the bottom of the cells
Excavating into unknown waste including sewage sludge, asbestos	Asbestos and sludge not placed near boundaries of cells Operating in sealed cabs Staff immunised for Hep A & B and tetanus Appropriate PPE worn
Wind blowing rubbish	Manage work processes so wind is at the back
Odour - batters currently covered with mulch and 40ml lime chips as odour mitigation. These will be removed from batters and stockpiled (as much as possible) to be re-spread as cover	Complete as much work as possible during summer when conditions are more favourable BiOx spray cannon deodoriser will be located in the drilling area so it is readily available when needed. Deodoriser will be misted into air when gas indicated by monitors or smelt. Spray cannon is mobile and will be moved around as required

:

The methodology for this stage is still to be determined based on the final design agreed.

:

Completed by sub-contractors Southern Beaver Contractors Ltd and Poly-pipe Services. Pipework installation on the surface of the cells once capping is in place will involve placing of pipe support blocks at the required gradient and spacing, attaching the bracket and laying the pipe. The pipes will then be electro-fused on site by Polypipe Services and Beaver Contractors staff.

	:
Time – deadline for commissioning is December 2020	Start work as soon as possible All materials required are on site prior to start of stage when it will be required
Other contractors and daily operations – moving traffic	Comply with site speed limit 25km/hour Flashing lights on all vehicles CB radios in vehicles Drive to conditions

:

Completed by sub-contractor, Windsor Engineering Group Ltd on site.

:

The final timeline is still to be determined based on the final design agreed

Appendix D: Odour Management Plan

Victoria Flats Landfill
Odour Management Plan

Prepared for

Scope Resources Limited

December 2019

PATTLE DELAMORE PARTNERS LTD
Level 1, 111 Customhouse Quay,
Wellington 6011
PO Box 6136, Wellington 6141, New Zealand

Tel +64 4 **471 4130** Fax +64 4 **471 4131**
Website **http://www.pdp.co.nz**
Auckland Tauranga **Wellington** Christchurch

Quality Control Sheet

TITLE	Victoria Flats Landfill Odour Management Plan
CLIENT	Scope Resources Limited
VERSION	Final – Rev 1
ISSUE DATE	13 December 2019
JOB REFERENCE	S01501800
SOURCE FILE(S)	S01501800R001_Victoria Flats Landfill OMP issue Rev1.docx

DOCUMENT CONTRIBUTORS

Prepared by

SIGNATURE

Chris Bender & Deborah Ryan

Reviewed by

SIGNATURE

Deborah Ryan

Approved by

Gerald Strayton

Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Scope Resources Limited. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Scope Resources Limited for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

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Appendices

1.0 Site Description

1.1 Scope

The Victoria Flats Landfill (VFL) occupies a greenfield site in the Kawarau Gorge. The VFL principally serves the Queenstown Lakes and Central Otago District communities.

The VFL has a resource consent (Consent number 97164.V2) for discharges to air of landfill gas (LFG), odour and dust from depositing mixed solid waste to land, which expires on 1 October 2032.

Pattle Delamore Partners Limited has prepared this Odour Management Plan (OMP) for the VFL in order to document the management and monitoring procedures relating to odour at the site and to address odours from construction works that are needed to retrofit a LFG collection and treatment system.

1.2 Activity Description

The VFL commenced operation in July 1999. The landfill is situated on a site next to SH6 approximately halfway between Queenstown and Cromwell.

The landfill site is owned by the Queenstown Lakes District Council (QLDC) who hold the consents for the site. A build-own-operate-transfer (BOOT) contract has been let by the QLDC to Scope Resources Ltd, (SRL), to provide full construction, management and operations of the landfill.

Special waste accepted at the landfill includes potentially odorous loads such as: sewage screenings, contaminated soils and waste fruit.

Cover materials available at the site include gravels, soils and sand.

Leachate is collected and stored on site in ponds and may be intermittently irrigated over completed cells of the landfill as allowed for in the consents. At present leachate volumes are being kept to a minimal level by removal to a wastewater treatment plant in preference to irrigation.

1.3 Construction Works for LFG Collection and Flaring

To date, development of the landfill has not included LFG collection and flaring. In order to improve environmental performance at the landfill, a LFG collection and flaring system is proposed to be installed over 2019/2020. The LFG system requires retrofit i.e. excavations into older parts of the landfill.

This system will improve (reduce) greenhouse gas (GHG) emissions and also reduce the odour levels currently associated with fugitive discharges of LFG, as can occur with the current site.

The LFG collection and flaring system requires an improved depth of cover and capping on the final landform. The cover thickness required is not possible to achieve with the existing side batters of the landfill, as per the photograph in Figure 1, because the batters are too steep. Therefore, as part of the retrofit of the LFG system old areas of the landfill are proposed to be opened to be regraded to achieve a lower gradient along the batters.

Figure 1: Existing batter on completed landfill area

The LFG collection and flaring system installation will require excavations into old sections of landfill involving:

- Cutting onto the landfill along the eastern side to extend the landfill footprint by 4 m and achieve a 2.5:1 slope;
- Cutting and filling along the western side to achieve a 2.5:1 slope;
- Installation of vertical LFG collection wells with a 30 m radius; and,
- Installation of horizontal LFG collectors.

The odour issues and health and safety aspects associated with the installation of the LFG collection system are detailed in the Site Specific Health and Safety Agreement from Speights Drilling and the Landfill Gas Design Report dated 31 October 2018.

2.0 Resource Consent Requirements for Odour

The VFL has a resource consent for discharges to air number 97164.V2, which expires on 1 October 2032. Table 1 sets out the consent conditions relevant to this OMP.

Table 1: Air Discharge Consent: Odour and Landfill Gas Related Conditions

No.	Condition
3	There shall be no odour emission resulting from the Consent Holder's activities that, in the opinion of an Otago Regional Council enforcement officer, is offensive or objectionable to such an extent that it has an adverse effect on the environment at or beyond the boundary of the Consent Holder's property.
4	The Consent Holder shall minimise the generation of odours from the operations using the best practicable option. This shall include when necessary: ∴ Minimising the working face of the landfill ∴ Covering wastes as required to control generation of odours ∴ Provision of a buffer area around the landfill footprint ∴ Minimising the amount of leachate stored in the leachate storage ponds ∴ Maintaining a landfill gas collection and destruction system in accordance with condition 7A to 8A.
7A	By 1 December 2020, the consent holder must commission a landfill gas collection and destruction system.
7B	The components of the landfill gas collection system must include a network of horizontal and/or vertical collectors which must be progressively connected to the gas destruction system as cells are capped. The landfill gas collection system must be designed, installed and operated so as to optimise collection efficiency.
7C	The principal flare used in the landfill gas destruction system must: (a) Have a flame arrestor; and (b) Have an automatic backflow prevention device, or an equivalent device between the principal flare and the landfill; and

Table 1: Air Discharge Consent: Odour and Landfill Gas Related Conditions	
No.	**Condition**
	(c) Have an automatic isolation system that ensures that, if the flame is lost, no significant discharge of unburnt gas from the flame occurs; and (d) Have a continuous automatic ignition system; and (e) Have a design that achieves a minimum flue gas retention time of 0.5 seconds; and (f) Be designed and operated so that gas is burned at a temperature of at least 750°C; and (g) Have a permanent temperature probe at a half stack diameter from the top of the flare, with visual readout at ground level; and (h) Have adequate sampling ports to enable emission testing to be undertaken; and (i) Provide for safe access to sampling ports while any emission tests are being undertaken.
7D	A back-up flare must be utilised, should the principal flare be unavailable due to maintenance or repair. The landfill gas back-up flare must comply with specifications (a) to (c) above.
8	An updated programme for the monitoring of landfill gas must be prepared and submitted to the Consent Authority prior to the commissioning of the landfill gas collection and destruction system. This programme must include: (a) regular measurements of methane, carbon dioxide, hydrogen sulfide and oxygen concentrations and flux rates in leachate collection trenches, bores and across the landfill cap and at locations to be specified by the consent holder for determining whether landfill gas is migrating beyond the boundaries of the landfill liner. The methods employed must be capable of confirming compliance with condition 8A. (b) Regular measurements of gas flow rate, gas composition (methane, oxygen, carbon dioxide, hydrogen sulphide), gas temperature, ambient temperature, gas pressure and barometric pressure at each of the collection system well heads and at the flare station. (c) The programme must also provide for regular reporting of the results of the monitoring programme to the Consent Authority.

Table 1: Air Discharge Consent: Odour and Landfill Gas Related Conditions	
No.	**Condition**
8A	Surface emissions of methane must not exceed 5,000 ppm (or 0.5% by volume) in any single location across the landfill site. Should the monitoring under condition 8 demonstrate that the concentration of methane in areas of intermediate or final cover exceeds this value, then remedial action must be carried out and the gas concentrations re-measured within 14 days. If this is not practicable, the consent holder must provide a proposed programme for remedial action.
9	At five-yearly intervals from the date of commencement of this consent the consent holder must provide the Consent Authority with a report fully reviewing the management of discharge to air at the landfill. The report must include: ∴ a review of the monitoring undertaken for discharges to air, ∴ the effectiveness of the landfill gas containment procedures, ∴ the effectiveness of the odour control measures. This should include a community odour survey, or an alternative approved by the consent authority, ∴ an estimation of the amount of landfill gas being produced currently and the expected production over the next 5 years, ∴ as estimation of downwind ground level concentrations of VOCs found in landfill gas, ∴ the Consent Holder's plans for mitigating any adverse effects the discharge of contaminants to air may have on the environment, ∴ a review of complaints received over the period pertaining to discharges to air and mitigation taken, ∴ a review of the monitoring programme for the following 5 years. The report must be to the satisfaction of the Consent Authority.
10	The Consent Holder shall keep an accurate record of all complaints relating to discharges to air that it receives. This record shall be made available to the Otago Regional Council on request

Condition 3 sets out the performance requirement for odour, which relates to odour emissions not resulting in odour that is offensive or objectionable to such an extent that it has adverse effect on the environment.

Measures to minimise odour are addressed in Section 5 of the OMP. LFG monitoring as per condition 8 is addressed in Section 6.1 and condition 10 is addressed in Section 6.2 of the OMP.

3.0 Odour Sources

3.1 Normal Operations

During the normal operations of the landfill activities that may contribute to odour relate to:

- Potentially odorous (putrescible) loads
- The landfill working face (open area)
- Landfill gas generation and discharge via gas migration and breakouts
- Leachate storage and irrigation on-site

The LFG collection retrofit excavations in old areas of landfill have significant potential to the discharge quantities of LFG and associated highly odorous compounds including volatile organic compounds, volatile fatty acids and sulphur containing compounds resulting in plumes of LFG and odorous gases.

4.0 Potential for Effects from Odour

4.1 Site Location

Figure 2 is a plan showing the location of the site adjacent to Victoria Bridge on SH6, with the Gibbston community to the west-northwest along the Gibbston Valley around 2.5 kilometres away.

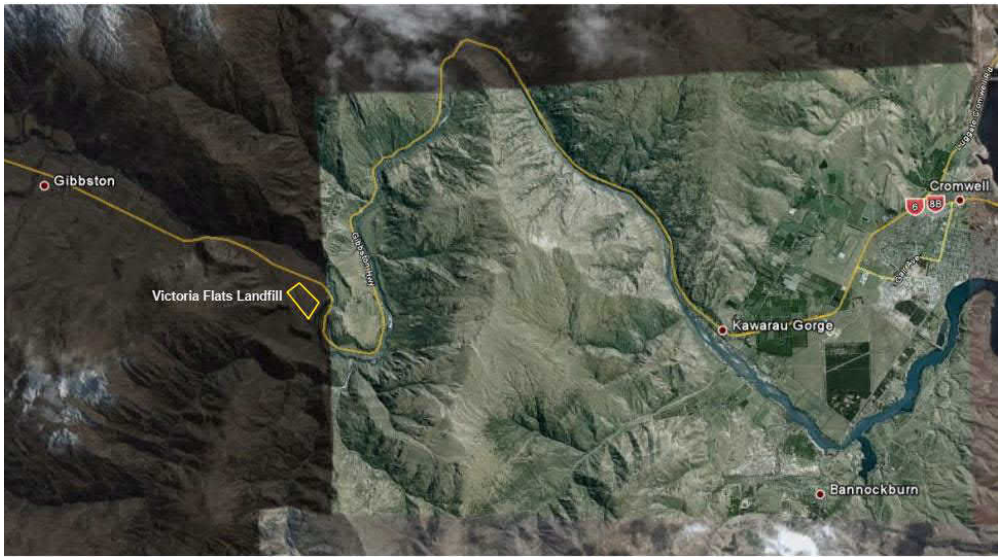


Figure 2: VFL Site Location

The Wakatipu Gun Club is located within the area designated at part of the landfill buffer zone. And a new commercial activity is currently under construction, which has gained consent for operation near the Nevis Bluff.

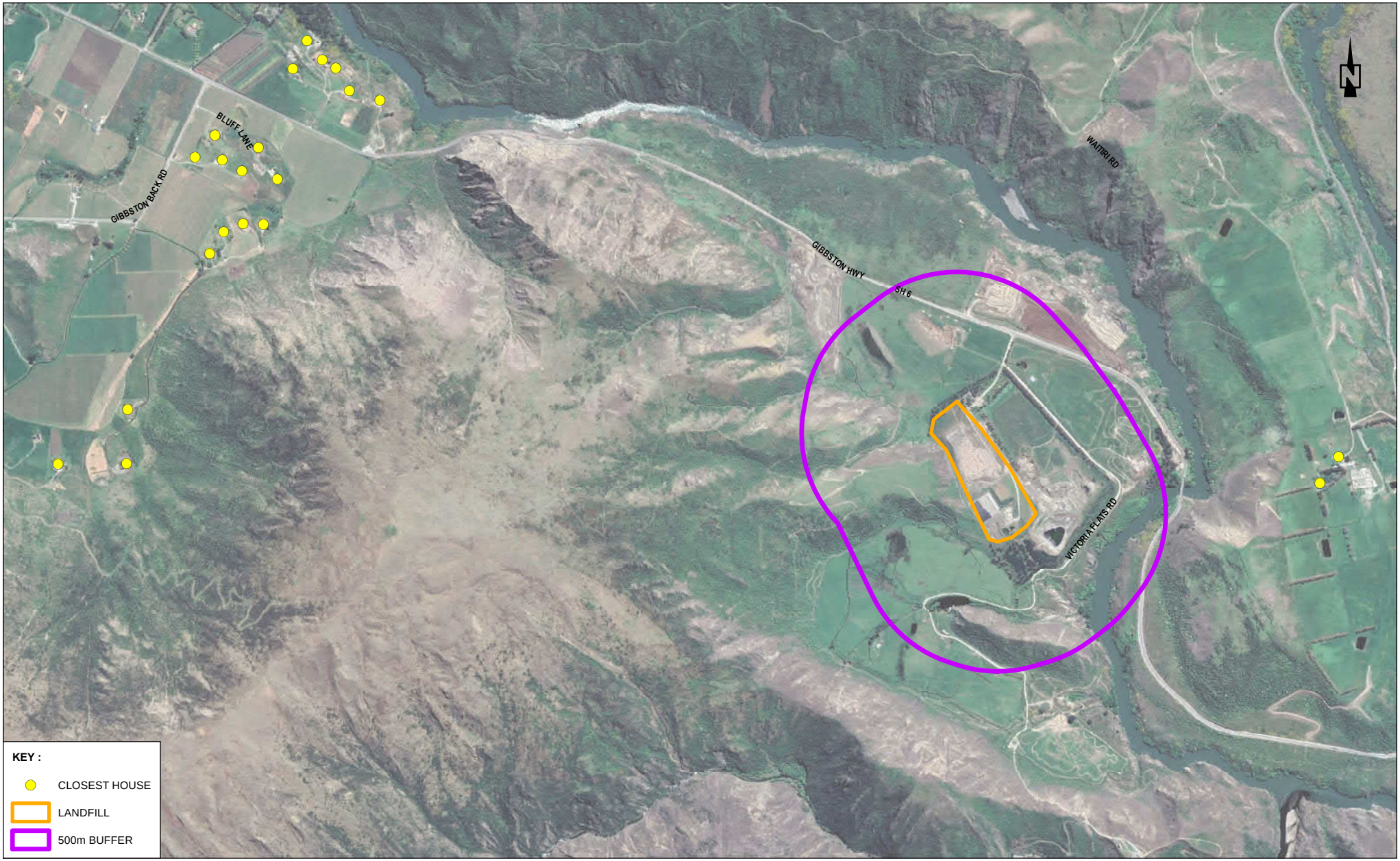
Both of these activities have caveats on their operations/authorisations the acknowledge odour may be present from the landfill and prevent them from lodging odour complaints, however, they will be given due consideration in implementing the odour management and mitigation measures identified in Section 5.0.

The nearest community to the Victoria Flats Landfill is Gibbston Valley. Over recent years most of the odour complaints that have been received are from within the Gibbston community. The community is represented by the Gibbston Community Association. The association is run by a committee elected by the community.

The Committee was invited to visit the landfill, see the operation and have the proposed Landfill Gas System explained to them. The Chairman took up this invite and has visited. The invite remains open for any committee member.

Contact has continued with the Chairman and there is an agreement that each party will update the other on what's happening, and any issues or concerns. If there are issues with odour contact will be kept with the Gibbston community through the Chairman and the committee.

Otherwise, the closest potentially affected area would be State Highway 6 (which is to the north-west of the landfill and is approximately 340 m from the landfill at the closest point). Only people using the road will be affected and this effect will be transient in nature.



SOURCE:
1. AERIAL IMAGERY (FLOWN 11/11/19) DERIVED FROM GOOGLE EARTH PRO (MAY NOT BE SPATIALLY ACCURATE).
4. CADASTRAL/TOPOGRAPHICAL INFORMATION AND INSET DERIVED FROM LINZ DATA.

FIGURE 3 : VFL MAP SHOWING 500m BUFFER ZONE

SCALE : 1:20,000 (A4)

0 100 200 400

METRES

S01501800Z001_500mbuffer.mxd DEC 19 ISSUE1

4.2 Complaints History

Complaints have been received relating to odour from the VFL, with complaints thought to have increased from acceptance of sewage sludge material that increased moisture levels within the landfill. Increased moisture is associated with increased rates of LFG formation and potential for odour.

VFL staff advise that complaints are more prevalent in the wintertime, due to still conditions that are more frequently associated with wintertime. In early, mornings LFG can accumulate overnight and drift off site. Staff advise the complaints are typically from people on SH6 while driving, but odour plumes can also persist and travel down the valley to the Gibbston Valley community, where complaints have also been received from residents.

4.3 Odour Effects

Odour emissions from the VFL will potentially result from sources as described in Section 3 of the OMP. LFG has been uncontrolled at the VFL and can be expected to have migrated out of the landfill, pooling under calm conditions and then moving some distance offsite resulting in distinct odours offsite. The proposed retrofit of the LFG collection system is expected to result in increased odours when old areas of landfill are being opened. These works are, however, necessary to both minimise the potential future odour emissions and lessen the GHG emission impacts in the medium and long-term.

It may be difficult for VFL to comply with condition 3 of the consent during the period of works, but odours will be mitigated as far as practical, as described below.

5.0 Odour Management and Mitigation

5.1 Waste Acceptance

Loads of odorous waste can cause increased odour at the landfill working face. Any wastes requiring special handling are arranged ahead of time to ensure that the waste loads meet the site acceptance criteria, and special waste handling procedures are followed to minimise the potential for odours associated with potentially odorous loads.

Highly odorous loads may either be rejected or require pre-treatment. Waste acceptance at the site is undertaken in accordance with the Waste Manifest System[1].

[1] Scope Resources Limited, *Victoria Flats Landfill, Waste Manifest System,* October 2019.

5.2 Active Landfill

As per condition 4 of the consent the working face area of the landfill is minimised as far as practicable. The landfill working face area is covered daily, principally to limit windblown litter, but this will also suppress working face odour generation overnight (depending on the nature of the available cover materials).

Daily cover is described on more detail in Section 3.1.5 of the Landfill Operations and Management Manual[2].

The site also has odour suppressant chemicals on-site that are sprayed in areas producing odour as needed including:

- near the working face
- hot spots
- batter slopes
- areas identified by the Gas Surveyor as odour producing, and
- excavations in old refuse.

For landfill breakouts prompt application of cover and/or using lime and mulch capping material to suppress odorous compounds is preferred.

5.3 Construction Activities

Construction works associated with retrofitting LFG collection will temporarily increase the potential for odours to be generated and detected off site. These works will be managed as far as practicable to minimise the potential for odours to result in offsite effects by:

- Undertaking the works as far as practicable through the spring, summer and autumn to maximise dispersion and avoid wintertime inversion conditions.
- Minimise the area of excavation open at any one time by staging the works to strip back and rehabilitate retrofitted areas before commencing work in another area.
- Using temporary cover materials for open areas at the end of each day, such as soil/scalpings. Alternative materials such as mulch or spray on pulp may be used where appropriate.
- Where areas are open for construction activities during the day, utilise the Spraystream system in accordance with manufacture's specifications

[2] Scope Resources Limited, *"Victoria Flats Landfill, Operations and Maintenance Manual,* July 2018.

(refer to Appendix A). The use of the Spraystream system will be dictated by the Construction Management Plan and will be deployed when noticeable odour is detected.

6.0 Monitoring

6.1 Landfill Gas Monitoring

Landfill gas monitoring on the landfill surface is undertaken in accordance with the site monitoring protocol[3]. Gas surface monitoring surveys are undertaken three times per year.

The purpose of LFG monitoring includes overall rates of discharge and the spatial distribution of gas emissions (and comparison of trends). Data has been used to help develop the design for the LFG collection system. The LFG surface monitoring data also informs assessing nuisance odour.

LFG monitoring is undertaken over a random sampling design with GPS co-ordinates and the plan adapted to investigate anomalies and capture breakouts.

Weekly walk overs are also made for signs of LFG breakout and remedial actions are taken by applying odour control cover material.

Monitoring of the construction works for the installation of the LFG collection system will be in accordance with the Site Specific Health and Safety Agreement from Speights Drilling and the Landfill Gas Design Report dated 31 October 2018.

6.2 Odour Monitoring

The VFL Monitoring Protocol describes odour monitoring undertaken by the site. The Operations and Maintenance Manual states that daily records are to be kept of the strength of landfill odour each day, which is logged on the day sheet as described in Section 3.5.1 of the Manual.

The procedure requires that notes be made on the strength of landfill odour each day and scored as either apparent, medium or strong at the following points along SH6:

- front gate (0m);
- adjacent Gun Club (500m west); and,
- Nevis Valley area (1400m west).

A record of complaints received about odours is kept by site staff that includes:

- name of complainant (where available);
- number & address or location;

[3] Scope Resources Limited, *Victoria Flats Landfill, Monitoring Protocol*, January 2019.

- nature of complaint (odour, litter, etc);
- date complaint was received;
- details and date of remedial action taken; and,
- follow up details to ensure remedial action was effective.

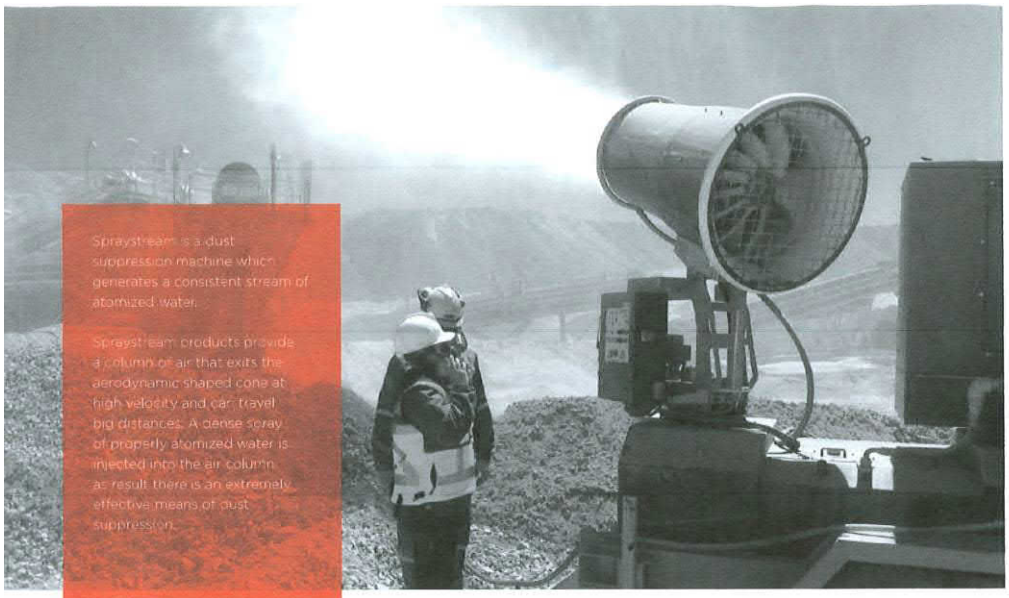
Complaints frequently go through to the Otago Regional Council in the first instance. There can be delays in the VFL site staff being notified of these complaints. This delay limits the extent of investigations and actions in response to the complaint that can be undertaken by the site staff. All complaints notified to the site are logged and included in the monthly report.

In some instances, due to the extent of the retrofit earthworks, full mitigation of the odour may not be possible. In these instances, communications as to the temporary nature of the works, with an improved outcome for reduced odour in the medium term may be the only practical response. Signage will be erected to inform the public providing information on the project for the duration of the works. Notwithstanding this, all practical measures will be undertaken to mitigate odours as far as possible as described in Section 5.3 of the OMP.

6.3 Wind

On-site wind data is collected on site using a system installed and managed by Harvest Electronics (NZ) Ltd service. A telemetry system records and transmits site data to a server automatically, and this data can be searched and reported as required. Wind data can be accessed in real-time and provides a useful resource for investigating any reports of odour beyond the site and for on-site management.

Appendix A: Spraystream System 50i



Spraystream is a dust suppression machine which generates a consistent stream of atomized water.

Spraystream products provide a column of air that exits the aerodynamic shaped cone at high velocity and can travel big distances. A dense spray of properly atomized water is injected into the air column. As result there is an extremely effective means of dust suppression.

GENERAL SPECIFICATIONS

- Throw 50m
- Aerodynamic composite light weight cone
- Standard horizontal oscillation
- Hot dipped galvanized structure
- Low noise high efficiency fan
- Adjustable angle of throw -10° to 50°
- Integrated water filter system

WATER SPECIFICATIONS

- Waterpressure of 20 bar
- Stainless steel nozzlering
- Quick change stainless nozzle
- Last chance filter before nozzle
- Droplet size spectrum vary from 50 to 150 micron
- Waterflow 2700l/h
- Integrated watertank 2000l
- Pump protecting levelswitch

OPTIONS

- Bigger boosterpump(s)
- Splitable nozzle ring (-50% waterflow)
- Variable frequency drive
- Remote control
- Electrical vertical pitch movement
- Dosage pump
- Salt water packages
- Generator isolation module
- Feeding pump

OTHER

- Adjustable towbar (height)

ELECTRICAL SPECIFICATIONS

- Voltage 3x400V 50Hz
- Fan (kw) 7,5 (softstarted)
- Pump (kw) 4 (softstarted)
- Rot. (kw) 0,09
- IP66 steel cabinet
- Generator included (D)

DIMENSIONS & WEIGHT

- length 5300 mm
- Width 2450 mm
- Height 3100 mm
- Weight 2200 kg

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