CON20100739901
REPLACEMENT DOCUMENT

Resource Consent

Pursuant to the Resource Management Act 1991, the Northland Regional Council (hereinafter called "the Council") does hereby grant a Resource Consent to:

FAR NORTH DISTRICT COUNCIL, PRIVATE BAG 752, KAIKOHE 0440

To undertake the following activities associated with the operation of the Hihi Beach wastewater treatment system on Lots 71 78 DP 73991 Blk V Mangonui SD-Rec Res and on Pt Lot 1 DP 37697 Pt Lot 2 DP 86975 Blk V Mangonui SD-sewage disposal marsh-SO 65940 (Note: all location co-ordinates in this document refer to Geodetic Datum 2000, New Zealand Transverse Mercator Projection):

(01) To discharge treated wastewater to an unnamed tributary of Hihi Beach (known locally as Hihi Stream) at or about location co-ordinates 1649634E 6130144N.

(02) To discharge contaminants to ground via seepage from the base of an artificial wetland system at or about location co-ordinates 1649672E 6130197N.

(03) To discharge contaminants (primarily odour) to air from wastewater treatment facilities located at or about location co-ordinates 1649290E 6129562N, and at or about location co-ordinates 1649672E 6130197N.

Subject to the following conditions:

(01) and (02) Discharge to Water and to Ground

1 The volume of treated wastewater discharged to the unnamed tributary of Hihi Beach shall not, based on a 30 day rolling average of dry weather discharges, exceed 250 cubic metres per day. Compliance with this condition shall be based on the average volume discharged on the 30 most recent "dry weather discharge days". For the purposes of this consent, a 'dry weather discharge day' is any day on which there is less than 1 millimetre of rainfall, and that day occurs after three consecutive days either without rainfall or with rainfall of less than 1 millimetre on each day.

Advice Note: *The rainfall measurements used to determine a dry weather discharge shall be based on the nearest appropriate rainfall recorder site. The recorder site shall be selected in consultation with the Northland Regional Council.*

2 The Consent Holder shall maintain in good working order a flow meter on the outlet of the constructed treatment wetland that has an accuracy of ±5% to measure the volume of wastewater discharged to the unnamed tributary of Hihi Beach.

3 The Consent Holder shall keep records of the daily volume of treated wastewater discharged to the unnamed tributary of Hihi Beach, as measured by the meter required by Condition 2, the local daily rainfall measurement, and the 30 day rolling average dry weather discharge volume, as defined in Condition 1. These records shall be recorded in a format agreed to by the Northland Regional Council and shall be forwarded to the Northland Regional Council by 30 January of each year for the preceding months of July to December, and by 15 July of each year for the preceding months of January to June.

4 The Consent Holder shall monitor the exercise of these consents in accordance with the Monitoring Programme in Schedule 1 (**attached**).

5 The Consent Holder shall prepare monthly reports of the results of all monitoring required to be undertaken in accordance with Condition 4. These reports shall include, but not be limited to, all the raw data; the averages and/or medians calculated for compliance purposes, and a summary showing the level of compliance for those parameters for which limits have been defined. The monthly reports shall be in a format agreed to by the Northland Regional Council and shall be forwarded to the Northland Regional Council prior to the fifteenth working day of the following month. Where the monitoring is required to be undertaken over a period greater than a month, then the results of that monitoring event shall be included in the next scheduled monitoring report. If the monitoring results indicate a non-compliance with any consent condition, then the Consent Holder shall report the results to the Northland Regional Council within 24 hours of receiving the analysis results.

6 Prior to 1 May 2012, the wastewater treatment system shall be upgraded so that it treats the wastewater to a level whereby at least 95 percent of all samples of treated wastewater collected from Northland Regional Council Sampling Site Number 100165 have an *Escherichia coli* concentration of 130 per 100 millilitres or less. Compliance with the required *Escherichia coli* standard shall be determined by the results of monitoring undertaken in accordance with Section 4.2.1 of the Monitoring Programme in Schedule 1 (**attached**).

7 The Consent Holder shall provide and maintain easy and safe access to each of the following sampling points:

(a) Northland Regional Council Sampling Site Number 100165 located at the outlet of the wastewater treatment plant on Lots 71 78 DP 73991 Blk V Mangonui SD-Rec Res.

(b) Northland Regional Council Sampling Site Number 101874 located at the outlet of the last treatment wetland into the unnamed tributary of Hihi Beach, at or about location co-ordinates 1649634E 6130144N.

(c) Northland Regional Council Sampling Site Number 101130 (a point adjacent to the unnamed tributary of Hihi Beach located approximately 130 metres upstream of the point where the treated wastewater enters the unnamed tributary of Hihi Beach) at or about location co-ordinates 1649726E 6130228N.

(d) Northland Regional Council Sampling Site Number 108481 (a point located adjacent to the unnamed tributary of Hihi Beach located approximately 40 metres downstream of the point where the treated wastewater enters the unnamed tributary of Hihi Beach) at or about location co-ordinates 1649602E 6130100N.

8 Notwithstanding any other conditions of these consents, the discharge of treated wastewater shall not cause the following effects on water quality in the unnamed tributary of Hihi Beach, as measured at Northland Regional Council Monitoring Site 108481 (downstream sample, see condition 7 for details):

(a) The natural temperature of the downstream sample of water shall not change by more than 3 degrees Celsius when compared to the upstream sample of water;

(b) The natural pH of the downstream sample of water shall be within the range 6.5 to 9.0, unless the upstream sample of water also falls outside of this range;

(c) The concentration of dissolved oxygen (daily minimum) in the downstream sample of water shall not be decreased by more than 20% when compared to the upstream sample of water;

(d) There shall be no production of oil or grease films, scums or foams, floatable or suspended materials, or emissions of objectionable odour;

(e) There shall be no acute toxicity, or significant adverse effects of chronic toxicity, to natural aquatic life by reason of the presence of toxic substances;

(f) The hue of the downstream sample of water shall not be changed by more than 10 Munsell units when compared to the upstream sample of water. The visual clarity of the downstream sample of water shall not be changed by more than 35% when compared to the upstream sample of water.

(g) The waters shall not be tainted so as to make them unpalatable to farm animals, nor contain toxic substances to the extent that they are unsuitable for consumption by farm animals.

(h) The increase in the median *Escherichia coli* concentration shall not exceed 50 per 100 millilitres, for downstream samples when compared to upstream samples, taken in accordance with Section 4.2.2 of the Monitoring Programme in Schedule 1 (**attached**). This Condition 8(h) shall cease to have effect once the upgraded treatment system required by Condition 6 has been commissioned.

(i) The concentration of total ammoniacal nitrogen in the downstream sample shall not exceed the following:

pH of water at the time of sampling	Total Ammoniacal Nitrogen ($[NH_3 + NH_4]$-N) (grams per cubic metre)
6.0	2.57
6.1	2.56
6.2	2.54
6.3	2.52
6.4	2.49
6.5	2.46
6.6	2.43
6.7	2.38
6.8	2.33
6.9	2.26
7.0	2.18
7.1	2.09
7.2	1.99
7.3	1.88
7.4	1.75
7.5	1.61
7.6	1.47
7.7	1.32
7.8	1.18
7.9	1.03
8.0	0.90
8.1	0.78
8.2	0.66
8.3	0.56
8.4	0.48
8.5	0.40
8.6	0.34
8.7	0.29
8.8	0.24
8.9	0.21
9.0	0.18

In the event that the upstream sample concentration of total ammoniacal nitrogen exceeds the above concentrations for a given value of pH, then the treated wastewater discharge shall not result in an increase in concentration of total ammoniacal nitrogen in the downstream sample of more than 0.10 grams per cubic metre when compared to the upstream sample concentration.

9 The Consent Holder shall compare actual influent suspended solids and five day biochemical oxygen demand loadings obtained from the routine monitoring (required to be undertaken in accordance with Section 1.2 of the Monitoring Programme in Schedule 1 (attached)) with the design loadings for the wastewater treatment system. The results of this comparison shall be reported in the Annual Review

10 The Consent Holder shall undertake an assessment of the degree of infiltration of stormwater and/or groundwater into the Hihi sewage reticulation system within twelve months of the date of commencement of this consent, and if there is excessive infiltration into the wastewater treatment system, then the Consent Holder shall prepare a programme for infiltration reduction and provide a copy to the Northland Regional Council within fifteen months of the date of commencement of this consent. If an infiltration reduction programme is undertaken, the results of infiltration investigations, work undertaken, progress made and priorities for further work, shall be included in the Annual Review Report, required to be prepared in accordance with Condition 16.

(03) Discharge to Air

11 The Consent Holder's operations shall not give rise to any discharge of contaminants at or beyond the property boundary, which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, an adverse effect on the environment. For the purposes of this condition, "property boundary" refers to the wastewater treatment plant boundary on Lots 71 78 DP 73991 Blk V Mangonui SD-Rec Res and the boundary of the artificial wetland property located on Pt Lot 1 DP 37697 Pt Lot 2 DP 86975 Blk V Mangonui SD-sewage disposal marsh-SO 65940, and the boundary of any additional property that is added to the treatment site in future.

12 Notwithstanding Condition 11, if any new treatment system is installed on Pt Lot 1 DP 37697 Pt Lot 2 DP 86975 Blk V Mangonui SD-sewage disposal marsh-SO 65940, then to minimise the potential for noxious, dangerous, offensive or objectionable odours to be generated from the treatment system the Consent Holder shall fully enclose the following parts of the treatment process:

(a) inlet works;

(b) screening process and grit removal and storage; and

(c) excess sludge storage, pre treatment and handling.

Advice Note: *The Consent Holder was proposing to move the treatment plant to the site of the constructed wetland. The requirements of this condition only take effect if there is any change to the treatment process currently undertaken at this location.*

General Conditions

13 The Consent Holder shall, within six months of the date of commencement of these consents, prepare and submit a Management Plan covering all aspects of the operation and maintenance of the wastewater treatment system to the Northland Regional Council. The Management Plan shall include, but not be limited to, the following:

(a) Specification of the design wastewater volume, dimensions, design loading and expected treatment performance of each component of the treatment system in which wastewater treatment occurs.

(b) A schedule of inspection, servicing, and maintenance actions to be carried out on the wastewater treatment system.

(c) Where it is not practical to schedule maintenance activities, such as the desludging of the treatment wetlands, a monitoring programme shall be provided to demonstrate that the design treatment capacity is maintained, and criteria shall be provided to trigger required maintenance. Particular attention shall be given to the method used for measuring the depth of wastewater and sludge in the treatment wetland cells. When desludging of a treatment system component is required, a detailed plan of the proposed desludging shall be provided to the Northland Regional Council at least one month prior to commencement of any desludging works.

(d) Programme for the prevention of overflows to the harbour beach.

(e) Contingency measures for unauthorised discharges.

(f) Methods to be used to combat nuisances that might arise in the treatment system including midges and other insects.

14 The wastewater treatment system shall be correctly operated and maintained in an effective and workmanlike manner. The operation and maintenance of the wastewater treatment system shall be undertaken in accordance with the Management Plan required to be prepared in accordance with Condition 13, but also always subject to the conditions of these consents. Any changes to the Management Plan shall be submitted to the Northland Regional Council one month prior to such changes taking effect.

15 The Consent Holder shall, in consultation with the Northland Regional Council, review the Management Plan two years after the date of commencement of these consents, and thereafter at no greater than five yearly intervals. Any changes to the Management Plan as a result of a review shall be made with the prior written agreement of the Northland Regional Council. The Consent Holder shall meet all reasonable costs of each review.

16 The Consent Holder shall forward to the Northland Regional Council by 1 August each year an Annual Review Report covering the previous year (1 July to 30 June) that shall include, but not be limited to, the following:

(a) A summary of all activities required by the Management Plan; and

(b) A summary of the results of all monitoring required to be undertaken in accordance with Schedule 1 (**attached**).

Advice Note: *The Monitoring Programme in Schedule 1 (**attached**) includes a requirement to measure concentrations of total nitrogen and phosphorus being discharged under this consent to the unnamed tributary of Hihi Beach. The Annual Review Report the subject of Condition 16 should identify trends in concentrations and mass loadings of total nitrogen and total phosphorus being discharged from the treatment plant. One of the goals of the district-wide nutrient management programme that the Consent Holder is developing, including for the Hihi wastewater treatment system, should be the prevention of any further increase in the mass discharges of total nitrogen and total phosphorus over a specified period of time.*

17 The Consent Holder shall, in consultation with the Northland Regional Council, review the Monitoring Programme in Schedule 1 (**attached**) by 1 September each year. The review shall consider compliance with the consent conditions, and shall also include review of sampling methods, sites, determinands and frequencies. Changes may not be made to the monitoring programme without the prior written approval of the Northland Regional Council. The Consent Holder shall meet the reasonable costs of each review.

Advice Note: *In the past there has been limited monitoring of the discharge and the receiving environment. This consent imposes a more extensive and intensive monitoring programme and the Consent Holder has requested a review of that programme after 18 months from the date of commencement of the consent with a view to reduction of the monitoring if there is consistent compliance with the standards set in this consent.*

18 The Consent Holder shall, for the purposes of adequately monitoring these consents as required under Section 35 of the Act, on becoming aware of any discharge of contaminants associated with the Consent Holder's operations otherwise than in conformity with these consents, immediately notify the Northland Regional Council of the discharge. In addition, if the discharge of contaminants, excluding those to air, is outside of the area legally occupied by the wastewater treatment plant, the Consent Holder shall also immediately notify the Medical Officer of Health, Northland Health Ltd. The Consent Holder shall then supply a written report to the Northland Regional Council within one week detailing:

(a) The nature of the non-compliance;

(b) The location of the discharge and receiving environment;

(c) The time of discharge;

(d) The duration of discharge;

(e) The quantity of contaminant discharged;

(f) The nature of contaminant discharged (eg. raw sewage, primary, secondary treated sewage);

(g) The measures taken to mitigate the effects on the environment and public health; and

(h) The proposed measures to prevent similar discharges in future.

19 The Consent Holder shall, for the purposes of adequately monitoring these consents as required under Section 35 of the Act, maintain records of any complaints relating to the operation of these consents received by the Consent Holder, as detailed below:

(a) The name and address of the complainant (where provided);

(b) The date and time the complaint is received;

(c) The duration of the event that gave rise to the complaint;

(d) The location from which the complaint arose;

(e) The weather conditions prevailing at that time;

(f) Any events in the management and operation of any processes that may have given rise to the complaint; and

(g) Any actions taken by the Consent Holder, where possible, to minimise contaminant emissions.

The Consent Holder shall notify the Northland Regional Council as soon as is practicable of any complaint received. Records of the above shall also be sent to the Northland Regional Council immediately upon request.

20 The Northland Regional 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. Such notice may be served annually during the month of May. The review may be initiated for any one or more of the following purposes:

(a) To deal with any adverse effects on the environment that may arise from the exercise of these consents and which it is appropriate to deal with at a later stage, or to deal with any such effects following assessment of the results of the monitoring of these consents and/or as a result of the Northland Regional Council's monitoring of the state of the environment in the area.

(b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

(c) To provide for compliance with rules in any regional plan that has been made operative since the commencement of these consents.

(d) To deal with any inadequacies or inconsistencies the Northland Regional Council considers there to be in the conditions of these consents, following the establishment of the activities the subject of these consents.

(e) To deal with any material inaccuracies that may in future be found in the information made available with the application. (Notice may be served at any time for this reason.)

(f) To change existing conditions relating to, or impose new limits on, the quality of the discharges and/or the receiving waters.

The Consent Holder shall meet all reasonable costs of any such review.

EXPIRY DATE: 30 NOVEMBER 2022

This consent is granted this Third day of March 2011 under delegated authority from the Council by:

Dr Robert Lieffering
Consents Senior Programme Manager

SCHEDULE 1
MONITORING PROGRAMME

The Consent Holder (or its authorised agent) shall monitor Resource Consent 7399 in accordance with the following monitoring programme.

1. TREATMENT SYSTEM MASS LOADINGS

1.1 Wastewater Discharge Volume

The discharge volume from the treatment plant and the local daily rainfall over the same 24-hour period shall be recorded. The Consent Holder shall then use this data to calculate the 30 day rolling average dry weather discharge volume, as defined in Condition 1.

1.2 Biochemical Oxygen Demand and Total Suspended Solids

The 5-day biochemical oxygen demand(See Note 1) and total suspended solids daily mass loadings of the untreated wastewater shall be determined annually during January, on a minimum of four days under dry weather discharge conditions. A dry weather discharge day is defined in Condition 1.

Twenty-four hour flow proportional untreated wastewater samples shall be taken for determination of the mass loadings.

The January sampling for mass loadings shall be undertaken on the first four dry weather discharge days that occur after the New Year statutory holidays.

2. UNTREATED WASTEWATER AND DISCHARGE MONITORING FOR VIRAL INDICATORS

Following commissioning of the upgraded treatment system required by Condition 6 of this consent, the concentrations of F-specific bacteriophage virus shall be determined monthly for a sample of untreated wastewater taken at the inlet to the treatment plant and for a sample of the discharge from a point immediately after the treatment system (NRC Site 100165), prior to the constructed wetland.

This sampling shall be initially undertaken during the periods 1 December 2012 to 1 March 2013 and 1 December 2013 to 1 March 2014. Samples shall be taken between 9.00 a.m. and 11.00 a.m. under dry weather discharge conditions. A dry weather discharge day is defined in Condition 1.

The Consent Holder shall, at least two weeks prior to the beginning of this sampling, provide the proposed sampling procedure for F-specific bacteriophage to Northland Regional Council for written approval.

***Advice Note**: This monitoring is solely for the purpose of confirming the level of protection that the treatment system is providing and is not related to compliance with any condition of consent.*

3. ODOUR MONITORING

During each visit for monitoring purposes, any significant odours at or beyond the property boundary shall be noted and reported to the Northland Regional Council within 24 hours of the visit. "Property boundary" is defined in Condition 11 of these consents.

4. DISCHARGE AND RECEIVING WATER MONITORING

4.1 Sites

The following sites (shown on Northland Regional Council Plan 3556A, **attached**) shall be monitored.

NRC Monitoring Site Number	Location Description
100165	Hihi Sewage Treatment System @ outlet of Treatment Plant on Lots 71 78 DP 73991
101874	Final discharge or treated wastewater from treatment plant to unnamed tributary of Hihi Beach.
101130	Unnamed tributary of Hihi Beach, approximately 130 metres upstream of NRC monitoring site number 101874.
108481	Unnamed tributary of Hihi Beach, approximately 40 metres downstream of NRC monitoring site 101874.

4.2 Sampling Procedures, Determinands and Frequency

4.2.1 Discharge Monitoring

Two triplicate(See Note 2) samples of the discharged wastewater shall be taken at least ten days apart, during each month between December and March (inclusive) and monthly triplicate samples shall be collected for the rest of the year. Prior to the upgrade of the treatment system as required by Condition 6, the samples of treated wastewater shall be collected from NRC Monitoring Site Number 101874. Once the upgrade to the treatment system has been commissioned, the samples of treated wastewater shall be collected from NRC Monitoring Site Number 100165.

The time shall be recorded for each sample and all samples shall be taken between 0900 and 1100 hours and analysed for the following determinands:

- Temperature(See Note 3)
- pH
- Dissolved oxygen concentration(See Note 3) and percentage saturation
- 5 day biochemical oxygen demand
- Total suspended solids
- Total ammoniacal nitrogen
- Dissolved inorganic nitrogen
- Total nitrogen
- Dissolved reactive phosphorus
- Total phosphorus
- *Escherichia coli* (See Note 4)

During the January to February period, 20 triplicate(See Note 2) samples shall be taken with a minimum of 23 hours between samples, and analysed for the following:

- *Escherichia coli* (See Note 4)

The January to February *Escherichia coli* sampling shall commence on the first working day after the New Year statutory holidays, and a minimum of four samples shall be taken on different days each week until the programme is completed.

The 95 percentile *Escherichia coli* concentration shall be calculated using the results of all the samples required to be collected between December and March (inclusive).

Discharge sampling shall be undertaken at the same time as the receiving water sampling described in 4.2.2 below.

4.2.2 Receiving Water Monitoring

The unnamed tributary of Hihi Beach shall be monitored at a point approximately 130 metres upstream (NRC monitoring site 101130) of the point where the wastewater discharge enters the unnamed tributary and at the downstream boundary of the mixing zone (NRC monitoring site 108481) approximately 40 metres downstream of the point where the treated wastewater discharge enters the unnamed tributary.

Two triplicate(See Note 2) samples per month, taken at least ten days apart, shall be collected each month between December and March (inclusive) and monthly triplicate samples shall be collected for the rest of the year. Samples shall be analysed for the following determinands:

- Temperature (See Note 3)
- pH
- Dissolved oxygen concentration (See Note 3) and percentage saturation
- Total ammoniacal nitrogen
- Dissolved inorganic nitrogen
- Dissolved reactive phosphorus
- Hue (Munsell units)
- Visual clarity
- *Escherichia coli*

The time shall be recorded for each receiving water sample and all receiving water samples shall be taken between 0900 and 1100 hours.

Compliance for temperature, pH, dissolved oxygen, hue and visual clarity shall be determined for each sampling occasion.

During the January to February period 20 paired(See Note 5) triplicate(See Note 2) samples shall be taken, with a minimum of 23 hours between samples, from the two receiving water monitoring sites. Compliance shall be determined for the set of 20 paired samples. The difference between upstream and downstream *Escherichia coli* concentrations shall be determined for each of the 20 paired samples, and the median difference for the set of 20 paired samples shall not exceed an increase of 50 *Escherichia coli* per 100 millilitres.

The January to February *Escherichia coli* compliance monitoring period shall commence on the first working day after the New Year statutory holidays, and a minimum of four samples shall be taken each week on different days until the programme is completed.

Once the upgrade to the treatment system required by Condition 6 has been commissioned, then the receiving water monitoring for *Escherichia coli* shall cease.

To assist data interpretation, the monitoring of determinands with different sampling frequencies shall be integrated so that the maximum number of determinands is sampled at one time.

Notes:

(1) The "total" five day biochemical oxygen demand shall be measured and nitrogenous inhibitors shall not be added to the samples prior to analysis.

(2) Triplicate sampling shall involve collection of three separate samples taken at least five minutes apart during the same sampling event. Analysis shall be conducted on a composite sample made up of equal volumes of each triplicate sample.

(3) Temperature and dissolved oxygen concentration shall be measured in the field using a meter in accordance with standard procedures and triplicate measurements are not required for these parameters, apart from the measurement of dissolved oxygen in the pond which is to be measured in accordance with Section 3.0.

(4) *Escherichia coli* shall, unless otherwise agreed with the Northland Regional Council, be measured using the Colilert™ method.

(5) Paired samples are samples taken from the same body of water prior to and after the addition of the wastewater discharge. Paired samples shall be obtained by marking the upstream water with dye (or small drogues such as oranges) at the same time as the upstream sample is taken, and then sampling the marked body of water when it reaches the downstream boundary of the mixing zone.

5. RECORD OF SIGNIFICANT ODOURS

A record shall be kept of any significant odours at or outside the treatment plant boundary. The record shall identify the source and cause of any significant odour, duration of the odour, wind strength and direction, remedial action undertaken, and the degree of success of the remedial action.

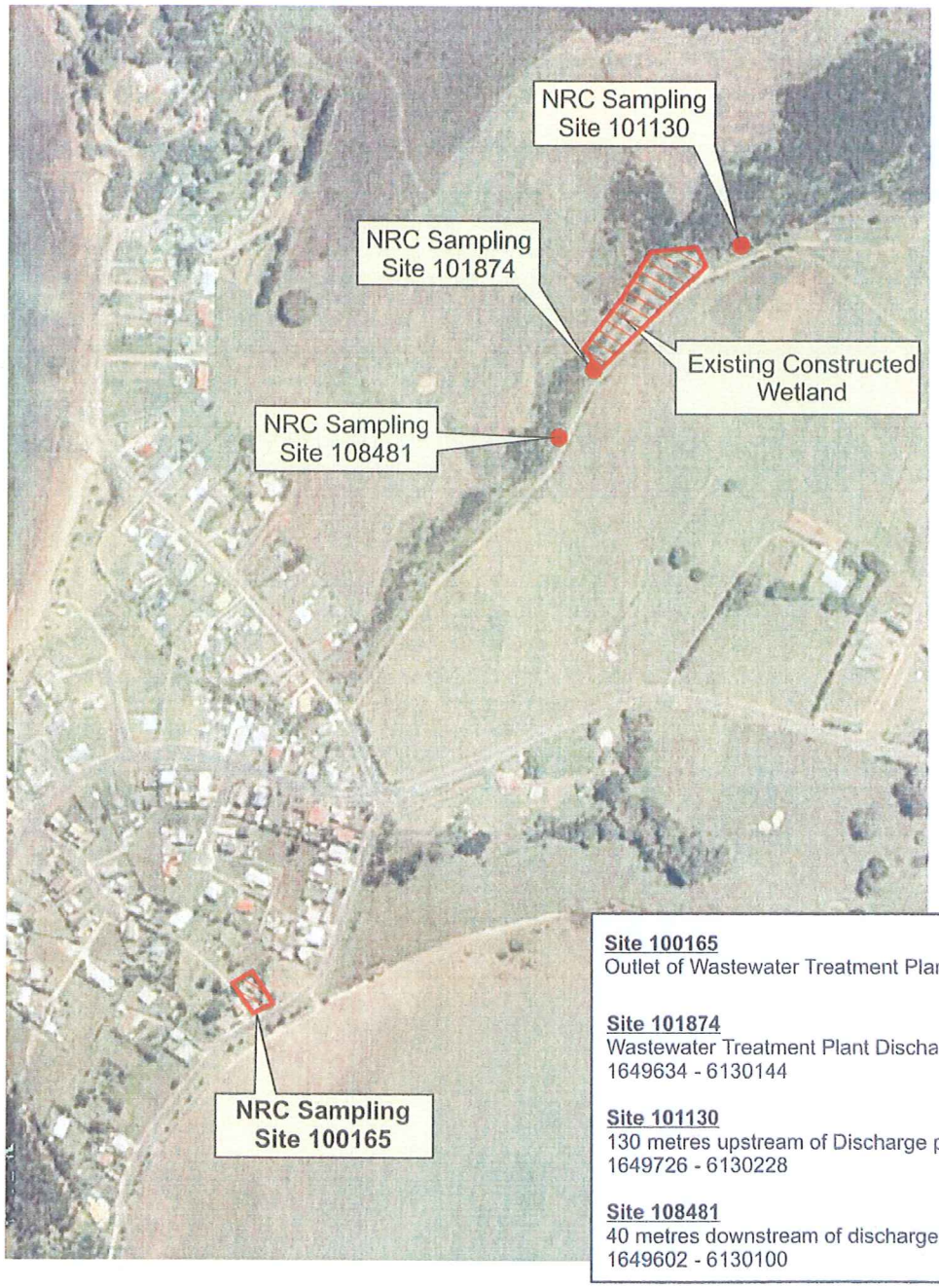
6. SAMPLE COLLECTION, SAMPLE TRANSPORT, AND LABORATORY REQUIREMENTS

All samples shall be collected using standard procedures and in appropriate laboratory supplied containers.

All samples shall be transported in accordance with standard procedures and under chain of custody to the laboratory.

All samples shall be analysed at a laboratory with registered quality assurance procedures[#], and all analyses shall be undertaken using standard methods, where applicable.

[#] Registered Quality Assurance Procedures are procedures which ensure that the laboratory meets recognised management practices as would include registrations such as ISO 9000, ISO Guide 25, Ministry of Health Accreditation, IANZ.



Site 100165
Outlet of Wastewater Treatment Plant

Site 101874
Wastewater Treatment Plant Discharge
1649634 - 6130144

Site 101130
130 metres upstream of Discharge point
1649726 - 6130228

Site 108481
40 metres downstream of discharge Point
1649602 - 6130100

NORTHLAND REGIONAL COUNCIL

RESOURCE CONSENT CON20100739901
for
Hihi Wastewater Treatment
Location of Facilities and Sampling Sites

Scale:	N.T.S.	
Drawn:	PAM	02/11
App'd:		3/3/11
Plan No.		3556A