

Date: 19/09/2017

REF: CRC175344 and CRC175345

MEMORANDUM

From: Tegan Wadworth, Consent Planner

To: RMOG Decision Makers

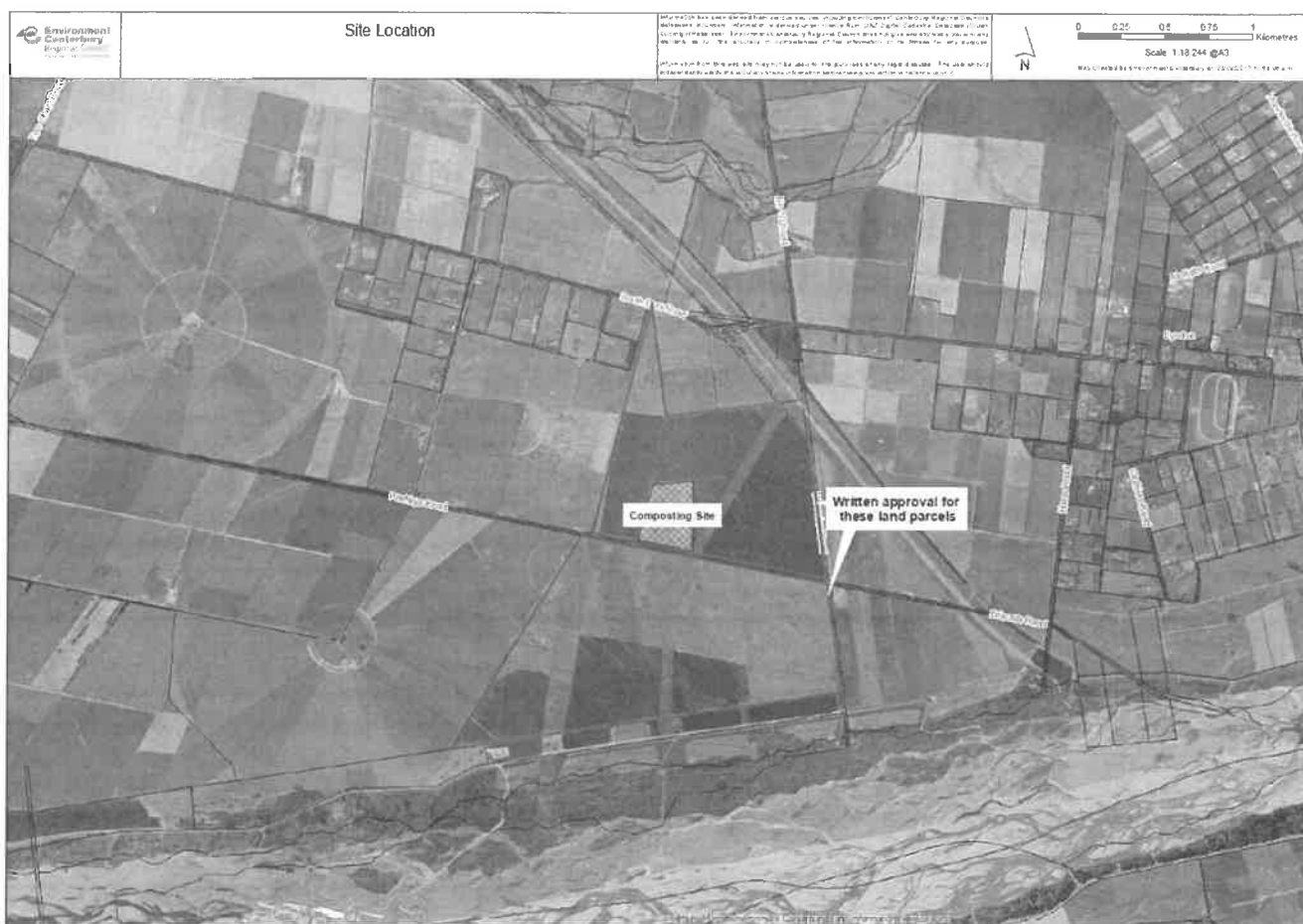
SUBJECT: **NOTIFICATION RECOMMENDATION FOR CRC175344 and
CRC175345**

EXECUTIVE SUMMARY

1. Canterbury Landscape Supplies "the applicant" has applied for:
CRC175344
 - a discharge permit to authorise any discharges of contaminants to land that may enter water, as a result of composting and stockpiling of compost occurring on unsealed surfaces.**CRC175345**
 - a discharge permit to authorise the discharge of contaminants to air (odour and dust) from composting and stockpiling of compost
2. The application is an application for retrospective consents.
3. Requested duration was 35 years.
4. I recommend that the application is publicly notified as I consider that the effects of the discharge of contaminants to air are likely to be more than minor.

INTRODUCTION

5. The applicant operates a compost making facility at 33 Diversion Road, Swannanoa, Waimakariri. Approximately 10 hectares is leased from the owners of the land parcel. The applicant has proposed to compost a maximum of 40,000 cubic metres of compost on site at any one time. The applicant proposes the composting facility will produce approximately 16,000 tonnes of compost per year.
6. A site visit was undertaken on 27 June 2017.

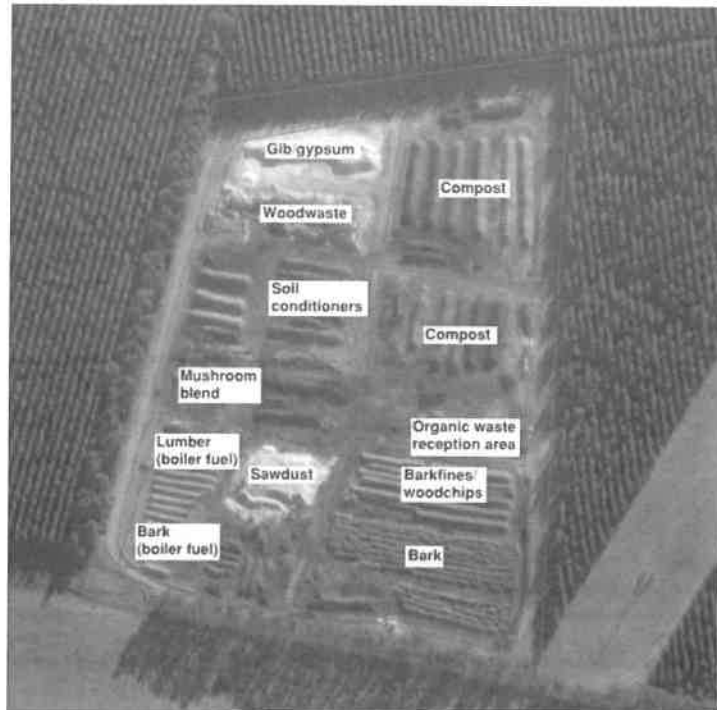


BACKGROUND

7. Composting activities have been undertaken without consent since September 2016.
8. The applicant originally applied for a land use consent to use land for composting. I note that after discussion with Kirstie Wyss (Wynn Williams, Associate), Andrea Richardson (CRC, Consent Planner II) and Zella Smith (CRC, Team Leader Consents Planning) it was determined that Rule 5.40 of the Canterbury Land and Water Regional Plan was directed at farming composting activities. Therefore this rule does not apply to the composting activity which is an industrial trade premise and the applicant does not need to apply for a land use consent as they are not contravening a rule in a regional plan.
9. The applicant has received an abatement notice due to odour caused on site. The abatement notice was issued on 14 August 2017. The abatement notice is currently under appeal.
10. The proposal requires resource consent from Waimakariri District Council for the use of land for earthworks. This is also a retrospective consent for earthworks that have already occurred at the site.

DESCRIPTION OF THE PROPOSED ACTIVITY

11. The applicant is proposing to discharge contaminants to land and air (odour and dust) from the stockpiling of decomposing organic matter.
12. The materials the applicant proposes to use in the composting process include:
 - a. Sawdust and bark;
 - b. Mushroom compost;
 - c. Waste pallet and untreated wood shavings;
 - d. Gib board off-cuts;
 - e. Soil;
 - f. Dewatered paunch grass;
 - g. Scoured wool fragments;
 - h. Mussels shells (pre-crushed); and
 - i. Green waste.
13. The applicant proposes that in the future, the following materials may also be composted at the site:
 - a. Egg shell;
 - b. Compostable packaging with some residual food waste;
 - c. Grease trap waste;
 - d. Bio solids;
 - e. Leaf litter.



14. The composting operation involves the following processes:

- a. Composting material will be delivered to the site and organic material will be immediately mixed with bark fines and/or sawdust. Excess liquid is collected in a sump and incorporated back in the compost mix;
- b. Blended organic material is placed into windrows with a base of 0.5 metres of sawdust which is located over compacted gravel;
- c. The windrows will be turned every week for approximately eight weeks until the active compost phase is complete. The compost is then left to cure for approximately another 8 weeks. The entire composting process occurs for approximately 12 to 16 weeks.
- d. The applicant states that composting processes generally occur in accordance with the New Zealand Standard for Composts, Soil Conditioners and Mulches (NZS4454:2005).

LEGAL AND PLANNING MATTERS

REGIONAL PLANS – RULES CLASSIFICATION

15. In relation to the discharge to air, the rules of the pCARPd are now treated as operative and those in Chapter 3 of the NRRP inoperative. The policies and objectives of Chapter 3 of the NRRP must be considered until such time as Canterbury Regional Council formally makes the CARP operative and withdraws the NRRP.

Proposed Canterbury Air Regional Plan (decisions version) (pCARPd)

16. The discharge of contaminants to air (odour and dust) from the composting activity are classified under **Rule 7.63** as a **discretionary activity** as the composting site is an

industrial or trade premise and is not managed by Rules 7.62-7.74 and is not a prohibited activity.

Canterbury Land and Water Regional Plan (LWRP)

17. The discharge to land where a contaminant may enter water is classified as a **discretionary activity** under **Rule 5.92** of the LWRP as the proposed activity cannot comply with Rule 5.91. The proposal cannot meet the requirements of Rule 5.91 condition (4)(f) as the discharge is within a Nutrient allocation Zone identified as 'Water Outcomes Not Met' (Red) and may contain nitrogen or phosphorous.
18. **Rules 5.38 - 5.40** manage the use of land for the stockpiling of organic matter. However as discussed above these rules are considered to manage the stockpiling of organic matter relating to farming activities. Therefore the use of land for stockpiling organic matter on an industrial or trade premise does not contravene a rule in a regional plan and does not require a resource consent.

Summary of Legal and Planning Matters

19. In summary the application for consent to authorise the discharge to land where a contaminant may enter groundwater and the discharge of contaminants to air are to be processed as **discretionary activities**.
20. I consider it is appropriate to bundle the discharge to land and discharge to air consent applications. I consider that the activities are inextricably linked as both discharges originate from the compost piles. This allows the proposal to be considered as a whole.
21. A land use consent to use land for the stockpiling of organic matter is not required.
22. The applicant has also applied for a land use consent for earthworks from the Waimakariri District Council. This consent is still in process and is currently on hold under s92 of the RMA for further information.
23. I consider that no other consents are required for this application.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

24. In summary:

Surrounding Environment

- a. Immediately surrounding the composting site is a pine plantation located on the leased site. The further surrounding environment mainly comprises of pastoral farmland;
- b. The six nearest residential dwellings are located approximately as follows:

Distance from the proposed site	Direction
790 metres	North-west
880 metres	North-west
920 metres	North-west

960 metres	North-west
975 metres	North-east
985 metres	West



- c. The proposed site is in the Ashley-Waimakariri Nutrient Allocation Zone which is a red zone meaning water quality outcomes are not being met;
- d. The site is not located within a community drinking water protection zone;
- e. The nearest surface water body is the Eyre River Diversion located approximately 750 metres east of the site. The Waimakariri River is located approximately 1500 metres south of the site;
- f. The Kaiapoi River/Silver stream is located approximately 3,680 metres east;
- g. There is a farm drain shown on the CRC GIS database that is along the southern boundary of the proposed site. However I note the applicant states this no longer exists;

- h. The site falls within the rohe of Te Ngai Tūāhuriri Rūnanga;
- i. The site is not located within the a silent file, statutory acknowledgement area or Rūnanga sensitive site;
- j. There are 15 other active discharges to land within 1000 metres of the site, 14 of which are human effluent and one dairy discharge;
- k. The site is located in the Rural Zone of the Waimakariri District Plan;

Soils

- l. S-maps shows Darnley stony silty loam covering the property. GIS data for Smaps shows the soils are shallow, 20 – 45 centimetres deep, and moderately well-draining;
- m. The applicant states that based on nearby bores that the alluvial gravel in the upper 20 to 30 metres around the site is relatively homogenous silty, sandy gravel without notable higher or lower permeability. The applicant suggests that the alluvial gravels at the site have a relatively low hydraulic conductivity of 1×10^{-5} m/s.

Groundwater

- n. The property is located over a semi-confined/unconfined aquifer;
- o. Groundwater flow direction is west to east;
- p. The closest downgradient domestic supply well, M35/9767, is located approximately 1,020 metres north-east from the proposed site;
- q. The closest downgradient stock supply well, M35/1815, is located approximately 1070 metres north-east from the proposed site;
- r. The applicant has averaged the groundwater quality data, assessing groundwater levels ranging from three to nine metres and on average six metres.
- s. Groundwater level data within 2,000 metres for the 10 highest groundwater level recordings are as follows, which shows a highest recorded reading of 0.85 metres below ground level. I note that from discussion with Maureen Whalen (Canterbury Regional Council, Team Leader Groundwater Science North) the potential highest groundwater is of concern (HPRM C17C/168742).

Bore number	Highest recorded groundwater (m)	Depth (m)	Location from site (m)	Use
M35/0658	0.85	5.9	1, 990, East	Water level observation
M35/2621	1.30	18.3	1,900 North	Not used
M35/5618	2.78	18.8	1,980 North-east	Domestic

M35/1829	3.10	11.4	1,990 North-east	Irrigation
M35/0197	3.17	22.3	500, West	Buried
M35/11672	3.72	101.7	1,810 South-west	Domestic and stock supply
M35/8559	3.81	18	1,620 South-west	Buried
M35/8558	3.92	15	1,620 South-west	Water level observation
M35/5212	4.62	32.6	1,080 North-east	Irrigation
M35/7540	5.00	28.5	1,080 North-east	Irrigation

- t. There are four wells within 1500 metres of the site with groundwater quality data for nitrate nitrogen concentrations:

Well	Depth (m)	Location from site (m)	Nitrate Nitrogen (mg/L)
M35/0197	22.3	500 west	7.1 (1979)
M35/8558	15	690 east	10.0 (2015)
M35/10358	23.8	1090 northwest	9.4 (2015)
M35/12018	138.0	1450 southeast	4.0 (2015)

Wind and Air Quality

- u. The proposed site is 7.5 kilometres north of Christchurch Airport. The applicant states that wind data from Christchurch Airport is likely representative of average wind conditions at the site. A wind rose for the Christchurch Airport shows:
- i. Predominant winds are from the north-easterly quarter (approximately 40% of the time);
 - ii. Winds from the south-westerly quarter 30% of the time; and
 - iii. Winds from the north-westerly quarter 20% of the time.

- v. The lightest winds, below three metres per second tend to blow from the north-east and west to south-west. There is an absence of winds recorded from the south-east.
- w. Calm conditions (wind speeds less than 0.5 metres per second) occurred for 1.43 percent of all hours for the four year period and low wind speeds (less than 1.5 metres per second) occurred for approximately 16 percent of the time.
- x. Peak odour levels down wind of the site are expected to occur during low wind speed conditions when the dispersion of the emission plume is restricted.
- y. The applicant states that background air quality in the area is expected to be typical of rural areas and will include sources of odour such as silage, animal effluent and fertiliser spreading, fodder crops, intensive farming systems and sources of dust such as unsealed roads, cultivation of paddocks and dry river beds.

ASSESSMENT OF ACTUAL AND POTENTIAL EFFECTS

- 25. Under section 95E of the Resource Management Act 1991 (RMA) a consent authority must decide whether an activity will have, or is likely to have, a minor or more than minor effect on a person.
- 26. I consider the following potential effects to be relevant to this proposal:
 - a. Effects of the discharge of odour from the composting process;
 - b. Effects of the discharge of dust from the composting process;
 - c. Effects of the discharge to land on groundwater quality;
 - d. Effects of the discharge to land on drinking water supplies;
 - e. Effects of the discharges on Tangata Whenua values.

Potential adverse effects of the discharge of odour from the composting process

- 27. Assessment of odour generally relies on a determination of whether a discharge is creating an "offensive or objectionable" effect at or beyond the property boundary. Offensiveness or objectionable are not defined in the pCARPd or the RMA.
- 28. Odour nuisance can be generated by low levels of odour experienced frequently over a long period, or short periods of high intensity.
- 29. Offensive or objectionable odours caused through the compost process are commonly related to the anaerobic decomposition of material in the composting mound. This can cause an odour issue when the compost is turned, or if the entire mound becomes anaerobic due to the lack of oxygen. Other factors that may influence odour are moisture content, the carbon to nitrogen ratio, temperature, dimension of the pile, and frequency of turning. Careful management of the waste to be composted can also help to control potential odour issues.
- 30. The applicant has assessed the potential odour from the site against the New Zealand Standard for Compost, Soil Conditioners and Mulches (NZS4454:2005) and the

Ministry for the Environment Good Practice Guide for Assessing and Managing Odour (2016) (GPG Odour). The applicant states the composting operation is carried out generally in accordance with the NZS4454:2005.

31. The applicant used the following tools for their assessment against the GPG Odour:
- a. Complaint and compliance history;
 - b. Information on the process control and management systems at the site; and
 - c. Frequency, Intensity, Duration, Offensiveness and Location (FIDOL).

Complaint and compliance history

32. The applicant holds the following consents for composting at 1250 Main North Road, Bridgend, Christchurch:
- a. CRC145359 – to use land for composting and stockpiling;
 - b. CRC145364 – to discharge contaminants to land and air.
33. Compliance history for CRC145359 shows the applicant has been non-compliant on a few instances however appears to be generally compliant with consent conditions. However there were materials onsite that were not authorised to be on site for composting under their consent.
34. Compliance history for CRC145364 shows that the applicant is generally compliant however there have been a couple of instances of non-compliance. These include no bunds onsite to control runoff on the site, and a Site Management Plan (SMP) not being submitted to CRC. Subsequently the site now has a SMP.
35. I have obtained the complaint history for the 1250 Main North Road composting site. This shows that there have been 13 substantiated events from the site for odour. This is between 15/07/2016 to the 04/08/2016, two of which resulted in an abatement notice.
36. The applicant obtained the complaint history for the proposed site at Diversion Road, which has been in operation since September 2016, for the period of 25 May to 13 July 2017. The applicant has stated that a total of 39 complaints regarding odours from the site have been received during this period. Based on this information the applicant concludes:
- a. 13 percent of complaints received are classified by CRC as having no environmental impact;
 - b. 56 percent of the complaints were not substantiated by CRC; and
 - c. No additional information is provided by CRC for the remaining odour complaints and therefore the effect is unable to be assessed.
37. The applicant states, based on wind speed and direction data for the period which the complaints were received, that approximately 26 percent of the complaints were received when the complainant was not downwind of the proposed site and could not have been the source of the offensive odour.
38. In the complaints history obtained by the applicant, BECA has assessed the complaint events. Twenty-nine complaints were assessed as "Event potentially due to Canterbury Landscape Supplies". Therefore not ruling out that the odour event has come from the proposed composting site.

39. The applicant has amended some of their procedures to minimise the generation of odour. These procedures were modified in July and August 2017 in response to recent complaints regarding the site. The applicant states these procedures are consistent with methods recommended in the NZS4454:2005 and industry good practice. These procedures include:

- a. Monitors and maintains the temperature of the composting material in the windrow to greater than 55 degrees Celsius for a period of at least 15 days;
- b. Monitors and maintains the moisture content of the material to approximately 50 percent moisture;
- c. Turns the windrows once per week to maintain aerobic conditions within the piles for a period of at least eight weeks;
- d. Maintains a balance of carbon and nitrogen in the mix to optimise the biological process;
- e. Limits the width of the windrows to three metres;
- f. Limits the height of the windrows to a maximum of two metres initially until the active composting process is complete to ensure good oxygenation of the material;
- g. Places the composting materials on a bed of sawdust to enable additional oxygen and air flow into the compost windrows;
- h. Monitors the temperature of the windrow each time the windrow is turned and again prior to the next turning;
- i. Does not turn compost when winds are less than 1.7 metres per second or blowing towards sensitive receptors;
- j. Does not turn compost on frosty or calm mornings until the sun has warmed the air and a breeze has come up;
- k. Completes work on site by 4:00pm in still air conditions or when a frost is expected overnight;
- l. Does not process materials when it is raining.

40. Since these procedures there have still been complaints during July and August 2017.

41. I have reviewed the complaint history for the site and note the following:

- a. There have been six substantiated events between 13 July 2017 to 14 September 2017;
- b. There have been two unsubstantiated events which resulted in the issuing of a written warning and an abatement notice;
- c. A total of 56 complaints between 25 May 2017 and 14 September t 2017

42. The GPG Odour states that odour complaint data can be a good indicator of the perceived effects of an odour discharge, particularly where there is a relatively dense population. The GPG Odour states that complaints that have been validated during an inspection by a council officer and/or cross-checked against wind direction are extremely useful, regardless of population density or other odour sources. Therefore although there is a

low population density around the proposed site there are substantiated complaints which I consider contribute to evidence for effects which are more than minor.

43. The GPG Odour states that complaints can contribute to evidence of an effect but, in conjunction with other techniques, they can also be useful in determining a likely distance for consideration of notification areas.

Information on the process control and management systems

44. Since the establishment of the operation in September 2015, the applicant has amended their management practices on site. Process changes include:
- a. Those as stated above in the "Complain and Compliance History" heading above;
 - b. A layer of 0.5 metres of sawdust beneath the compost to assist with obtaining additional oxygen and air flow into the compost;
45. These changes to the composting process will likely result in compost windrows which are able to sustain aerobic conditions.
46. An Odour Management Plan drafted by the applicant details the maintenance and control measures of the compost process. Proposed mitigation includes:
- a. The applicant proposes additional monitoring which includes an on-site weather station to provide the site operators with real time measurements of wind conditions. This will enable the operators to better determine suitable conditions for work to be carried out;
 - b. The applicant proposes to carry out regular surveys of odour concentrations around the boundary of the site when wind rows are being turned, mature compost is being screened or if potentially odorous material is being exposed;
47. In the event that either raw materials or composting materials on site are excessively odorous or a complaint is received regarding odours, the applicant takes the following remedial actions to reduce the odours:
- a. Ceases any actions such as turning a windrow that is exposing odorous material;
 - b. Covers the odorous material with cured compost or a layer of bark fines or shredded green waste at least 30 centimetres thick;
 - c. Measures the temperature and estimates the moisture content of the pile to determine the reason for the odour;
 - d. Does not turn or expose the odorous material until winds are blowing away from sensitive neighbours; and
 - e. Immediately covers excessively odorous raw materials that are received on site with either cured compost, bark fines or shredded green waste.
48. The Odour Management Plan can be viewed in the applicant's AEE of discharge to air (HPRM C17C/149313).
49. The applicant states the composting process amendments will be generally consistent with the NZS4454:2005.

Frequency, Intensity, Duration, Offensiveness and Location (FIDOL)

50. The applicant has assessed the effects of the discharge of odour using the FIDOL method. FIDOL is a method commonly used when assessing odour as it accounts for frequency, intensity, duration, offensiveness and location.

Frequency of the discharge

51. The applicant has assessed that the discharge to air from the composting process is very low. However the applicant states under certain weather conditions, when there are calm and light winds, odour may accumulate onsite. When the speed increases the accumulated envelope of odour moves off site and can cause odour issues in the downwind receiving environment. This is particularly prevalent during inversion conditions, when warm air is trapped under a layer of colder air, which can be experienced at night in calm cold weather.
52. The applicant states that wind speeds less than 1.5 metres per second (low wind speeds) that would blow towards the houses to the west and northwest of the site occur for less than one percent of the time and towards the houses to the northeast of the site occur for less than two percent of the time. The applicant states that low wind speeds occur at the site approximately 16 percent of the time for all directions.
53. Low wind speeds result in odours being noticeable at greater downwind distances than higher wind speeds as the odour emission plume is less diluted and dispersed.
54. I note substantiated events of the odour have occurred in winds of 7.2 metres per second.

Intensity of the discharge

55. The applicant has assessed that the intensity of odour is unlikely to be considered offensive or objectionable and of low intensity. The application states that the site is surrounded by trees and this will shelter the site from winds from the west, north and easterly direction therefore reducing the distance the odour plume will travel downwind by up to 21 percent by increasing the dispersion of the plume. The applicant concludes the concentration of odours reaching the locations of the nearest neighbours is likely to be well-diluted and dispersed in the vicinity of the closest residences.
56. The odour surveys completed by Beca for the applicant assessed the strength of the odour detected was no more than 'distinct'.
57. I note that an assessment for a substantiated event recorded the odour intensity as a four out of six which is classified as strong.

Duration of the discharge

58. The applicant has assessed that any odours generated will not persist as exposed odorous materials will oxidise or can be covered in fresh sawdust and cease to generate odours. I note that the composting operation is continuous however any odour experienced by residents may vary in duration.
59. The substantiated odour events indicate that, from the description of the incident, the duration of the odour could last anywhere up to two to three hours.

Offensiveness/character of the discharge

60. The applicant has assessed the odour as not being offensive. The applicant states that while the odour from the freshly decomposing organic material could be considered offensive by sensitive receptors in close proximity to the material, the distances between this material, the property boundaries and sensitive activities will ensure that if any odour is detected it will not be offensive.
61. The GPG Odour provides a scale of the character/general hedonic tone of odours from -4 being extremely unpleasant to 4 being extremely pleasant. Beca air quality experts completed odour surveys around the site for the applicant. The odour from described on this scale as ranging between -1 unpleasant and 2 pleasant. The character is described as sweet, sour, acrid, vinegar, rubbish, compost, silage, effluent. The conclusion from the odour surveys was that odours can be detected beyond that boundary of the site at times and that the hedonic tone that was assessed of the odour was neutral to slightly unpleasant.
62. I note the assessment of the substantiated odour event on the 20/08/2017 describes the odour as -3 and the character being described as unpleasant, offal, wastewater.

Location of the discharge

63. The applicant has stated that the site is located in a rural area, at least 820 metres from the nearest dwelling with the next being 1000 metres to the west and 1000 metres to the north east of the site. It has been noted that the surrounding land use includes dairy farming.
64. The applicant states that an appropriate distance to assess odour within is 1000 metres and considers 1500 metre separation distance is excessive. The applicant states that the materials composted do contain animals waste such as scoured wool fragment and paunch grass but they do not compost animal manure or flesh or any human waste.
65. I consider that 1500 metres is a more appropriate distance to assess odour within. This is based on guidance from the Emission Impossible document '*Separation Distances for Industry – A discussion document*' which was prepared for Auckland Council, July 2012, this document was not included in the Auckland Unitary Plan. 1500 metres is the recommended separation distance for composting operations that contain animal or human waste which is based on the Tasmania Environmental Protection Agency. The applicant uses paunch grass and scoured wool fragments which is animal waste therefore 1500 metres is a more appropriate distance in which to consider potential effects.
66. The GPG Odour for rural land use states people living in and visiting rural areas generally have a high tolerance for rural activities and their associated effects. Although these people can be desensitised to rural activities, they may still be sensitive to other types of activities (e.g. industrial activities).
67. The GPG odour for rural residential/countryside living the population density is lower so the opportunity to be adversely affected is lower. However, the people of high sensitivity can still be exposed at all time of the day and night. Often people move into these areas for a healthier lifestyle and can be particularly sensitive to amenity issues or perceived health risks. The GPG odour recommends that dwellings in rural areas are considered to have a moderate to high sensitivity to odour.

68. I note the five closest residential dwellings are located as follows:

Distance from the proposed site	Direction
790 metres	North-west
880 metres	North-west
985 metres	West
1020 metres	North-east
1060 metres	West

69. I note the substantiated complaints are from all from North, North-east and Easterly direction from the site which indicates these dwellings are likely to be the most affected due to prevailing wind direction.

Summary

70. In summary the applicant considers the potential effects of odours from the site will be less than minor. These are for the following reasons:

- a. The applicant's other composting site has operated for twenty years without receiving complaints and for the majority of the time operated without causing odour. This is with the exception of one event in early 2017 when a batch of compost became anaerobic and odorous.
- b. The applicant uses the same composting process and similar materials at the proposed site as their current composting operation. The dispersion of odour is expected to be similar at both sites. The nearby sensitive receptors to the proposed site are located further away, therefore the concentration of odours that can be expected at sensitive receptors in the vicinity of the proposed site should be at most no higher than the current site which are considered of a generally acceptable level.
- c. The closest dwelling to the site is located 820 metres to the northwest which is within the 1000 metre separation distance recommended. However this dwelling is downwind of the proposed site on in south easterly winds, which are extremely infrequent. Other rural dwellings are located approximately 1000 metres from the site which is consistent with the recommended separation distance.
- d. Overall the distances from sensitive receivers are expected to be sufficient for any odours emitted from the site to adequately disperse before they are detected at the closest sensitive receptors. The surrounding plantation trees is also expected to increase the mixing and dispersion of any emitted odours, and thereby reduce odour levels at the closest receptors.
- e. Providing the applicant operates the compost in accordance with the Odour Management Plan, any odours generated from the site can be adequately

avoided, remedied and mitigated. The risk of odours causing offensive and objectionable effects beyond the boundary are considered to be low due to the large separation distances, the low frequency of weather conditions which will blow odours towards the residences and rural character of the receiving environment.

71. In summary, I consider that the potential adverse effects of the odour are likely to be more than minor for the following reasons:

- a. A total of 56 complaints have been received between 25/05/2017 to 14/09/2017, six of which have been substantiated;
- b. Although the applicant has proposed and put in place further mitigation measures, complaints are still occurring for this site, some of which have been substantiated. This may indicate that further mitigation measures are required to control the odour from the site;

FIDOL Factors

- c. I consider the discharge to air of odour has the potential to occur not just in low wind conditions which was mainly considered to by the applicant, but in winds of higher speeds. Substantiated events have recorded wind speeds of 7.2 seconds per metre and therefore I consider the frequency of the odour events may occur more often than that suggested by the applicant.
 - d. The odour has been assessed by a substantiated event as a four out of 6 which is classified as strong. Unsubstantiated complaints often classify the odour as a five or six out of six. I consider that the intensity of the odour could range from strong to extremely strong.
 - e. The duration of the discharge to air can vary depending on wind conditions. However based on substantiated events with multiple complaints the odour may have the potential to last up to between two to three hours.
 - f. The offensiveness/character of the odour has been assessed from a substantiated event as being -3 on the scale of hedonic tone of the odour being nearly extremely unpleasant. I consider that the odour from the composting activity does have the potential to be very unpleasant based on odour assessments from substantiated events.
 - g. Based on the GPG Odour, people living in rural areas can be particularly sensitive to amenity issues such as odour and have a moderate to high sensitivity to odour. Although 1,500 metres is a more appropriate distance to assess effects of odour. It is difficult to determine a specific area that would address all the effects of the odour. Odour complaints have been substantiated over 2,000 metres away and is therefore may be having significant effects on the environment.
72. Those that are most likely to be affected from the discharge to air are those downwind of predominant wind directions, varying from north to east. This is also dependent on weather conditions and operations occurring at the composting facility that could lead to a varying number of owners, occupiers and dwellings that could be affected from

the discharge of odour. Therefore the discharge of odour from the composting facility is likely to have effects on the environment that are more than minor.

73. Given the complaints history and the potential frequency, high intensity, long duration, unpleasant offensive character and sensitivity of the environment, I consider that the effects of odour will likely be more than minor.

Potential adverse effects of the discharge of dust from the composting facility

74. Dust has the potential to cause a nuisance effect when deposited and can impact on land uses, amenity values and visual impacts. The applicant has provided an assessment of the potential effects of dust from the proposed composting activity.
75. The applicant states that dust generated from the site will largely be comprised of larger particle sizes from the raw and finished materials and from the movement of delivery trucks on the gravel yard. The applicant states that the larger settleable material is generally greater than 50 micrometres in diameter. Particles of this size have the potential to create a nuisance effects due to soiling of surfaces and by causing irritation to eyes and nose.
76. The applicant states that large dust particles usually settle from the air within a short distance (approximately 100 to 200 metres) from the source.
77. The applicant states that fine particles, less than 20 micrometres in diameter, on site will only be generated from engine emissions from vehicles used on site and are expected to have a negligible health effect.
78. Materials held on site which have the potential to generate dust include sawdust, fine bark, soil, shredded gypsum and finished compost. The applicant states the majority of these materials consist of particles which are too large to be entrained in wind. However they may contain a small proportion of smaller particles.
79. The applicant proposes to use water sprinklers to keep the surface of the stockpiles damp when necessary to control the dust from the stockpiles of material.
80. The active composting piles are maintained at a moisture content of approximately 50 percent moisture and consists of materials too large to be a source of dust. The surface of these piles may dry out between turnings and small particles may be entrained in the wind when the surface is disturbed during the turning process. To control this dust, the applicant proposes to use sprinklers to dampen the surface of the piles prior to turning when required.
81. The bark is screened on site into various size grades. The finest grades, which are a potential source of dust are blended into the compost or removed from the site. Wood from pallets is shredded and screened into various sized pieces all of which are too large to be a source of dust. The shredding process generates a small discharge of dust which is controlled, if necessary with water sprays.
82. The shredding of plasterboard to separate the gypsum from the paper casing generates dust which has the potential to cause adverse effects if not managed appropriately. To prevent this, the applicant does not process gypsum in windy conditions. The applicant states that this limits the distance any dust produced is carried and avoids dust travelling beyond the boundary of the site and causing adverse effects.

83. The applicant proposes that if dust is observed to be travelling beyond the boundary of the site the process is shut down until weather conditions improve.
84. The applicant states that based on the Good Practice Guide for Assessing and Managing Dust (GPG Dust) dust deposition is unlikely to occur to any significant degree beyond an approximate distance of 100 to 200 metres of a significant dust source in most circumstances.
85. As the composting operating take place on a site with a minimum of 200 metres of pine plantation shelterbelt to the west, north and east of the site, the applicant states that any dust that is generated is not expected to travel beyond the immediate confines of the site. I agree that the shelterbelt will assist in mitigating dust effects.
86. The closest dwelling to the site is approximately 790 metres from the site, I agree that this is beyond the distance which dust is expected to travel.
87. The applicant notes that electricity transmission lines can be adversely affected by dust in high concentrations. The National Grid transmission lines are within a distance of approximately 10 metres south-east of the site. The applicant states that as the site is surrounded by trees which will shelter the site from the wind and also provide a filter for dust. Any dust that is produced on site will be generated close to ground level and is unlikely to have any significant vertical momentum. Therefore the applicant considers it is unlikely that any dust that travels from the stockpiles will reach the elevation of the lines or be in sufficient concentration to have any adverse impacts on the transmission lines.
88. I consider that, provided the applicant adheres to the proposed mitigation measures, the effect of the discharge of dust on dwellings and the transmission lines will likely be less than minor.

Potential adverse effects of the discharge to land on groundwater quality

89. High nitrogen concentrations in groundwater is increasingly an issue in Canterbury due to many factors including further land intensification. The composting operating has the potential to discharge leachate containing nitrogen onto land which may enter groundwater. The site is located in a red nutrient allocation zone where water quality outcomes are currently not being met.
90. The applicant states that the proposed site will produce approximately 16,000 tonnes of compost per year. The applicant has assessed the potential effects on groundwater quality from the composting activity and concluded that effects from the composting activity will be no more than minor for the following reasons:
 - a. The proposed mitigation measure of 0.5 metres of sawdust will adequately absorb average rainfalls on the property. Sawdust is also proposed to be placed around the composting piles to absorb ponded rainwater reducing the chance for rainwater or compost leachate to infiltrate to groundwater. The sawdust around the piles can be removed as soon as they become saturated. The incorporation of the sawdust beneath the compost piles will be determined by relevant weather conditions. If there has been no rainfall the week preceding the turning, the compost will be turned and the top 0.25 metres of sawdust will be incorporated into the compost. If there has been

rainfall during the week before turning then the whole 0.5 metres will be incorporated.

- b. The nitrogen released from the compost piles is controlled by the carbon to nitrogen ratio which the applicant has proposed to measure four weeks after the initial mixing. The applicant has also proposed to measure the temperature and moisture content of the compost piles to ensure the materials and composting effectively and reduce the nitrogen content in the leachate.
- c. The applicant has also proposed to use a trash pump so any ponded water can be pumped off site and into a water storage tank. The applicant may use this water on the screening plant to moisten bark or compost as it undergoes screening.
- d. It is recognised that Kaiapoi River (Silverstream), located downstream of the site, is likely to receive a substantial portion of its flow from groundwater.
- e. Modelling for the worst case scenario with 100% rainfall infiltration and one metre of unsaturated zone below ground level, shows a scenario where the concentration of ammonia nitrogen in leachate entering groundwater downgradient exceeding the ANZECC guidelines value for lowland rivers of 0.021 mg/L:
 - i. 2.1 mg/L 10 metres from the boundary of the composting site;
 - ii. 0.73 mg/L 1,000 metres from the boundary of the composting site (approximately Eyre River Diversion Drain);
 - iii. 0.44 mg/L 5,000 metres from the boundary of the composting site (approximately headwater of Silverstream).
- f. The same modelling but assuming 85% of the moisture is absorbed by sawdust showed the concentration of ammonia nitrogen to be below the ANZECC guideline. Therefore the applicant states that assuming the water absorption, and the optimisation of the carbon to nitrogen ratio are implemented, the effects are considered to be less than minor.
- g. Modelling for nitrate-nitrogen and nitrite-nitrogen using the worst case hydraulic conductivity for the alluvial gravels indicates that the groundwater entering Silverstream would be below the ANZECC guidelines without sawdust absorption.
- h. The applicant has also proposed to monitor water seeping from the toe of the composting piles, representing compost leachate.
- i. The applicant has also proposed to monitor groundwater immediately downgradient of the composting facility to assess the potential breakthrough of nitrogen parameters so that mitigation measures can be modified as necessary. This may include further modification of the composting mix, increased use of sawdust and bark fines, or lowering the permeability of the ground surface with compacted hardstanding containing fines or application of a sealed surface such as concrete to limit leaching rate.

91. Ms Whalen has provided technical advice on the assessment completed by the applicant. The applicant provided the expected nitrogen losses which Mr Zeb Etheridge

(Canterbury Regional Council, Senior Hydrogeologist) assessed to be approximately 800 kg/yr and assessed the likely increase in Silverstream downgradient of the site. Ms Whalen states that this analysis is very conservative and assumes all of the nitrogen load would reach Silverstream.

92. Conclusions from this analysis are that there would be approximately a two percent increase of current nitrogen load at Silverstream. Mr Etheridge and Ms Whalen agreed this is not a significant portion based on current conditions.
93. Ms Whalen and Mr Adrian Meredith (CRC, Principal Surface Water Quality Scientist) notes that as this area is a red nutrient allocation zone, if future mitigations are required of the farmers in the area, the relative proportion of nitrogen contributed by the composting process would be larger and that the applicant would not be required to mitigate or reduce the nitrogen loads where others would be due to the planning process. Ms Whalen suggests one way to address this is through a relatively short consent duration.

Summary

94. Based on the information above, the mitigation measures proposed by the applicant, the technical advice received and provided the composting operations are maintained at best practice, I consider that the effects on groundwater quality are likely to be no more than minor.

Potential adverse effects on the discharge on drinking water supplies

95. The potential discharge of leachate from the compost containing nitrogen could impact downgradient water supplies. The applicant has provided an assessment of the effects from composting operating on drinking water supplies.
96. The applicant states that none of the modelled groundwater concentrations downgradient exceeded the New Zealand Drinking Water Standards (2008) for nitrate-nitrogen and nitrite-nitrogen at the location of the nearest downgradient well used for domestic or stock water supply.
97. I note that the closest downgradient drinking water supply well is located approximately 1020 metres north-east of the site and stock supply well, is approximately 1070 metres north-east from the proposed site. This is closer than what that applicant states with the closest domestic supply bore located approximately 1,400 metres away.
98. I also note that at the closer 1,020 distance, the modelling still shows that the New Zealand Drinking Water Standards are not exceeded. The applicant's modelling shows that 1,000 metres downgradient the concentration of nitrate-nitrogen is likely to be 1.94 mg/L which does not exceed the 50.0 mg/L drinking water standard. This is also the worst case scenario with 100% rain infiltration, therefore the amount of nitrate-nitrogen reaching the wells has the potential to be less.
99. Given the above demonstrated by the applicant and the separation distance to the wells, I consider the effects of the composting activity on drinking water will likely be less than minor.

Potential adverse effects of the discharges on Tangata Whenua values

100. The application is located in the rohe of Te Ngai Tūāhuriri Rūnanga. The site is not within a silent file, statutory acknowledge area of rūnanga sensitive site.

101. Tūāhuriri Rūnanga were sent an interested parties letter on the 5 April 2017. No response has been received at the time of writing this recommendation.

102. I consider that the effect of the proposal on Tangata Whenua values to be likely less than minor as there are no culturally significant areas within or adjacent to the proposed site.

OBJECTIVE AND POLICY ASSESSMENT

103. *Objective 5.6 – Amenity values of the receiving environment are maintained.* As discussed above effects on the environment from odour are likely to be more than minor. Therefore amenity values are unlikely to be maintained and the proposal is not consistent with this objective.

ASSESSMENT OF AFFECTED PERSONS

104. The applicant has obtained written approval from Jacinta Pearl Mackle and Katrina Mary Hewson, the owners of the land to which this applicant relates.

105. The applicant did not obtain any written approvals from dwellings within 1,500 metres of the composting activity.

106. As stated above, I consider the effects of the discharge of odour from the proposed activity are likely to be more than minor. Therefore I consider that there would be affected parties. Affected parties were originally considered to be owners and occupiers within 1,500 metres. However further discussion on this matter, and also considering the complaints received about odour from further than 1,500 metres, I consider that effects reach beyond 1,500 metres from the composting activity.

RECOMMENDATION

107. Section 95A of the RMA states that:

(1) *A consent authority may, in its discretion, decide whether to publicly notify an application for a resource consent for an activity.*

(2) *Despite subsection (1), a consent authority must publicly notify the application if—*

(a) *it decides (under section 95D) that the activity will have or is likely to have adverse effects on the environment that are more than minor; or*

(b) *the applicant requests public notification of the application; or*

(c) *a rule or national environmental standard requires public notification of the application.*

(3) *Despite subsections (1) and (2)(a), a consent authority must not publicly notify the application if—*

(a) *a rule or national environmental standard precludes public notification of the application; and*

(b) *subsection (2)(b) does not apply.*

- (4) *Despite subsection (3), a consent authority may publicly notify an application if it decides that special circumstances exist in relation to the application.*
108. Section 95B states:
- (1) *If a consent authority does not publicly notify an application for a resource consent for an activity, it must decide (under sections 95E to 95G) whether there is any affected person, affected protected customary rights group, or affected customary marine title group in relation to the activity.*
- (2) *The consent authority must give limited notification of the application to any affected person unless a rule or national environmental standard precludes limited notification of the application.*
- (3) *The consent authority must give limited notification of the application to an affected protected customary rights group or affected customary marine title group even if a rule or national environmental standard precludes public or limited notification of the application.*
- (4) *In subsections (1) and (3), the requirements relating to an affected customary marine title group apply only in the case of applications for accommodated activities.*
109. I consider that the application should be publicly notified under section 95A of the RMA as, assessed above under 'Potential adverse effects from the discharge of odour', I consider the effects on the environment from the discharge to odour of air to be more than minor in accordance with section 95D of the RMA.
110. I also consider it is appropriate to bundle the discharge to air and the discharge to land for the purposes of notification as this enable a holistic assessment of the proposal as a whole.

111. Signed:



Date:

19/09/2017

Name:

Tegan Wadworth
Consents Planner

NOTIFICATION DECISION

112. A panel of delegated Environment Canterbury staff met to consider the potential notification (or not) of this resource consent application. Delegation to make decisions under s95 RMA only extend to Tier 4 consents staff and above, and the formal decision making panel comprised the following staff:

Paul Hopwood – Principal Consents Advisor

Philip Burge – Consents Planning Manager (acting)

Jessica Steel- Team Leader Consents Planning

113. The panel considered the consent application, the notification recommendation from Consent Planner Tegan Wadworth and the advice on the effects of the proposal.

114. Following the meeting of the panel, and considering all those matters above, we agree with the assessment of effects and recommendations of Ms Wadworth. In particular we note the following:

- Based on the FIDOL assessment, there is the potential for the odour from the site to be strong to extremely strong lasting up to three hours and being of an extremely unpleasant nature.
- Despite the application improving composting operations with additional mitigation measures, there have still been substantiated odour complaints occurring indicating that odour is still occurring from the site despite increased mitigation measures.
- Given that odour complaints have been substantiated over 2100 metres from the site, this indicates that the odour may be affecting a large portion of the surrounding environment and not just those located within 1500 metres.
- Overall, we consider that the adverse effects of the proposal on the environment are more than minor.

86. In consideration of s95 RMA:

(1) *A consent authority may, in its discretion, decide whether to publicly notify an application for a resource consent for an activity.*

(2) *Despite subsection (1), a consent authority must publicly notify the application if—*

(a) *it decides (under section 95D) that the activity will have or is likely to have adverse effects on the environment that are more than minor; or*

(b) *the applicant requests public notification of the application; or*

(c) *a rule or national environmental standard requires public notification of the application.*

(3) *Despite subsections (1) and (2)(a), a consent authority must not publicly notify the application if—*

(a) *a rule or national environmental standard precludes public notification of the application; and*

(b) *subsection (2)(b) does not apply.*

(4) *Despite subsection (3), a consent authority may publicly notify an application if it decides that special circumstances exist in relation to the application.*

87. Section 95A(2)(b) does not apply as the applicant has not requested public notification of the application.

88. Section 95A(2)(c) does not apply as there are no rules or national environmental standards that require public notification of the application.

89. In consideration of s95(4) we do not consider that special circumstances exist in relation to this proposal.
90. We then consider the proposal against section 95A(2)(a) and consideration of s95D. Section 95D states:

A consent authority that is deciding, for the purpose of section 95A(2)(a), whether an activity will have or is likely to have adverse effects on the environment that are more than minor—

(a) must disregard any effects on persons who own or occupy—

(i) the land in, on, or over which the activity will occur; or

(ii) any land adjacent to that land; and

(b) may disregard an adverse effect of the activity if a rule or national environmental standard permits an activity with that effect; and

(c) in the case of a controlled or restricted discretionary activity, must disregard an adverse effect of the activity that does not relate to a matter for which a rule or national environmental standard reserves control or restricts discretion; and

(d) must disregard trade competition and the effects of trade competition; and

(e) must disregard any effect on a person who has given written approval to relevant application.

91. We have not considered effects on the owner or occupier of the land subject to or adjacent to the proposal and we note that written approvals have not been received from any affected persons with the exception of the owners of the site which the activity relates.
92. In consideration of s95D(c) we may disregard an effect which is permitted by a rule in a plan. There are no effects considered to be permitted.
93. We note that the proposal is a discretionary activity, so s95D(c) does not apply. We do not consider that there are any aspects of trade competition to be disregarded for this proposal.
94. We consider that as the adverse effects on the environment are more than minor the proposal must be publicly notified pursuant to s95A(2)(a).
95. In addition to public notification we agree with the list of parties to be served notice set out in Appendix A (all parties within 2200 metres of the site) and the proposed notification wording in Appendix B.

Having considered s95A to 95C of the RMA, and under the authority delegated by Council, we have decided under s95A(2)(a) RMA that the application must be publicly notified because the effects on the environment are more than minor.

Signed:



Date:

21st September 2017

Name:

Jessica Steel
Team Leader Consents
Planning

Signed:



Date:

21st September 2017

Name:

Paul Hopwood
Principal Consents Advisor

Signed:



Date:

21st September 2017

Name:

Philip Burge
Consents Planning Manager
(Acting)

APPENDIX A – LIST OF PARTIES TO SERVE NOTICE ON (all parties within 2200 metres)

APPENDIX B – NOTIFICATION WORDING

RESOURCE MANAGEMENT ACT 1991

Resource consent application:

Applicant: Canterbury Landscape Supplies Limited
Address for service: Loe Pearce & Associates, Attn: Barry Loe, 100
Weston Road, Christchurch 8052

CRC175344 - Discharge permit for the discharge of contaminants (including odour and dust) into air from a composting operation.

CRC175345 - Discharge permit for the discharge of contaminants to land that may enter water, as a result of composting and stockpiling of compost on land.

The applications are retrospective, relating to a compost operation at the property located at 97 Diversion Road and 949 South Eyre Road, Swannanoa, at or about map reference NZTM2000 1560292 mE 5192109 mN.

The materials composted will be sawdust and bark, dewatered paunch grass, and scoured wool fragments. Other materials that may be composted include green waste, egg shell, compostable packaging with some residual food waste, grease trap waste, biosolids and leaf litter. The maximum quantity of composting materials stored or being processed on the site at any time will be 40,000 cubic metres, with approximately 16,000 tonnes of compost produced each year.

The compost process will include blending the materials, turning, curing and screening. The compost piles will be regularly monitored and tested to check the composting process.

The applications have been publicly notified in accordance with s95A RMA.

A duration of 35 years is sought.