

## Attachment 1



# Resource consents

This consent documentation, with changes to condition 17 under section 133A of the RMA, was re-issued on 20 March 2020. The reasons are identified in the Hearing Commissioners' minute number 5

RM171238, RM171255, RM171256, RM171257, RM171258

Pursuant to section 104B of the Resource Management Act 1991 ("the Act"), the Tasman District Council ("the Council") hereby grants resource consents to:

### ***Nelson Regional Sewerage Business Unit***

(hereinafter referred to as "the Consent Holder")

### Activities authorised by these consents

RM171238	Coastal Permit	To discharge treated wastewater into the Waimea Inlet
RM171255	Discharge Permit	To discharge treated wastewater onto land via irrigation
RM171256	Discharge Permit	To discharge contaminants (primarily odour) into air
RM171257	Discharge Permit	To discharge treated wastewater into land via seepage from clay-lined facilities (ponds)
RM171258	Coastal Permit	To occupy the coastal marine area (Waimea Inlet) and to use and maintain an existing pipe and diffuser outlet structure

### Location details:

Address of property:	150 Bell Island Access, Best Island
Legal description:	Island No 2 Bell Waimea East District
Record of title:	CT 56/193
Co-ordinates (NZTM):	

	Easting	Northing
Wastewater Treatment Plant	1614689	5428295
Irrigation area	1614184	5429297
Outlet structure and discharge to Waimea Inlet	1615481	5428066

Pursuant to section 108 and 108AA of the Act, this resource consent is issued subject to the following conditions:

## Conditions

### General – RM171238, RM171255, RM171255, RM171256, RM171257 and RM171258

1. The Consent Holder shall ensure that the activities authorised by these consents are undertaken in general accordance with the information provided with the application RM171238, RM171255-RM171258, entitled 'Bell Island Wastewater Treatment Plant – Resource Consent Application and Assessment of Environmental Effects' prepared by Stantec New Zealand dated 6 November 2017 and also in accordance with the management plans for the wastewater treatment plant required by Condition 7. In the event that there is any conflict between these documents and any condition(s) of these consents, the conditions shall prevail.
2. The term of this consent is 20 years.
3. The Consent Holder shall maintain a Complaints Register for the activities authorised by these consents. All complaints received by the Consent Holder in relation to the activities authorised by these consents shall be logged immediately in the Complaints Register. The Complaints Register shall record:
  - (a) The date, time, location, duration, and nature of the alleged event/ incident;
  - (b) Name, phone number and address of the complainant unless the complainant wishes to remain anonymous;
  - (c) Any remedial action taken by the Consent Holder in response to the complaint and when it was undertaken;
  - (d) The possible cause of the relevant event/ incident that led to the complaint;
  - (e) The weather conditions at the time of the relevant event/ incident including estimates of wind direction, wind strength, temperature and cloud cover;
  - (f) The date and name of the person making the entry; and
  - (g) Details of any complaints received that may indicate non-compliance with the conditions of these consents shall be provided to the Council's Team Leader Monitoring and Enforcement within 24 hours of receipt of the complaint or on the next working day. All other complaints shall be included in the Annual Report required by Condition 4.
4. The Consent Holder shall prepare an Annual Report and provide it to the Council's Team Leader Monitoring and Enforcement by 30 September of each year. The Report shall cover the period from 1 July to 30 June and include, but not necessarily be limited to, the following:

- (a) Collate, analyse, and interpret the monitoring results required by the conditions of these consents. This assessment shall include an analysis of the past five years' monitoring data and identification of any trends in the results;
  - (b) Copies of any records required by any condition(s) of these consents;
  - (c) A summary of complaints, if any, received by the Consent Holder and any measures taken in response to those complaints;
  - (d) Details of the date of the hui as required by Condition 8 below, numbers in attendance, and a summary of matters discussed and any actions arising;
  - (e) A summary of the odour upgrade works to be completed within the next 12 months as detailed in Appendix 3;
  - (f) A summary of the odour upgrade works detailed in Appendix 3 that have been completed;
  - (g) The record of results from all odour monitoring patrols undertaken in accordance with Condition 39 over the previous year; and
  - (h) Details of the date of the liaison meetings required by Condition 37, numbers in attendance, and a summary of matters discussed.
5. The Consent Holder shall submit a Monitoring and Technology Review Report to the Council's Team Leader Monitoring and Enforcement by the 6th, 12th, and 18th anniversaries of the date of commencement of these consents. The Monitoring and Technology Review Report shall be prepared by a suitably qualified and experienced person and shall include the following:
- (a) Volumes, flows and loads profile and changes assessed against future population projections and wastewater projections as set out in in section 4 of the Bell Island Wastewater Treatment Plant Resource Consent Application and Assessment of Environmental Effects 6 November 2017;
  - (b) An assessment of ongoing compliance with the requirements of these consents particularly in relation to any reported non-compliance with consent conditions and the adequacy and scope of such monitoring and any actions arising;
  - (c) An assessment of compliance/consistency with any relevant national or regional water quality policies, environmental standards or guidelines in effect at the time;
  - (d) A summary of any major improvements made to the reticulation, treatment or disposal system since the commencement of this permit, including a discussion of potential benefits;
  - (e) A summary of any residual actual or potential adverse effects outside the designated mixing zone of the treated wastewater discharge, irrespective of whether the discharge complies with the conditions of these consents;

- (f) An assessment of the implications of climate change (reasonably foreseeable within the duration of these consents) on the performance of the Bell Island wastewater treatment plant;
  - (g) An outline of significant technological changes and advances in relation to wastewater management, treatment, discharge, and beneficial reuse technologies that could be of relevance for possible future use in the Bell Island wastewater treatment and discharge facilities; and
  - (h) A general assessment of whether any newly available technology option(s) or combination of options identified through (g) above is likely to represent the Best Practicable Option (BPO) to minimise the potential and actual adverse effects of the discharge of treated wastewater at the Bell Island wastewater treatment plant.
6. The Consent Holder shall consider the assessment completed in Condition 5(h) and advise the consent authority whether it intends to adopt any option(s) or incorporate such technologies as BPO.

**Advice note:**

*The 6th, 12th and 18th anniversaries from the date of the commencement of the consents is to align with the three-yearly Long-Term Plan cycle and will be carried out under the consultative procedures of, and approved budgets under the Local Government Act 2002.*

7. The Consent Holder shall, at all times, have an Operations and Maintenance Manual, a Pond Management Plan, and an Odour Management Plan in place and make these plans available to the Council's Team Leader Monitoring and Enforcement upon request.
- (a) The objective of these plans is to provide a framework for the operation and management of the wastewater treatment plant and discharge facilities to ensure compliance with the conditions of these consents. These plans shall, as a minimum, cover:
    - (i) An overview description of the wastewater treatment plant and discharge facilities (being the irrigation system and pipe/diffuser outlet structure);
    - (ii) A description and schedule of the routine inspection, monitoring, and maintenance procedures to be undertaken to ensure operation of the wastewater treatment plant and discharge facilities complies with the conditions of these consents;
    - (iii) A description of the sampling location(s) and methodology for sampling the treated wastewater discharge, groundwater and receiving environment;
    - (iv) A schedule of the critical aspects of the wastewater treatment plant and the detailed response and contingency plans to remedy any possible variations from normal plant operation that could potentially affect discharge quality;

- (v) Details of contingency plans and procedures to address a critical power or equipment failure at the wastewater treatment plant;
  - (vi) Procedures for recording routine maintenance and all major repairs that are undertaken;
  - (vii) The Consent Holder's chain of command, responsibility and notification protocols; and
  - (viii) Details of the complaints procedure, record keeping and response procedure.
- (b) These plans shall be reviewed and updated at least every three years by the Consent Holder but may also be amended 'as required' as a result of any changes in the operation or management of the wastewater treatment plant and discharge facilities that could affect the quality and quantity of the discharges authorised by these consents.
8. During the month of November each year, the Consent Holder shall arrange a hui for Te Tau Ihu iwi. Notification of the hui shall be via the Consent Holder's website and by email or mailed notice to each iwi representative at least four weeks before the hui. The purpose of the hui shall include but is not limited to the following:
- (a) The Consent Holder recognising the role of tangata whenua as kaitiaki and seeking to understand ongoing cultural concerns in relation to the wastewater discharge;
  - (b) The Consent Holder providing an opportunity for Te Tau Ihu iwi to view the Bell Island wastewater treatment plant including an opportunity to:
    - (i) assess the structural integrity of the infrastructure to avoid damage and degradation to coastal values; and
    - (ii) confirm that identified archaeological sites are protected from the Consent Holder's activities associated with the operation of the Bell Island wastewater treatment plant;
  - (c) The Consent Holder seeking input from Te Tau Ihu iwi into potential works that could be undertaken at the Bell Island site to:
    - (i) maintain the natural character and ecological values of Bell Island; and
    - (ii) protect the Mauri of the Waimea Inlet in so far as it relates to the wastewater discharge; and
  - (d) The Consent Holder providing Te Tau Ihu iwi with updates on progress of reusing treated wastewater from the Bell Island wastewater treatment plant; and
  - (e) Minutes of this hui will be distributed to all parties within four weeks of the date of the hui.

**Advice notes:**

1. *The notification requirements in this condition will be complied with if the Consent Holder gives four weeks of notice to each iwi representative in accordance with contact details maintained by Tasman District Council.*
  2. *In the event of adverse weather, the Consent Holder shall organise an alternative day for a viewing the WWTP.*
9. Within 12 months of commencement of consent, the Consent Holder shall in consultation with the Bell Island Stewardship Group develop a restoration planting programme to enhance the cultural values of Bell Island. The restoration planting programme shall include the following matters:
- (a) The Consent Holder shall make a fund available to complete the works identified in the restoration planting programme.
  - (b) Following consultation, the Consent Holder will present the finalised programme to Bell Island Stewardship Group for input and comment. Each member of the Bell Island Stewardship Group will have 12 weeks to provide feedback. If no feedback is received the Consent Holder may proceed to implement the programme as though approval had been obtained.
  - (c) If consultation in response to the finalised programme results in proposed revisions to the programme by the Bell Island Stewardship Group the parties will work together in good faith to revise the programme to meet both their needs.
  - (d) Works shall avoid any areas which would negatively impact operations at the Bell Island wastewater treatment plant, or require additional consenting requirements (such as works within the coastal marine area).
  - (e) The Consent Holder shall in consultation with the Bell Island Stewardship Group review the effectiveness of the restoration planting programme within three years of implementation of the programme and every three years thereafter.

**Advice notes:**

1. *Consultation and planting shall involve the current members and representatives of the Waimea Inlet Forum and Te Tau Ihu iwi – referred to in this condition as the ‘Bell Island Stewardship Group’*
  2. *The consultation component of the above condition will be complied with if any member of the Bell Island Stewardship Group advises the Consent Holder that they are willing for the Consent Holder to proceed without their involvement.*
10. The Council may, in accordance with section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of any or all of these consents annually between 1 October and 1 November for any one or more of the following purposes:

- (a) To deal with any adverse effect on the environment arising from the exercise of these consents which was not foreseen at the time the application was considered and which is appropriate to deal with at the time of review; or
- (b) To require the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment resulting from the exercise of these consents.

**Advice note:**

*The Council may, in accordance with section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of these consents:*

- (a) *to enable standards set by a new rule(s) in any regional plan that has been made operative since the granting of these consents to be met;*
- (b) *when relevant national environmental standards have been made; or*
- (c) *if the information made available to the consent authority by the Consent Holder for the purposes of the application contained inaccuracies which materially influenced the decision on the application and the effects of the exercise of the consent(s) are such that it is necessary to apply more appropriate conditions.*

## Conditions for RM171238 – Discharge treated wastewater into the Waimea Inlet

11. In the event of a breach of the consent conditions or the Consent Holder becoming aware of an unauthorised discharge of treated wastewater in an extreme event to the Waimea Inlet, the Consent Holder shall notify as soon as practicable, and within one working day of this being known the following: the Council's Team Leader Monitoring and Enforcement, the Nelson Marlborough Bay District Health Board Senior Health Protection Officer, and Te Tau Ihu iwi.
- This notification shall include, but not be limited to:
- (a) The reasons the discharge did occur;
  - (b) The duration of the discharge;
  - (c) Sampling and monitoring procedures used to assess the effect of the discharge on the Waimea Inlet, and the adjacent shoreline and public health;
  - (d) Details of notification, procedures and public education initiatives undertaken that ensured the public was informed of the discharge and its potential adverse effects, and actions taken that helped to avoid or mitigate the adverse effects of the discharge; and
  - (e) Details of the procedure used for receiving and dealing with any complaints about the adverse effects resulting from the discharge.



The Consent Holder shall notify the Council’s Team Leader Monitoring and Enforcement and the Nelson Marlborough Bay District Health Board Senior Health Protection Officer and Te Tau Ihu iwi of the cessation of any discharge as soon practicable and within three working days of the discharge ceasing under this condition.

**Advice note:**

*The notification requirements in this condition will be complied with if the Consent Holder gives notice to each iwi representative in accordance with contact details maintained by Tasman District Council.*

12. The Consent Holder shall maintain a telemetered measuring device to  $\pm 5\%$  accuracy to record the times and rates of discharge of treated wastewater to the Waimea Inlet. These records are to be supplied electronically to the Council’s Team Leader Monitoring and Enforcement at least every two months, upon written request, and included in the Annual Report required by Condition 4.
13. The accuracy of the measuring device referred to in Condition 12 shall be tested by an experienced person at least once every five years and confirmation of the accuracy shall be included in the Annual Report required by Condition 4 for the year the testing is undertaken.
14. The discharge of treated wastewater to the Waimea Inlet shall, under normal operating conditions, only occur for a period of up to three hours after any high tide which occurs at the defined outlet structure.
15. The average daily rate of discharge of treated wastewater to the Waimea Inlet, based on a rolling 365 day averaging period, shall not exceed 20,000 cubic metres per day ( $m^3/day$ ).
16. The maximum volume of treated wastewater to the Waimea Inlet over any 24-hour period shall not exceed 25,000 cubic metres ( $m^3$ ) and where wastewater is irrigated to land under resource consent RM171256 the combined volume discharged to land and to the Waimea Inlet shall not exceed 26,040  $m^3$ .
17. The quality of treated wastewater discharged to the Waimea Inlet shall be measured at the discharge channel in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7 and meet the following standards:

Determinand	Unit	Median limit	Percentile limit	Compliance period
Faecal coliforms	cfu/100 mL	20,000	100,000 - 90th percentile limit	26 most recent fortnightly samples
Carbonaceous five day biochemical oxygen demand (cBOD <sub>5</sub> )	mg/L	40	50 - 90th percentile limit	26 most recent fortnightly samples



Determinand	Unit	Median limit	Percentile limit	Compliance period
Total suspended solids (TSS)	mg/L	100	150 - 90th percentile limit	26 most recent fortnightly samples
Total Phosphorous	kg/day	-	150 - 90th percentile limit	26 most recent fortnightly samples
Total Nitrogen 1 April to 31 July	kg/day	500	600- 90th percentile limit	9 most recent fortnightly samples in period
Total Nitrogen 1 August to 31 March	kg/day	500	600 – 90 <sup>th</sup> percentile limit	17 most recent fortnightly samples in period

- (a) Compliance with these limits shall be based on a representative sample, as defined in Condition 21, of treated wastewater collected fortnightly from the discharge channel and analysed for faecal coliforms, cBOD<sub>5</sub>, TSS, TN and TP concentrations.
- (b) For the purposes of this condition for faecal coliforms, cBOD<sub>5</sub>, and TSS:
- (i) To determine compliance with median limits, no more than 13 samples out of any 26 consecutive fortnightly samples shall exceed the specified median limit.
  - (ii) To determine compliance with the 90<sup>th</sup> percentile limit, no more than three samples out of any 26 consecutive fortnightly samples shall exceed the specified 90<sup>th</sup> percentile limit.
- (c) For the purposes of this condition for TP, to determine compliance with the 90<sup>th</sup> percentile limit, no more than three samples out of any 26 consecutive fortnightly samples shall exceed the specified 90<sup>th</sup> percentile limit.
- (d) For the purposes of this condition for TN for the period 1 April – 31 July:
- (i) To determine compliance with the median limit, no more than five samples out of any nine consecutive fortnightly samples within the compliance period shall exceed the specified median limit.
  - (ii) To determine compliance with the 90<sup>th</sup> percentile limit, no more than one sample out of any nine consecutive fortnightly samples within the compliance period shall exceed the specified 90<sup>th</sup> percentile limit.
- (e) For the purposes of this condition for TN for the period 1 August – 31 March:
- (i) To determine compliance with the median limit, no more than nine samples out of any 17 consecutive fortnightly samples within the compliance period shall exceed the specified median limit.

- (ii) To determine compliance with the 90<sup>th</sup> percentile limit, no more than two samples out of any 17 consecutive fortnightly samples within the compliance period shall exceed the specified 90<sup>th</sup> percentile limit.
  - (f) The daily mass of TN and TP discharged on each day that samples are collected, as required by this condition, shall be calculated by multiplying the concentration in each sample collected by the average daily rate of discharge of treated wastewater based on a rolling 14 day averaging period.
  - (g) All treated wastewater sampling required shall be undertaken by a suitably experienced person.
  - (h) All samples taken shall be analysed by a laboratory that is accredited for that analysis to NZS/ISO/IEC 17025 or equivalent or to any other comparable standard approved by the Consent Authority.
18. The Consent Holder shall collect a representative sample of treated wastewater from the discharge channel once every three months for a period of 24 months from commencement of consent, and analyse it for the following:
- (i) culturable human enterovirus;
  - (ii) human enterovirus by PCR; and
  - (iii) human norovirus (GI, GII) by PCR.

**Advice note:**

*The discharge of treated wastewater to the Waimea Inlet is not expected to result in any significant adverse effects as a result of pathogens. However, this condition requires the Consent Holder to undertake regular monitoring of enterovirus and norovirus over a two year period to better understand the relative concentrations in the treated wastewater discharge and the log order of removal achieved by the WWTP compared to the Quantitative Microbiological Risk Assessment carried out as part of the 'Bell Island Wastewater Treatment Plant – Resource Consent Application and Assessment of Environmental Effects' prepared by Stantec New Zealand and dated 6 November 2017.*

For the representative sampling required under this condition:

- (a) Samples shall be collected at the same time as those collected in accordance with Condition 17 above.
- (b) Sampling shall be undertaken by a suitably experienced person.
- (c) Samples will be collected and analysed in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7 and where possible, all samples taken shall be analysed by a New Zealand laboratory that is accredited for that analysis to NZS/ISO/IANZ17025 or equivalent or to any other comparable standard approved by the Consent Authority. Enterovirus and

norovirus (genome copies/L) shall be determined by Reverse Transcriptase - quantitative Polymerase Chain Reaction (RTqPCR).

**Advice note:**

*As at the commencement of consent, not all the above virus analyses were covered by existing accreditation at a New Zealand laboratory.*

- (d) Within six months of completing the monitoring required by this condition, the Consent Holder shall submit a report, prepared by a suitably qualified and experienced person to the Council's Team Leader Monitoring and Enforcement. The report shall summarise the results of the monitoring required by this condition (including virus concentrations and calculated log order virus removal), and provide a comparison with data associated with the Quantitative Microbiological Assessment (QMRA) carried out as part of the 'Bell Island Wastewater Treatment Plant – Resource Consent Application and Assessment of Environmental Effects' prepared by Stantec New Zealand and dated 6 November 2017.
- (e) If the report prepared in accordance with clause (d) above indicates that there may be a significant difference in the observed concentrations and log order removal relative to that defined in the QMRA, the Consent Holder shall engage a suitably qualified person to review the implications with respect to the QMRA. If such implications are deemed to identify an unacceptable level of risk, the Consent Holder shall take immediate actions to improve treatment and commission a Monitoring and Technology Review Report, within six months, in accordance with Condition 5 above to specifically address increased virus removal at the wastewater treatment plant.

**Advice note:**

*Any Monitoring and Technology Review Report commissioned under this condition will not alter the timing of the Monitoring and Technology Review Reports commissioned under Condition 5.*

19. In addition to the limits specified in Condition 17, the maximum concentrations of the following substances in the treated wastewater discharged to the Waimea Inlet shall not exceed the following:

<b>Determinand</b>	<b>Maximum concentration</b>
Total arsenic	1.98 g/m <sup>3</sup>
Total cadmium	0.039 g/m <sup>3</sup>
Total chromium	0.24 g/m <sup>3</sup>
Total copper	0.072 g/m <sup>3</sup>
Total lead	0.24 g/m <sup>3</sup>

<b>Determinand</b>	<b>Maximum concentration</b>
Inorganic mercury	0.006 g/m <sup>3</sup>
Total nickel	0.39 g/m <sup>3</sup>
Total zinc	0.83 g/m <sup>3</sup>
Cyanide	0.22 g/m <sup>3</sup>
Phenols	22 g/m <sup>3</sup>
Total sulphides	1.2 g/m <sup>3</sup>

Compliance with these limits shall be based on a representative sample of treated wastewater collected annually from the discharge channel in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7 and analysed for the listed determinands.

20. In the event that the median mass load of TN discharged to the Waimea Inlet between 1 August to 31 March in any year, exceeds 400 kilograms per day (kg/day) the Consent Holder shall:
- (i) Undertake an investigation to assess whether any significant adverse environmental effects within the receiving environment have occurred as a result of the discharges authorised by these consents;
  - (ii) Within two months of completion of the investigation required by sub-clause (i), submit a nitrogen effects assessment report, prepared by a suitably qualified and experienced marine ecologist/scientist, to the Council's Team Leader Monitoring and Enforcement. The nitrogen effects assessment report shall outline the results of the investigation required by sub-clause (i) of this condition and include a conclusion as to whether any significant adverse environmental effects within the receiving environment have occurred as a result of the discharges authorised by these consents. In addition, the nitrogen effects assessment report shall include recommendations on whether any amendments to the monitoring programme(s) specified in Appendix 2 (attached to these consents) should be made to better assess the effects of the discharges authorised by these consents; and
  - (iii) In the event that the nitrogen effects assessment report required by sub-clause (ii) recommends amendments to the monitoring programme(s) specified in Appendix 2 (attached to these consents) then those amendments shall be made and implemented provided they are first agreed to in writing by the Council's Team Leader Monitoring and Enforcement.
- (b) If the nitrogen effects assessment report required by sub-clause (ii) above concludes the discharges authorised by these consents have caused any significant adverse environmental effects within the receiving environment, the Consent Holder shall:

- (i) Within two months of the date the nitrogen effects assessment report is submitted in accordance with sub-clause (ii) above, submit a nitrogen limits report, prepared by a suitably qualified and experienced marine ecologist/scientist, to the Council's Team Leader Monitoring and Enforcement for certification. The nitrogen limits report shall outline a proposed monitoring programme and timeframe to derive site-specific treated wastewater quality limits for nitrogen which, if complied with, will ensure that the discharge of treated wastewater does not result in significant adverse effects within the receiving environment. These discharge limits may either be concentration or mass load limits for TN and/or, if more appropriate, specific nitrogen species;
- (ii) Once certified, the monitoring programme required by clause (b)(i) of this condition shall be implemented. Within one month of the completion of the monitoring programme a report, prepared by a suitably qualified and experienced marine ecologist/scientist, shall be submitted to the Council's Team Leader Monitoring and Enforcement for certification. The report shall outline the derivation of site-specific discharge limits for TN or specific nitrogen species which, if complied with, will ensure that the discharge of treated wastewater does not result in significant adverse effects within the receiving environment; and
- (iii) Comply with the TN or specific nitrogen species discharge limits from the time they are certified by the Council's Team Leader Monitoring and Enforcement.

**Advice note:**

*The discharge of treated wastewater to the Waimea Inlet is not expected to result in any significant adverse effects as a result of TN. However, this condition requires the Consent Holder to undertake regular monitoring of TN and, if the specified TN mass load trigger is exceeded, monitoring within the receiving environment to assess potential effects. Should that monitoring show that the discharge has resulted in significant adverse effects then the Consent Holder is required to derive site-specific TN (and/or nitrogen species) discharge limits which must then be complied with.*

- 21. For the purposes of Conditions 17, 18, 19, and 20 a 'representative sample' shall consist of a composite sample made up of at least three subsamples collected at least five minutes apart from the discharge channel in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7. All samples shall be collected in laboratory supplied containers and using appropriate procedures as directed by the accredited environmental testing laboratory and shall be transported to the laboratory under chain of custody.
- 22. The results of the monitoring specified in Conditions 17, 18, 19, and 20 shall be included in the Annual Report required by Condition 4. Notwithstanding the above, the Consent Holder shall report any exceedance of any limit to the Council's Team Leader

Monitoring and Enforcement within five working days of any exceedance being detected.

23. The discharge shall not cause any of the following effects in the receiving water outside the zone of reasonable mixing shown in Figure 1 included in Appendix 1 (attached to these consents):
  - (a) The production of any conspicuous oil or grease film, scums or foams, or floatable or suspended material;
  - (b) Any conspicuous change of colour or visual clarity;
  - (c) Any emission of objectionable odour; or
  - (d) Any significant adverse effect on marine aquatic life.
24. The Consent Holder shall undertake monitoring of the receiving environment in accordance with the monitoring programme(s) contained in Appendix 2 attached to these consents. The Consent Holder may amend the monitoring programme(s), including determinands to be monitored/analysed and frequencies of monitoring, provided this is first agreed to in writing by the Council's Team Leader Monitoring and Enforcement.

## Conditions for RM171256 –

### Discharge treated wastewater onto land via irrigation

25. The total rate of treated wastewater discharged onto land via irrigation shall not exceed 1,040 cubic metres per day and shall occur over an irrigation area not exceeding 20.5 hectares, as shown on Figure 2 included in Appendix 1 (attached to these consents).
26. The maximum application rate for irrigation shall not exceed 15 millimetres (mm) in any 24-hour period and 35 millimetres in any consecutive seven day period.
27. The Consent Holder shall maintain a measuring device to  $\pm 5\%$  accuracy to record the volumes of irrigation. The daily irrigation volume(s) should be recorded and included in the Annual Report required by Condition 4.
28. Irrigation shall not occur within 24 hours of a 20 mm rainfall event occurring as measured at the on-site weather station required by Condition 38. Information required to assess compliance with this condition shall be recorded and included in the Annual Report required by Condition 4.
29. The Consent Holder shall ensure there is no spray drift beyond the property boundary.
30. The irrigation gun located at the end of the centre-pivot irrigator shall be disabled so that no irrigation may occur within the arc shown in red and labelled "No Gun Spraying" in Figure 2, included in Appendix 1 (attached to these consents).
31. There shall be no surface water ponding, direct discharge, or run-off into any water body as a result of the irrigation.

32. No fertiliser which contains nitrogen compounds shall be applied within the irrigation area shown on Figure 2, included in Appendix 1 (attached to these consents).

**Advice note:**

*The Consent Holder has volunteered this condition, however other fertilisers can be applied to the irrigation area provided they do not contain any nitrogen compounds. Fertilisers containing nitrogen may be applied to other parts of Bell Island which are outside the irrigation area.*

33. The Consent Holder shall monitor groundwater quality at the shallow bore located within the irrigation area shown on Figure 2 included in Appendix 1 in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7, which will ensure that the sample is representative of the potentially affected shallow aquifer.

- (a) Monitoring shall occur annually during the month of February and shall be tested for the following:
- (i) temperature
  - (ii) pH;
  - (iii) electrical conductivity;
  - (iv) total oxidised nitrogen (TON,  $\text{NO}_{3\text{-N}} + \text{NO}_{2\text{-N}}$ );
  - (v) total ammoniacal nitrogen  $[(\text{NH}_3 + \text{NH}_4)\text{-N}]$ ;
  - (vi) Total suspended solids (TSS);
  - (vii) Escherichia coli; and
  - (viii) Faecal coliforms.
- (b) The temperature, pH and electrical conductivity shall be measured in the field using an appropriately calibrated meter.
- (c) All groundwater quality monitoring required shall be undertaken by a suitably experienced person in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7.
- (d) All samples taken shall be analysed by a laboratory that is accredited for that analysis to NZS/ISO/IEC 17025 or equivalent or to any other comparable standard approved by the Consent Authority.

**Advice note:**

*The purpose of this condition is to build baseline data so that in the scenario that it becomes appropriate to set water quality limits on the parameters monitored, the Consent Holder has sufficient data to inform this assessment.*



34. The Consent Holder shall include the following information in the Annual Report required by Condition 4:
- (a) The dates on which irrigation occurred and for each day that irrigation occurred;
  - (b) The duration of irrigation;
  - (c) The volume of irrigation;
  - (d) The area that was irrigated;
  - (e) The level of rainfall as recorded by the on-site weather station referred to in Condition 38;
  - (f) The results of groundwater monitoring required by Condition 33; and
  - (g) A discussion on trends, if any, in groundwater quality based on the past five years' monitoring data.
35. The Consent Holder shall provide and maintain adequate signage at the perimeter of the irrigation area warning the general public that treated wastewater is irrigated and notifying persons not to enter unless they are authorised to do so.

## Conditions for RM171255

### Discharge contaminants (primarily odour) into air

36. There shall be no discharges to air from the wastewater treatment plant or irrigation area that result in an adverse effect that is offensive or objectionable beyond the Bell Island property boundary.
37. The Consent Holder shall arrange meetings with residents of Best Island at least once every six months for the first two years following commencement of this consent, and at least annually thereafter. The Consent Holder shall notify all Best Island property owners and occupiers of the date, time and location of each meeting at least two weeks prior to the meeting. The purpose of these meetings shall be to inform the residents of the actions taken to avoid offensive or objectionable odours beyond the Bell Island property boundary and minimise odour from the wastewater treatment plant, and also to provide an opportunity for comment and consultation on any necessary amendments to the management plans referred to in Condition 7. Whenever practicable, the Consent Holder shall take all reasonable measures to inform the residents of Best Island of the possibility of an odour event prior to its occurrence. In such cases, the Consent Holder shall inform residents of the cause and likely duration of the event and the actions being taken to remedy or mitigate its effects.
38. The Consent Holder shall monitor and log meteorological data at the WWTP from an on-site weather station. The data recorded shall consist of wind direction, wind speed, air temperature, barometric pressure, relative humidity and rainfall. The meteorological monitoring shall be:

- (a) In general accordance with the Good Practice Guide for Air Quality Monitoring and Data Management, Ministry for the Environment, 2009, or subsequent updates;
- (b) Continuous for the duration of the consent comprising 1-minute data, collected and averaged to 10-minute and 1-hour time periods; and
- (c) The on-site weather station shall be located at a point that is representative of local weather conditions across the site.
- (d) The data shall be available to the Council's Team Leader Monitoring and Enforcement on request with minimal delay.

39. The Consent Holder shall appoint a suitable independent person to the role of odour patroller at the Bell Island wastewater treatment plant and shall comply with the following odour protocol:

- (a) The odour patroller shall visit the site at least once per month and record observations of odour at specified locations around the boundary of the wastewater treatment plant, downwind of the WWTP infrastructure and ponds opposite Best Island under easterly wind conditions, on the shoreline of Best Island facing the WWTP and at any other position(s) that may be impacted by odour that could have an adverse effect beyond the property boundary;
- (b) The odour patroller shall also undertake a visit to the site in response to any odour complaint in circumstances where the initial investigation by the consent holder indicates that the reported odour event may have been caused by discharges from the WWTP.
- (c) Odour patrols shall include the specified locations at which odour observations are made and the numerical scale of the offensive or objectionable nature of the odour which the odour patroller adopts to record the observations;
- (d) The Consent Holder shall inform the wastewater treatment plant operators of the outcomes of the odour patrol and any necessary interventions or inputs shall be made at the wastewater treatment plant to mitigate the odours observed; and
- (e) In addition to the monthly odour patrols, the odour patroller may, at their discretion, visit the Bell Island wastewater treatment plant at any time to make observations of odour; this may, but will not necessarily be, in response to complaints received.
- (f) The Consent Holder shall provide the contact details of the odour patroller to Council's Team Leader Monitoring and Enforcement. If this odour patroller changes the contact details shall be updated with Council's Team Leader Monitoring and Enforcement.
- (g) The record of results from all odour monitoring patrols shall be retained and provided to the Council on request.

40. The Consent Holder shall, within the timeframe specified, complete the list of odour upgrade works as detailed in Appendix 3 (attached to these consents).

**Advice note:**

*Desludging of the facultative and maturation ponds is necessary from time to time and is a permitted activity under Rule 17.12.2.1 of the Tasman Resource Management Plan. However, odour emissions from the desludging activities may cause adverse effects that are offensive or objectionable beyond the property boundary of the WWTP and is thus a discretionary activity requiring resource consent. Such a consent must be obtained prior to the time at which desludging is scheduled to be carried out.*

## Conditions for RM171257

### Discharge treated wastewater to land via seepage

41. The Consent Holder shall take all practicable steps to avoid damaging or interfering with any liner(s) that are present at the base of any treatment ponds, including during desludging.

## Conditions for RM171258

### Use and maintenance of a pipe and diffuser outlet structure within the Waimea Inlet

42. The use and occupation of the coastal marine area (the Waimea Inlet) shall be limited to the pipe and the outlet diffuser structure to convey and discharge treated wastewater and any temporary structures associated with the installation, repair, and maintenance of the offshore outlet pipe and outlet diffuser structure. The pipe and outlet diffuser structure is shown in Figure 3 included in Appendix 1 (attached to these consents).
43. The diffuser structure shall be inspected and maintained by a suitably experienced person within six months of commencement of these consents and then at least once every two years to ensure its integrity. Written records of these inspections and details of maintenance undertaken shall be held on-site and presented to the Council's Team Leader Monitoring and Enforcement on request.
44. The Consent Holder shall, at least every five years, provide to the Council's Team Leader Monitoring and Enforcement a report prepared by a suitably qualified and experienced person(s) to demonstrate that the pipe and outlet diffuser structure is:
- (a) In sound repair and the diffuser ports are clear of any significant marine growths; and
  - (b) The pipe is not exposed above the seabed floor other than the diffuser outlet structure.

45. In the event that the Consent Holder becomes aware that the pipe is exposed (other than the diffuser outlet section that is designed to be exposed), either as a result of an inspection carried out or at any other time, the Consent Holder shall:
- (a) immediately notify the Council's Team Leader Monitoring and Enforcement and the Harbourmaster's Office; and
  - (b) within 10 working days of that notification, prepare and submit a report to the Council's Team Leader Monitoring and Enforcement to assess any adverse environmental effects resulting from the exposed pipe and outline any proposed remediation or risk management to be undertaken.
46. The structures authorised by this consent shall be maintained in a good and sound condition, and any repairs that are necessary shall be made as soon as reasonably practicable.
47. In the event of the structure becoming redundant or no longer fit for purpose, the Consent Holder shall take all necessary steps to either remove the structure or incorporate the structure or the materials used in its construction in a replacement authorised structure or other work.



## Appendix 1

Figures referred to in conditions

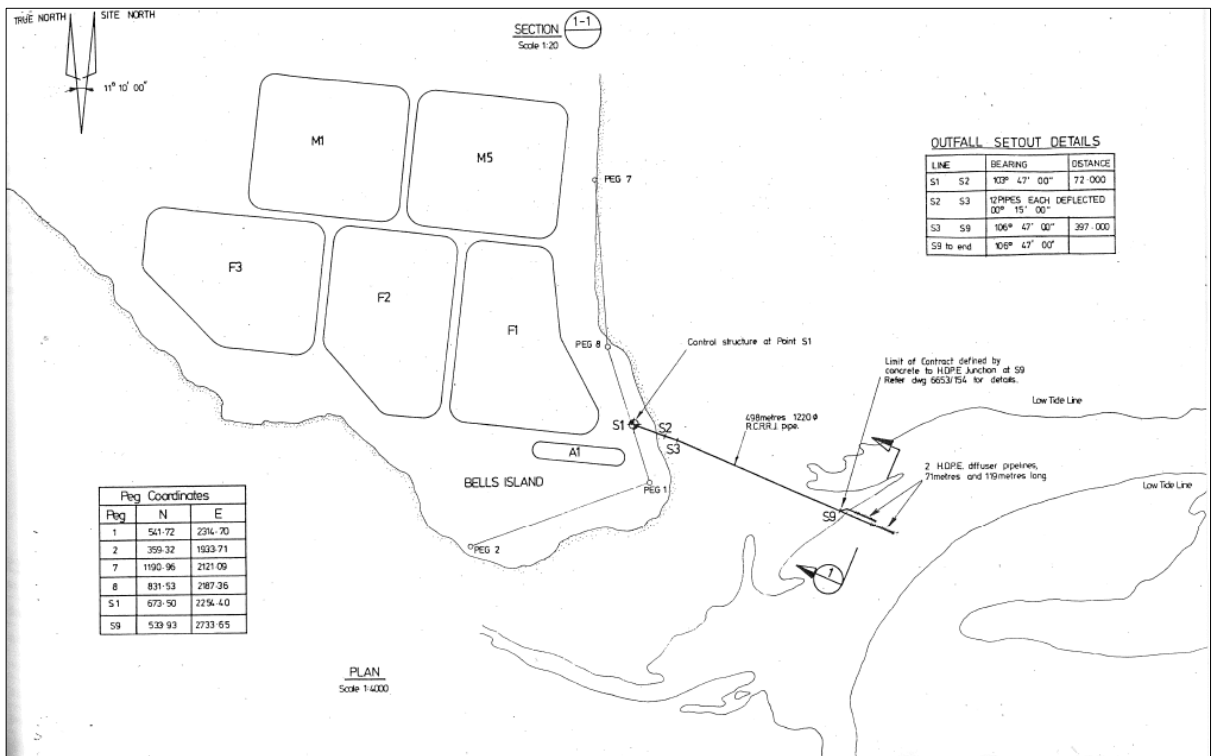


**Figure 1.** Zone of reasonable mixing, being defined as the area delineated by a 250 metres radius north of the outfall and within 45° included angles.



**Figure 2.** Location of Wastewater Irrigation Area (shown in Yellow), no gun spraying zone and irrigation monitoring bore.





**Figure 3.** Location of pipe and outlet diffuser structure.



## Appendix 2

# Bell Island Wastewater Treatment Plant Resource Consents Receiving Environment Monitoring Programme

### **PART 1 – Five-yearly Benthic and Sediment Monitoring Programme**

The following monitoring shall be undertaken at five-yearly intervals and shall coincide with the Tasman District Council's five-yearly State of the Environment (SoE) monitoring undertaken within the Waimea Inlet.

1. A field survey of the sites shown in Figure A attached to this monitoring programme (and as described in Cawthron Report No. 2979<sup>1</sup>), recording:

- Sediment type;
- Visible macrofauna;
- Macrophyte species and coverage;
- Sediment profiles; and
- Any obvious signs of enrichment or pollution (e.g. microalgal mats, H<sub>2</sub>S, odours, fats, oils, unnatural debris etc.)

2. Analysis of the following characteristics in sediment samples from the sites shown in Figure A:

- Particle size;
- Total nitrogen content;
- Organic matter content;
- Chlorophyll-a content – only at sites where there is visual evidence of microalgal films on the surface of the sediment; and
- Infauna species and abundance (0.5 millimetre sieve sizes)

3. Analysis of the following trace metals in samples of sediment and shellfish (cockles, where present) from the sites shown in Figure A attached to this monitoring programme:

- Total mercury (sediment only);
- Total arsenic;
- Total cadmium;
- Total chromium;
- Total copper;
- Total lead;
- Total nickel; and
- Total zinc

#### **NOTES:**

The monitoring programme shall be based on previous studies with modifications as recommended in Cawthron Report No. 2979.

The above benthic monitoring may be co-ordinated with the testing programme outlined in Part 2 (Microbiological and Nutrient Assessment Monitoring).

The sites will be located to reflect the likely dispersal patterns of the treated wastewater discharge and the location of the mixing zone.

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<sup>1</sup> Cawthron Report 2979 (Part 1): Morrisey D, Webb S 2017. Coastal effects of the Nelson (Bell Island) regional sewerage discharge: benthic monitoring survey 2016. Prepared for Nelson Regional Sewerage Business Unit. Cawthron Report No. 2979. 32 p.

## **PART 2 – Microbiological and Nutrient Assessment Monitoring Programme**

The objective of this programme is to provide a statistically and scientifically rigorous assessment of the effects of the discharge of treated wastewater from the Bell Island wastewater treatment plant on the microbial and nutrient status of the Waimea Inlet and the microbial status of the Rabbit Island and Tahunanui beaches.

The programme shall consist of two sub-parts (Sub-Part A and Sub-Part B).

### **Sub-Part A**

A full receiving water survey shall be undertaken at five-yearly intervals and may be carried out as part of, or in conjunction with, other water quality monitoring programmes in the area, including the five yearly benthic monitoring programmes outlined in Part 1. Sampling shall be scheduled to commence during the ebb tide during favourable weather conditions and after periods of at least three days with no significant rainfall. The sampling locations are shown on Figure B attached to this monitoring programme and as described in Cawthron Report No. 2945<sup>2</sup>.

Sampling (as described in Cawthron Report No. 2945) shall consist of:

- at least three treated wastewater samples collected at timed intervals during the ebb tide discharge period;
- seawater samples taken from the Waimea Inlet and inner Tasman Bay at the sites shown in Figure B and as described in Cawthron Report No. 2945;
- shellfish samples taken from Waimea Inlet and Tasman Bay at a subset of the sites as shown in Figure B and described in Cawthron Report No. 2945. Shellfish samples shall be comprised of Greenshell™ mussels (*Perna canaliculus*) deployed in baskets as described in Sub-Part B, below, and in Cawthron Report No. 2945.
- depth profiles of salinity and temperature at all sites shown in Figure B, and profiles of salinity, temperature, dissolved oxygen, turbidity, light (as photosynthetically active radiation) and chlorophyll-*a* at sites T3, T4, T5 and T6 in inner Tasman Bay shown in Figure B.

A composite of the treated wastewater samples shall be tested<sup>3</sup> for:

- nutrients (nitrate, nitrite, ammonia, dissolved inorganic nitrogen, total nitrogen, dissolved reactive phosphorus and total phosphorus).
- faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci).

The seawater samples shall be tested for:

- nutrients (nitrate, nitrite, ammonia, dissolved inorganic nitrogen, total nitrogen, dissolved reactive phosphorus and total phosphorus);
- faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci); and phytoplankton species and abundance (Tasman Bay sites only).

The shellfish samples shall be tested for:

- faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci).

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<sup>2</sup> Morrisey D, Johnston O, Newcombe E 2016. Impact of the Nelson (Bell Island) regional sewerage discharge on the coastal environment: receiving water survey—August 2016. Prepared for Nelson Regional Sewerage Business Unit. Cawthron Report No. 2945. 21 p.

<sup>3</sup> All testing should be accredited to IANZ



## **Sub-Part B**

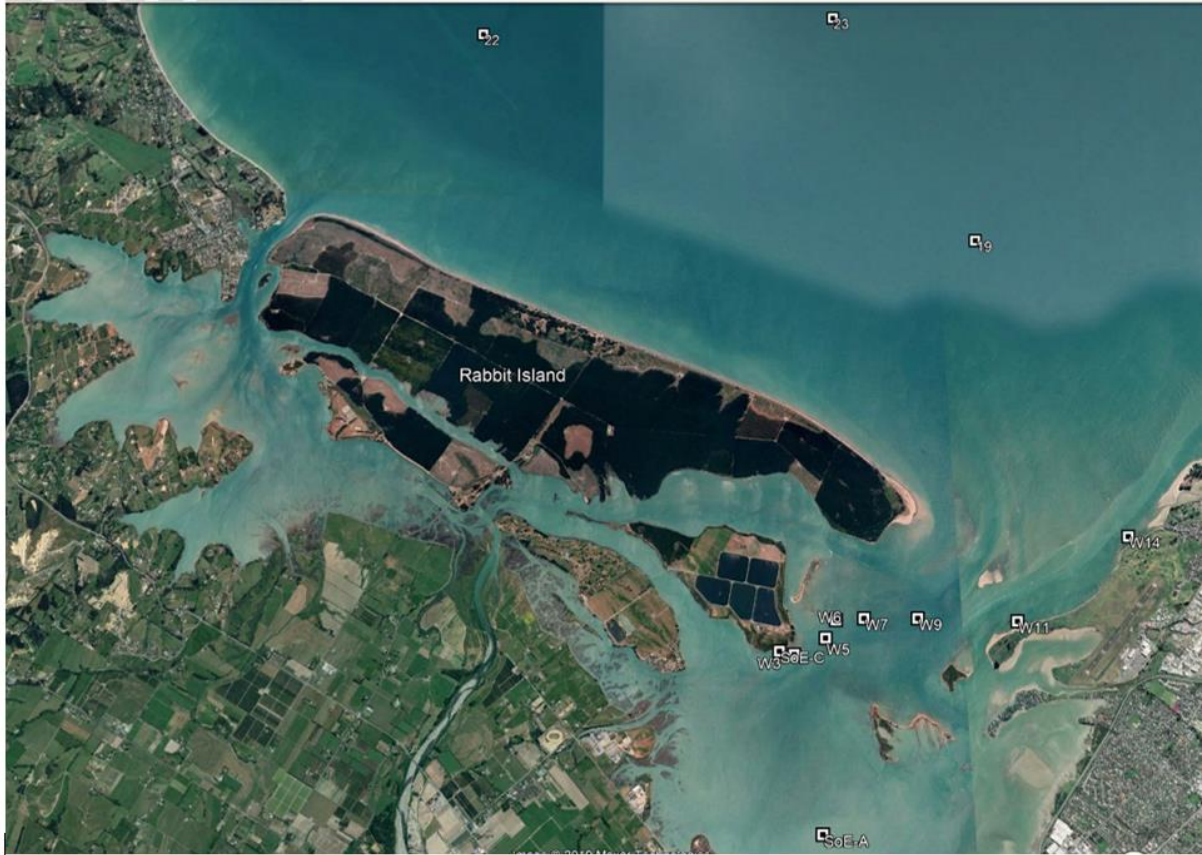
Sub-Part B shall be undertaken twice yearly (once during summer and once during winter) and shall include analyses of shellfish samples for faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci) from the inner Tasman Bay sites shown in Figure C and as described in Cawthron Report No. 3417<sup>4</sup>. Shellfish samples shall be comprised of Greenshell™ mussels (*Perna canaliculus*) deployed in baskets. Mussel deployments shall be of approximately seven days duration (minimum three days, maximum 14 days), with no rainfall in the catchment for at least three days, or with rainfall less than 1mm prior to recovery of the mussels. A subsample of mussels shall be analysed for faecal indicator bacteria at the start of deployment. Seawater samples shall also be collected from mussel deployment sites at the start and end of deployment and analysed for faecal coliform, *Escherichia coli* and enterococci and phytoplankton species and abundance.

Depth profiles of salinity, temperature, dissolve oxygen, turbidity, light (as photosynthetically active radiation), and chlorophyll-a shall be measured at each site at the start and end of the period of mussel deployment.

This assessment programme may be carried out as part of, or in conjunction with, other water quality monitoring programmes in the area, including the five-yearly programme outlined in Sub-Part A.

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<sup>4</sup> Campos C 2019. *Coastal effects of the Bell Island regional sewerage discharge: August 2019 mussel monitoring survey*. Prepared for Nelson Regional Sewerage Business Unit. Cawthron Report No. 3417. 16 p. plus appendices

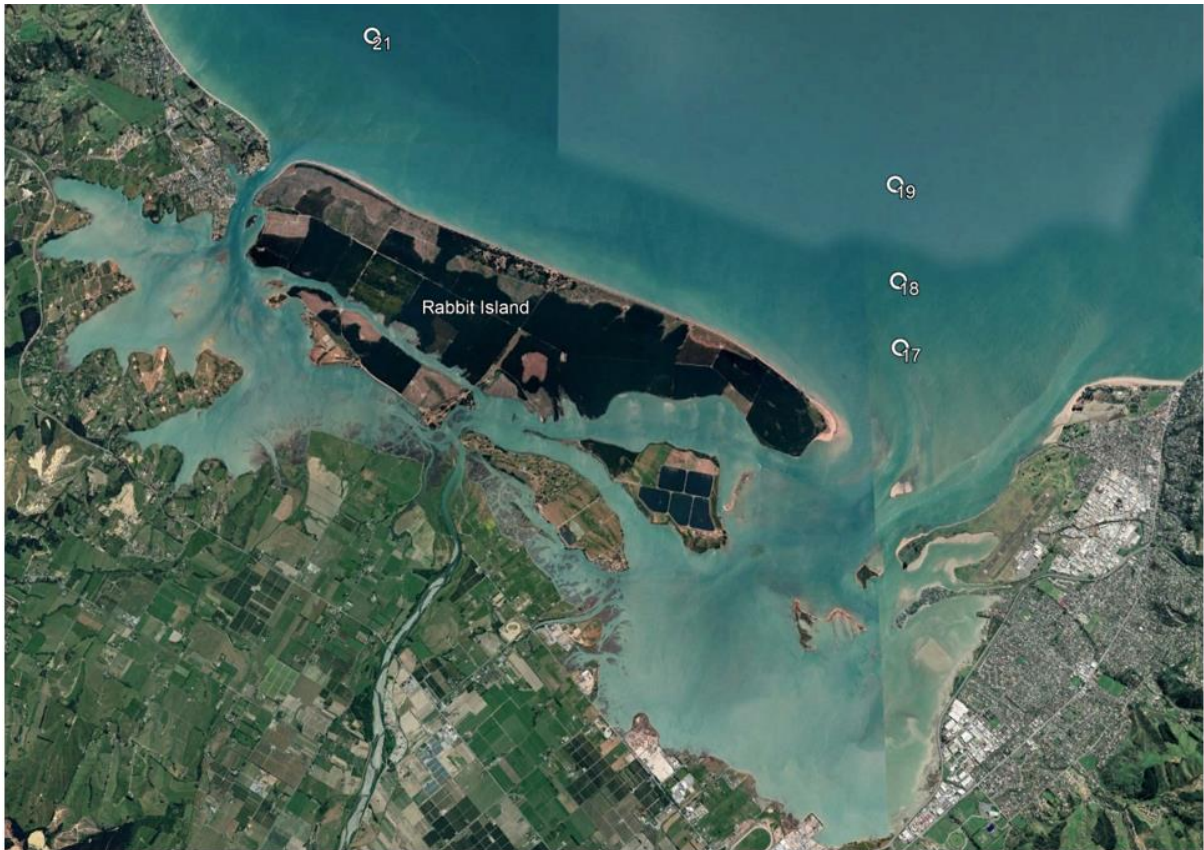


**Figure A.** Sampling locations for Part 1 of the Monitoring Programme – Five-yearly Benthic and Sediment Monitoring Programme. Note that the suffix ‘B’ was added to the site names W3, W5, etc. in Cawthron Report No. 2979.





**Figure B.** Sampling locations for Sub-Part A of Part 2 of the Monitoring Programme – Five-yearly Microbiological and Nutrient Assessment Monitoring Programme (Upper image: overview of all locations. Lower image: detail of locations in eastern Waimea Inlet). Red markers indicate water sampling and mussel deployment sites, yellow markers indicate water sampling only.



**Figure C.** Sampling locations for Sub-Part B of Part 2 of the Monitoring Programme – Six-monthly Microbiological and Nutrient Assessment Monitoring Programme in inner Tasman Bay.

## Appendix 3

### Odour upgrade works

#### Works to be completed in 2020

#### 1. Inlet Area improvement

- (a) Add individual suction pipe connections to each milliscreen cover.
- (b) Install new larger covers. As part of new cover installation, provide appropriately sized air inlet ports in the covers, placed to maximise the swept volume of the chamber.
- (c) Create separation system for the internals of the screen chamber to allow operation of one half of the screening chamber while the other half is being maintained.

#### 2. Old Aeration Basin

- (a) Basin to be cleaned out of sludge and pump added to keep basin empty of water.
- (b) New grit drainage facility to be completed.

#### 3. Chamber C3

- (a) Provide a small bio filter and associated pipework and fan.
- (b) Installation of impermeable barrier beneath existing walkways to contain odours.

#### 4. Facultative and Maturation ponds

##### 4.1 *Sludge Bank Accumulation*

- (a) Begin monitoring the sludge accumulation in the ponds every second year, and also 6 months after any desludging undertaken.
- (b) Add and/or reposition aerator/mixers to dissipate sludge banks.
- (c) Mixing plan to be developed following the limited desludging of pond F1 and F3.
- (d) Selective desludging of ponds F1 and F3 where accumulation occurs.

##### 4.2 *Stratification and pond inversion*

Pond mixing plan to be developed for F3 to combat stratification.

##### 4.3 *Floating Algae and scum*

- (a) Portable pond mixing system to be developed for F3 to re-entrain the solids back into the water column that can be placed where the problem occurs and redeployed if wind changes move the floating "mats".
- (b) Within six months following the implementation of the above, investigate a floating boom or similar that can be used to "corral" the floating mats and a way of effectively removing the material.

##### 4.4 *Insufficient algae*

Investigate installing a reseeding network that directs seeding streams to the optimal inlet areas of the pond in such a way that the seeding stream can be directed to the required pond or ponds easily.



#### 4.5 Inlet Bypass to F1

Design an overflow/bypass system that allows each unit to be bypassed individually.

### 5. Sludge Storage tank and new sludge storage tank

- (a) Design and construct a second sludge storage tank from appropriate materials and provide a small air inlet pipe and elbow with mesh to exclude rain and birds as part of tank design.
- (b) Add a new odour suction line to the existing tanks as part of odour ducting upgrade.

### 6. ATAD System & Bio-filter System Improvements

- (a) Add a second odour manifold and a second fan, larger connections to Bio solids storage tank and new connections to sludge storage tank.
- (b) Connect the new sludge storage tank as detailed at 5(a) to the ATAD bio filter suction pipework at the same time as completing works at 6(a).
- (c) Provide automation of fan speeds to control pressure in the air suction system.
- (d) Following completion of 6(a), investigate connecting the odour Management System to the SCADA so that the pressure, speed and other aspects can be easily seen, and can be recorded.
- (e) Following completion of 6(a), investigate adding control dampers to the pipework (to allow isolation of tanks from service) and consider automated dampers with pressure feedback.
- (f) At the same time as competing works identified at 6(a), confirm that the underground section of the suction pipework is adequately drained to prevent accumulation of condensate.
- (g) Engage a suitably qualified person in the field of odour control to investigate the size and design of the ATAD biofilter, with specific reference to increasing the filter size to meet good practice guidelines and maintaining the conditions and moisture content of the filter media. Complete any improvements to the biofilter size, design and operating procedures recommended by the investigator.
- (h) Measure the ammonia concentration before and after the bio filters to confirm the need for an ammonia scrubber and the potential additional nitrogen load to the ponds.
  - i. If the ammonia concentrations indicate the need, in the opinion of a suitably qualified person in the field of odour control, add a water based scrubber using recycled pond water to scrub ammonia prior to the bio filter. The scrubber will also cool the air and extend the life of the bio filter media.
  - ii. If the additional nitrogen load to the ponds from a water-based scrubber are considered to be too high, fit an acid based scrubber. Ensure that a cost-effective method for sale or disposal of the ammonia salt solution is available and reliable.

**Advice note:** Works identified in 6(b), (c) and (d) may be delayed until 2021 to follow other works to the sludge storage tank(s) identified in 9 below. The Consent Holder will update the Councils Team Leader Monitoring and Enforcement if delays are expected.

### 7. Emergency Generators

Ensure that at least three suitably sized emergency electricity generators are installed at the WWTP site that ensure ongoing functioning of the plant to achieve odour control in the event of a network power outage. The WWTP equipment served by the generators will, as a minimum include:

- (a) The inlet screens;
- (b) The ATAD biofilter; and

(c) The aeration basin.

### **Works to be completed in 2021**

#### **8. Chamber C3**

Add sulphide attack protection to the internal concrete surfaces of C3.

#### **9. Facultative and Maturation Ponds**

##### *9.1 Stratification and pond inversion*

Pond mixing plan to be developed for F1 to combat stratification.

##### *9.2 Floating Algae and scum*

- (a) Portable pond mixing system to be developed for F1 to re-entrain the solids back into the water column that can be placed where the problem occurs and redeployed if wind changes move the floating "mats".
- (b) Within 6 months following the implementation of the above, investigate a floating boom or similar that can be used to "corral" the floating mats and a way of effectively removing the material.

##### *9.3 Insufficient algae*

Implement and install reseeding network if investigations at 4.4 above conclude this is necessary.

##### *9.4 Inlet Bypass to F1*

Implement overflow/bypass system as designed at 4.5 above.

#### **10. Sludge Storage tank and new Sludge Storage tank**

Replace the roof on the existing sludge storage tank as part of tank refurbishment and provide a small air inlet pipe and elbow with mesh to exclude rain and birds.

### **Works to be completed in 2022**

#### **11. Facultative and Maturation Ponds**

##### *11.1 Stratification and pond inversion*

Pond mixing plan to be developed for F2 to combat stratification.

##### *11.2 Floating Algae and scum*

- (a) Portable pond mixing system to be developed for F2 to re-entrain the solids back into the water column that can be placed where the problem occurs and redeployed if wind changes move the floating "mats".
- (b) Within six months following the implementation of the above, investigate a floating bloom or similar that can be used to "corral" the floating mats and a way of effectively removing the material.

### **Works to be completed 2023**

#### **12 Gravity Belt Thickener**

- (a) Seal up penetrations between the top and bottom floors
- (b) Extract the air from the GBT area via the GBT. Add low level extraction ducts to the GBT room to pick up relatively dense H<sub>2</sub>S.
- (c) Seal up the sump in the work shop area and increase the extraction rate inside the sump of the odour treatment unit.
- (d) Add a fan at one end of the workshop area to flush any fugitive odours out of the building.
- (e) Investigate improved monitoring procedure for the performance of the Carbon filter.

#### **13 Facultative and Maturation Ponds**

##### *13.1 Sludge Bank accumulation*

Desludging of F2 where total accumulation of sludge reaches a point where the sludge occupies too much of the pond volume.

### **Work to be completed 2029**

#### **14 Facultative and Maturation Ponds**

##### *14.1 Sludge Bank accumulation*

Desludging of F1 and F3 where total accumulation of sludge reaches a point where the sludge occupies too much of the pond volume.