

No.	HRC Condition	Applicant Condition	Applicant comment
Condition Schedule APP-2005011178.01 – Eketahuna Wastewater Treatment Plant General Conditions Applying to all Permits			
	<b>Descriptive Specification</b>		
1.	<p>The activity authorised by these permits shall be undertaken in general accordance with the concepts, parameters, drawings, specifications, statement of intent, proposed mitigation measures and other information supplied in the application received on 1 April 2015 and supplementary documents received:</p> <ul style="list-style-type: none"> <li>a. On 11 December 2015, being a response to the s92 further information request of June 2015; and</li> <li>b. On 27 February 2017, being a response to the s92 further information request of November 2016.</li> </ul> <p>Where the application is inconsistent with the requirements of the conditions, the conditions will prevail.</p>	No Change	Standard Condition
2.	<p>The wastewater discharge authorised by these permits shall be limited to:</p> <ul style="list-style-type: none"> <li>a. A maximum 12 month rolling median daily (midnight to midnight) discharge of [applicant to indicate] cubic metres;</li> <li>b. A maximum discharge of 3,200 cubic metres peak wet weather flow,</li> </ul> <p>at approximate map reference NZMS 260T25-380-594/NZTopo50 BN35:280-977.<sup>1</sup></p>	<p>The wastewater discharge authorised by these permits shall be limited to:</p> <ul style="list-style-type: none"> <li>c. A maximum 12 month rolling median daily (midnight to midnight) discharge of 640 cubic metres;</li> <li>d. A maximum discharge of <u>23,0200</u> cubic metres peak wet weather flow,</li> </ul> <p>at approximate map reference NZMS 260T25-380-594/NZTopo50 BN35:280-977.<sup>1</sup></p>	<p>Volumes specified based on the technical evidence of John Crawford.</p> <p><u>Peak wet weather not to change at this stage on advice of John Crawford, only 1 year of flow data available.</u></p> <p><u>If reductions are found, can be picked up in reviews.</u></p>
<b>Predevelopment Milestones</b>			
2a.		<p>The Permit Holder shall finalise the details of the Treatment Plant, and the treatment process to be used to treat wastewater so it will meet all the conditions of Permit xxxx. The Permit Holder shall prepare an RFP to call for a design for the Treatment Plant within 2 months of the grant of these permits. As a minimum the RFP shall specify the minimum effluent standards to be achieved, and detail requirements for monitoring influent flows and characteristics. As a requirement, the RFP shall specify that final design of the process improvements necessary to meet the effluent standards and a procurement strategy shall be completed within 13 months of grant of these permits. The Permit holder shall ensure that a contract is awarded for the design and construction of upgrades to the WWTP by four months of the final design and procurement strategy. The contract shall include milestones details to ensure all upgrades are installed at the plant no later than 12 months from award of construction contract.</p> <p>No later than 11 months following award of the construction contract the Permit Holder shall forward details of a plan for the Commissioning phase of the upgrades and details of performance testing to be undertaken. Performance testing, including making seasonal adjustments, shall be undertaken in parallel with the receiving water investigations required by Condition xx.</p> <p><b>Advice Note:</b> The milestones for design are subject to negotiation with a contractor to be awarded the tender for the finalised design of WWTP. The dates specified above recognise major milestones and will be subject to additional milestones.</p>	<p>New Condition. Timing will be critical to allow for data to be collected within term recommended by TM.</p> <p>Condition is based on time required for commissioning a plant as detailed in technical evidence of John Crawford.</p>

3.	<b>Environmental Standard</b>	Advice Note: This condition does not replace condition xx which requires a report to be prepared looking in to xxx. The expectation would be that data collected during the design phase would be able to be used in the process of xx condition	Within two years of commencement of these permits, the permit holder shall have achieved the requirements of Policy 5-11 by either ensuring the discharge is passing through an alternative system that mitigates the adverse effects on the marine environment, or being applied onto or into land, or flowing overland, or receiving water body
4.	<b>Monitoring Provision</b>	Within [xx] months of commencement of these permits, the permit holder shall install signage advising Makakahi River users that treated wastewater is being discharged into the location <sup>2</sup>	Within [xx] months of commencement of these permits, the permit holder shall advise adjoining Makakahi River users that treated wastewater is being discharged into the location <sup>2</sup>
5.	Within five years of commencement of these permits, the permit holder shall reflect its recommendation into alternative methods of treatment and discharge, completed an investigation into alternative methods of treatment and discharge, including land based disposal. The alternative disposal feasibility study shall inform the permit holder's decision on the best practicable option for treatment and disposal from the Eketahuna Wastewater Treatment Plant. The findings of the feasibility study shall be provided to the Taranaki District Wastewater Forum (TDWF), and to the regulatory manager of the Manawatu-Wanganui Regional Council.	Within six years of commencement of these permits, the permit holder shall reflect its recommendation into alternative methods of treatment and discharge, including land based disposal. The alternative disposal feasibility study shall take into account the report.	Within twelve months of commencement of these permits, the permit holder shall have completed a recruitment exercise investigation of the Manawatu-Wanganui mixing zone.
6.	Within twelve months of commencement of these permits, the permit holder shall have completed a recruitment exercise investigation of the Manawatu-Wanganui mixing zone.	The permit holder shall inspect the Sewage Treatment Plant at least once weekly for the term of these permits for the purpose of attending to all operational requirements and maintenance. A record of these visits and any undertaken shall be kept in a log book, available to the Manawatu-Wanganui regional council's consent Monitoring Officer upon request.	The permit holder shall inspect the Sewage Treatment Plant at least once weekly for the 12 month period ending 30 June. The monitoring report shall include but not be limited to:
7.	Within twelve months of commencement of these permits, the permit holder shall have completed a recruitment exercise investigation of the Manawatu-Wanganui mixing zone.	Minor wording change for consistency to refer to wastewater treatment plant.	Minor wording change for consistency to refer to wastewater treatment plant.
8.	By 31 October of each year, the Consent Holder shall provide the No Change	Regional Council's consent Monitoring Officer upon request.	By 31 October of each year, the Consent Holder shall provide the Manawatu-Wanganui Regional Council's Consents Monitoring Team and Taranaki District Wastewater Forum (TDWF), an Annual Environmental Report for the 12 month period ending 30 June. The monitoring report shall include but not be limited to:
			A summary of the daily inflow and outflow volumes for the conditions;
b.			oxidation ponds including a comment on the relative volumes;
c.			An assessment of the analyses and records;
d.			An assessment of both groundwater and surface water including an assessment of those water quality analyses under Conditions [xx], [xx] and [xx] and against any relevant targets in Schedule E of the One Plan.
e.			A report on the effects of the discharge on the benthic flora of the Makakahi River as required by condition xx of the discharge to water permit
f.			A comment on the extent to which conditions of these

	<p>permits have been complied with;</p> <p>g. A record of any complaints that are received relating to the operation of the Oxidation ponds;</p> <p>h. Report on trends as a result of permit monitoring.</p>		
9.	Within 3 months of these permits commencing, the Permit Holder shall install a pond level sensor alarm.		
10.	Within 3 months of these permits commencing, the Permit Holder shall install a high level alarm.		Currently bit unclear what difference between the Condition 9 and 10 is. Presume that can have one sensor with multiple levels of alert. Don't yet know what the high level would be, but could be picked up in the O&M manual. Maybe an advice note that one sensor can do multiple things.
	<b>Tararua District Wastewater Forum (TDWF)</b>		
11.	<p>1. The permit holder shall initiate the inaugural meeting of the Tararua District Wastewater Forum (TDWF) on or before 31 October in the year either or both of the Pahiatua (APP-1993001253.02) or Eketahuna application (APP-2005011178.01) commence.</p> <p><b>ADVICE NOTE:</b> The inaugural TDWF meeting shall be initiated following commencement of the earliest application to be authorised.</p>		
12.	The permit holder shall secure the services of an independent facilitator who is responsible for facilitating discussions any time the forum meets.		
13.	The permit holder shall, for all TDWF's, provide the venue and administrative support, including but not limited to recording attendees recording and circulating notes and outcomes discussed at the forum.		
14.	<p>Two weeks prior to hosting any meeting of the TDWF, the permit holder shall by way of formal correspondence issue invitations to the following parties:</p> <ul style="list-style-type: none"> <li>a. Kahungunu ki Tamaki nui-a-rua Trust and Rangitane o Tamaki nui a Rua Inc,</li> <li>b. Water &amp; Environmental Care Ass. Inc,</li> <li>c. Water Protection Society Inc,</li> <li>d. MidCentral District Health Board,</li> <li>e. Manawatu Estuary Trust,</li> <li>f. Wellington Fish and Game ,</li> <li>g. John Bent, Christina Paton, Te Roopu Taiao o Ngati Whakatere, Corny and Charlotte Andrews,</li> <li>h. A representative of Horizons Regional Council as the Regulatory Authority,</li> <li>i. A representative of the Tararua District Council as the permit holder, and Manawatu River Accord participants.</li> </ul>		
15.	In addition to condition 14 above, the permit holder shall place in the Manawatu Standard and the Bush Telegraph a public notice advising of the date, time, location and purpose of the TDWF meeting.		
16.	<p>The permit holder shall ensure that at least one TDWF shall occur annually.</p> <p><b>ADVICE NOTE:</b> Meeting frequency can be amended if participants in the TDWF agree</p>		
17.	<p><b>Review</b></p> <p>The Manawatu-Wanganui Regional Council may, pursuant to section 128 of the Act, initiate a review of any conditions of these permits in the month of <b>July 2018 and July 2021</b>. Any review shall be for the purpose of reviewing the effectiveness of the conditions in avoiding, or mitigating any adverse effects on the environment,</p>	<p>The Manawatu-Wanganui Regional Council may, pursuant to section 128 of the Act, initiate a review of any conditions of these permits in the month of <b>July 2018, July 2021 and July 2023</b>. Any review shall be for the purpose of reviewing the effectiveness of the conditions in avoiding, or mitigating any adverse effects</p>	Additional review to recognise different term recommended by TM.

<p>which may arise as a result of the exercise of this permit. The review of conditions shall be for the purpose of:</p> <p>a. The modification of the monitoring programme, including reviewing the frequency of the monitoring or the determining of the determinants required;</p> <p>b. Requiring compliance with any relevant rule of an operative Regional Plan;</p> <p>c. The amendment, deletion or addition of new conditions as necessary to avoid, remedy or mitigate any adverse effect on the environment but not limited to conditions to mitigate adverse effects attributed to any breach of any condition;</p> <p>d. Addressing any adverse effects on the environment which may arise that are specifically addressed at a later stage;</p> <p>e. Requiring the permit holder to adopt the best practicable option to remove or reduce any adverse effects on the environment;</p> <p>f. Requiring the permit holder to adopt the best practicable option to remove or reduce any adverse effects on the environment;</p> <p>g. Assessing the performance of the wastewater treatment plant in terms of the quality of the effluent being discharged to the receiving environment;</p> <p>h. Reviewing the effectiveness of the standards in the conditions of this permit in addressing the adverse effects on the Makkabi River;</p> <p>i. The review may result in any of the following outcomes to ensure that any adverse effects are appropriately mitigated:</p> <p>1. The deletion or amendment of any conditions of the permits;</p> <p>ii. The addition of new conditions including conditions imposing more stringent discharge quality standards or more stringent requiring water standards;</p> <p>iii. The addition of new conditions requiring the permit holder to adopt the best practicable option;</p> <p>iv. Achieving an outcome that arises from a review that is initiated by the equivalence;</p> <p>ADVICE NOTE: Any review exercised under this condition may result in the wastewater discharge volume and / or rate being reduced and / or restricted, or further restrictions being placed on the discharge volume and / or rate during low flow conditions resulting in the wastewater discharge volume and / or rate being reduced and / or restricted, or further restrictions being placed on the environment monitored recommendations a plant and the period of time required to commission a plant and the period of time required for receiving the upgrades are installed and functioning.</p>	<p>These permits shall expire on 1 July 2025</p> <p>18. Duration</p>
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No.	HRC Condition	Applicant Condition	Applicant comment
Condition Schedule ATH-2013011395.01 – Eketahuna Wastewater Treatment Plant Discharge to Air Permit			
	<b>Pre-Development Assurance</b>		
1	<p>Within two months of the granting of this permit, the permit holder shall provide an Odour Operation and Management Plan (OMP) for certification to the Regulatory Manager of the Manawatu-Wanganui Regional Council. The purpose of the OMP shall be to detail the measures the permit holder intends to take to avoid and mitigate the potential for odour from the wastewater treatment plant and ponds. The Operation and Management Plan shall include, but not be limited to the following:</p> <ul style="list-style-type: none"> <li>a. Details of regular inspections, plant maintenance and cleaning as required to avoid offensive odours;</li> <li>b. Responsibilities of on-site staff;</li> <li>c. Monitoring procedures;</li> <li>d. Contingency procedures in the event of equipment failures;</li> <li>e. A complaints procedure including; <ul style="list-style-type: none"> <li>i. Provision of a 24 hour telephone contact number,</li> <li>ii. A stated commitment by the permit holder to respond to odour complaints within a specified time period,</li> <li>iii. Actions to be taken by the permit holder to verify complaints</li> <li>iv. Provision for recording the responses made by the permit holder to complaints, and</li> <li>v. Records of actions taken by the permit holder to address the sources of any verified odour</li> </ul> </li> <li>f. Management procedures for storage and handling of primary screenings and other solid wastes handling; and</li> <li>g. Procedures for monitoring and managing pond sludge levels to minimize the risk of upset conditions in the ponds resulting in offensive odours</li> </ul>	<p>Within two months of the granting of this permit, the permit holder shall provide an Odour Operation and Management Plan (OMP) for certification to the Regulatory Manager of the Manawatu-Wanganui Regional Council. The purpose of the OMP shall be to detail the measures the permit holder intends to take to avoid and mitigate the potential for odour from the wastewater treatment plant and ponds. The Operation and Management Plan shall include, but not be limited to the following:</p> <ul style="list-style-type: none"> <li>a. Details of regular inspections, plant maintenance and cleaning as required to avoid offensive odours;</li> <li>b. Responsibilities of on-site staff;</li> <li>c. Monitoring procedures, including reporting procedures for measuring DO ;</li> <li>d. A programme for developing reference diurnal DO profiles during the year;</li> <li>e. Contingency procedures in the event of equipment failures;</li> <li>f. A complaints procedure including; <ul style="list-style-type: none"> <li>i. Provision of a 24 hour telephone contact number,</li> <li>ii. A stated commitment by the permit holder to respond to odour complaints within a specified time period,</li> <li>iii. Actions to be taken by the permit holder to verify complaints</li> <li>iv. Provision for recording the responses made by the permit holder to complaints, and</li> <li>v. Records of actions taken by the permit holder to address the sources of any verified odour</li> </ul> </li> <li>g. Management procedures for storage and handling of primary screenings and other solid wastes handling; and</li> <li>h. Procedures for monitoring and managing pond sludge levels to minimize the risk of upset conditions in the ponds resulting in offensive odours</li> </ul>	Alternative method for measuring DO based on the technical evidence of John Crawford.
	<b>Environmental Standards</b>		
2.	<p>The discharge to air authorised by this consent shall not cause the emission of odour that, in the opinion of the Manawatu-Wanganui Regional Council's Consents Monitoring Officer, is offensive or objectionable at or beyond the property boundary of the Eketahuna Wastewater Treatment Plant site.</p> <p><b>ADVICE NOTE:</b> When considering the objectionableness of odour, the Manawatu- Wanganui Regional Council will take into consideration the FIDOL factors: frequency, intensity, duration, offensiveness and location</p>	No Change	
3.	<p>The Consent Holder shall keep a complaints register to record complaints relating to discharges of odour or contaminant gases to air arising from the Wastewater Treatment Plant. The register shall include:</p> <ul style="list-style-type: none"> <li>a. The details of the complainant if given;</li> <li>b. The location of where the contaminant, e.g. odour, was detected;</li> <li>c. A description of the wind speed and direction when the alleged adverse effect was detected by the complainant;</li> <li>d. The date and time of the detection;</li> <li>e. The most likely cause of the discharge detected;</li> </ul>	No Change	

4.	The Consent Holder shall advise the Manawatu-Wanganui Regional Council's Consents Monitoring Team within 24 hours of any complaints relating to air discharges being received.	
5.	A copy of information recorded in the complaints register shall be included in the Annual Environmental Report provided by condition 8 of the General Conditions. The Annual Environmental Report shall be provided to the Regularly Licensed Manager by 31 October of each year.	
6.	The permit holder shall continuously monitor Dissolved Oxygen in the wastewater storage ponds and ensure that the Dissolved Oxygen measurement is at or above 0.5 mg/L and ensure that the Dissolved Oxygen measurement is at or above 0.5 mg/L.	
7.	Advice Note: A calibrated hand held DO meter shall be used to measure DO levels. Wherever possible readings shall be taken shall be taken at similar times of the day, as defined in the O&M Plan in the event that any dissolved oxygen measurement is less than 0.5 mg/L, the consent holder shall take appropriate action to raise the dissolved oxygen as necessary to avoid the occurrence of an incident likely to cause non-compliance with condition 2.	
8.	No Change The consent holder shall advise the Consents Monitoring Team at least fourteen (14) days prior to undertaking any pond dredging works. The consent holder shall include as part of this advice, notice to the Regional Council of the method proposed for sludge removal, the likely duration of the activity and the methods that will be used to manage the discharge of odour that has the potential to cause non-compliance with condition 2.	

No.	HRC Condition	Applicant Condition	Applicant comment
Condition Schedule ATH-2015200247.00 – Eketahuna Wastewater Treatment Plant Discharge to Land Permit - Pond Seepage			
	<b>Environmental Standards</b>		
1.	Within three months of commencing this permit, the Consent Holder shall monitor, calculate and record the daily rate of leakage from the WWTP pond system to groundwater. This leakage rate shall be determined based on a water balance calculation incorporating monitored daily WWTP pond influent and effluent flows and daily climate data (rainfall and evaporation).		
2.	The Consent Holder shall provide daily Pond Seepage rate data, as monitored and calculated in accordance with consent condition 2 above, on a quarterly basis, in a format that is compatible with the Manawatu-Wanganui Regional Council data system		
3.	By 1 July 2018, all wastewater treatment ponds must have a lining with a permeability not exceeding $1 \times 10^{-9}$ m/s		
4.	Following completion of the pond lining as required by condition 3, the Consent Holder shall undertake six monthly monitoring of a sub-liner drainage/leakage detection system		
	<b>Monitoring Provision</b>		
5.	Samples collected under Condition 4 shall be analysed for the following parameters: a. Total Phosphorus (TP) b. Dissolved Reactive Phosphorus (DRP) c. Total Nitrogen (TN) d. Nitrate Nitrogen (NO3-N) e. Nitrite Nitrogen (NO2N) f. Ammoniacal Nitrogen (NH3-N) g. Escherichia coli (E. coli) h. Dissolved oxygen (field measurements) i. Electrical Conductivity (EC) (field measurements) j. Chloride k. Static water level l. pH (field measurement and laboratory measurement) m. Soluble Carbonaceous Biological Oxygen Demand (ScBOD5)		
6.	Results of this monitoring shall be transferred within ten working days of their receipt to the Manawatu-Wanganui Regional Council in a format compatible with the Manawatu-Wanganui Regional Council systems		
7.	The results from the monitoring required by condition 5 of this permit shall be collated, analysed and interpreted and included in the Annual Report, as required by condition 8 in the General Conditions		
	<b>Post-development Assurance</b>		
8.	Should the consent holder not achieve Condition 3 (the pond lining condition) by 1 July 2018, a plan to install and monitor groundwater at one up-gradient and two down-gradient monitoring wells will be provided to Manawatu-Wanganui Regional Council for approval. Groundwater shall be monitored six-monthly for the suite of analytes listed in 5 above and shall commence no later than 1 September 2018.	Delete	<p>Do not consider it appropriate to have a condition which seems to anticipate a non-compliance with a preceding condition.</p> <p>It is noted that the technical evidence of John Crawford outlines some potential difficulties and issues that can occur with relining ponds of this age. Also aware that the evidence presented by Blair King does not consider lining the ponds to be best use of money(on the basis that funds could be better spent elsewhere that would have more positive effect).</p> <p>The difficulty face by the panel is that the application was notified with the statement that the ponds would be lined. For the most part I would consider this to be an Augier condition.</p> <p>The One Plan does have a permitted activity rule for lined human wastewater ponds, however having assessed the standards of this Rule even if the ponds are lined because of the location of the ponds to the River even once lined would not meet the permitted activity Rule.</p> <p>It is acknowledged that currently there is little known regarding the groundwater conditions.</p> <p>An alternative could be to have the monitoring condition remain and determine if the ponds do meet the permeability standard as they are.</p> <p>Supplementary evidence of Mr Baker indicates that not lining the ponds could be appropriate, provided that an acceptable level of seepage is met. Suggests a rate of 20% would be acceptable. Depending on</p>

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No.	HRC Condition	Condition Schedule ATH-2015200247.00 – Eketahuna Wastewater Treatment Plant Discharge to Water Permit	Applicant Condition	Applicant Comment
Definitions:				
1	Environmental Standards	<p>Until 1 July 2018, the treated wastewater shall meet the following standards:</p> <p>Until 1 July 2020, the treated wastewater shall meet the following standards:</p> <p>Alternative date recommended, based on technical evidence of John Crawford regarding period of time required to design, construct and commission upgraded plant.</p> <p>a. The concentration of Ammonical-nitrogen (<math>\text{NH}_4\text{-N}</math>) shall not exceed 4 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 11 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of soluble carbonaceous BOD<sub>5</sub> (SCBOD<sub>5</sub>) shall not exceed 3 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 6 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples</p> <p>c. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>d. Downstream of the UV treatment plant</p> <p>ADVICE NOTE: Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant</p> <p>Until 1 July 2020, the treated wastewater shall meet the following standards in the Makakahi River as measured at "Makakahi at Hamaua" flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <p>a. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 samples, and no more than 4,700 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 samples, and no more than 4,700 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>c. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>d. The concentration of soluble carbonaceous BOD<sub>5</sub> (SCBOD<sub>5</sub>) shall not exceed 3 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 6 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples</p> <p>e. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>f. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 consecutive samples.</p> <p>2.</p>	<p>Until 1 July 2018, the treated wastewater shall meet the following standards in the Makakahi River as measured at "Makakahi at Hamaua" flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <p>a. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 samples, and no more than 4,700 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 samples, and no more than 4,700 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>c. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>d. The concentration of soluble carbonaceous BOD<sub>5</sub> (SCBOD<sub>5</sub>) shall not exceed 3 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 6 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples</p> <p>e. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>f. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 consecutive samples.</p>	
	Definitions:	<p>CBOD<sub>5</sub> Carbonaceous five days Biochemical Oxygen Demand</p> <p>SCBOD<sub>5</sub> Soluble Carbonaceous five days Biochemical Oxygen Demand</p> <p>NH<sub>4</sub>-N Ammoniacal Nitrogen</p> <p>NO<sub>x</sub>N Total oxidised nitrogen</p> <p>TN Total Nitrogen</p> <p>TSS Total Suspended Solids</p> <p>DRP Dissolved Reactive Phosphorus</p> <p>E. coli Escherichia coli</p> <p>g/m<sup>3</sup> Grams per cubic metre</p>	<p>Until 1 July 2018, the treated wastewater shall meet the following standards:</p> <p>Until 1 July 2020, the treated wastewater shall meet the following standards:</p> <p>Alternative date recommended, based on technical evidence of John Crawford regarding period of time required to design, construct and commission upgraded plant.</p> <p>a. The concentration of Ammonical-nitrogen (<math>\text{NH}_4\text{-N}</math>) shall not exceed 4 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 11 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of soluble carbonaceous BOD<sub>5</sub> (SCBOD<sub>5</sub>) shall not exceed 3 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 6 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples</p> <p>c. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>d. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 consecutive samples.</p> <p>e. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 consecutive samples.</p> <p>f. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p>	<p>Until 1 July 2018, the treated wastewater shall meet the following standards in the Makakahi River as measured at "Makakahi at Hamaua" flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <p>a. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 samples, and no more than 4,700 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 samples, and no more than 4,700 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>c. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>d. The concentration of soluble carbonaceous BOD<sub>5</sub> (SCBOD<sub>5</sub>) shall not exceed 3 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples; and no more than 6 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples</p> <p>e. The concentration of total suspended solids shall not exceed 21 <math>\text{g}/\text{m}^3</math> in more than 8 out of 12 consecutive samples, and no more than 27 <math>\text{g}/\text{m}^3</math> in more than 2 out of 12 consecutive samples.</p> <p>f. The concentration of <math>\text{E. coli}</math> shall not exceed 490 MPN/100ml in more than 8 out of 12 consecutive samples.</p>

	b. The concentration of DRP shall not exceed 0.5 g/m <sup>3</sup> in more than 8 out of 12 samples, and no more than 2 g/m <sup>3</sup> in more than 2 out of 12 consecutive samples.	The concentration of DRP shall not exceed 0.5 g/m <sup>3</sup> in more than 8 out of 12 samples, and no more than 2 g/m <sup>3</sup> in more than 2 out of 12 consecutive samples.	
3.	<p><b>By 1 July 2018</b>, the treated wastewater shall meet the following standards:</p> <ul style="list-style-type: none"> <li>a. The concentration of Ammonical-nitrogen (NH<sub>4</sub>-N) shall not exceed 4 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 11 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples;</li> <li>b. The concentration of soluble carbonaceous BOD<sub>5</sub> (sCBOD<sub>5</sub>) shall not exceed 3 g/ m<sup>3</sup> in more than 8 out of 12 consecutive samples; and no more than 6 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples</li> <li>c. The concentration of total suspended solids shall not exceed 15 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 30 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</li> </ul> <p><b>ADVICE NOTE:</b> Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant</p>	<p><b>By 1 July 2020</b>, the treated wastewater shall meet the following standards:</p> <ul style="list-style-type: none"> <li>a. The concentration of Ammonical-nitrogen (NH<sub>4</sub>-N) shall not exceed 10 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 15 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples;</li> <li>b. The concentration of soluble carbonaceous BOD<sub>5</sub> (sCBOD<sub>5</sub>) shall not exceed 5 g/ m<sup>3</sup> in more than 8 out of 12 consecutive samples; and no more than 8 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples</li> <li>c. The concentration of total suspended solids shall not exceed 15 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 30 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</li> </ul> <p><b>ADVICE NOTE:</b> Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant</p>	Alternative date recommended, based on technical evidence of John Crawford regarding period of time required to design, construct and commission upgraded plant. More or less 3 years from commencement. Effluent standards based on technical evidence of John Crawford.
4.	<p><b>By 1 July 2018</b>, the treated wastewater shall meet the following standards in the Makakahi River as measured at "Makakahi at Hamua" flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <ul style="list-style-type: none"> <li>a. The concentration of <i>E.coli</i> shall not exceed 50 MPN/100ml in more than 8 out of 12 samples, and no more than 200 MPN/100ml in more than 2 out of 12 consecutive samples.</li> <li>b. The concentration of DRP shall not exceed 0.5 g/m<sup>3</sup> in more than 8 out of 12 samples, and no more than 0.7 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</li> </ul> <p><b>ADVICE NOTE:</b> Compliance with condition 4 will be based on the flow at the "Makakahi at Hamua" flow recording station is less than 8,293 l/s. Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant</p>	<p><b>By 1 July 2020</b>, the treated wastewater shall meet the following standards in the Makakahi River as measured at "Makakahi at Hamua" flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <ul style="list-style-type: none"> <li>a. The concentration of <i>E.coli</i> shall not exceed 260 MPN/100ml in more than 8 out of 12 samples, and no more than 1000 MPN/100ml in more than 2 out of 12 consecutive samples.</li> <li>b. The concentration of DRP shall not exceed 0.5 g/m<sup>3</sup> in more than 8 out of 12 samples, and no more than 1.0 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</li> </ul> <p><b>ADVICE NOTE:</b> Compliance with condition 4 will be based on the flow at the "Makakahi at Hamua" flow recording station is less than 8,293 l/s. Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant</p>	Alternative date recognising period of time taken to design, construct and commission new plant based on technical evidence of John Crawford.
5.	<b>By 1 July 2018</b> , all wastewater discharge into the Makakahi River shall pass through the primary screening unit, the oxidation ponds, rock filter and be treated by the UV disinfection unit.	<b>By 1 July 2020</b> , all wastewater discharge into the Makakahi River shall pass through the primary screening unit, the oxidation ponds, rock filter (overland passage?) and be treated by the UV disinfection unit	Depending on outcome of consultation under condition xx a rock filter may not be the final discharge structure. Both options currently being considered allow for some degree of overland passage hence may be more appropriate to have something more generic. In addition, this seems to be a rather generic condition and may not be required given Condition 2a under the general conditions.
6.	The UV disinfection unit shall be equipped with a UV sensor to monitor UV transmission or intensity through the wastewater during operation.		
7.	The UV sensor shall be monitored continuously, with an alarm notifying the consent holding if the applied UV intensity is operating ineffectively.		

Table 1

Condition	Effect (abbreviated, for reference only)	Containment or protection of wastewater discharge	River flows	Zone of Reasonable Mixing downstream	Table 1
8.	The treated wastewater discharge shall not cause any of the following in the Makakahi River at the river flows outlined in Table 1, and after the reasonable mixing distance of 330 metres:	Change to mixing zone as evidenced in Dr. Russell's evidence.	the production of any conspicuous oil or grease films, scums or foams, or bacterial and / or fungal slime growths visible to the naked eye as plumes floatable or suspended materials; or	a. The production of any conspicuous oil or grease films, scums or foams, or bacterial and / or fungal slime growths visible to the naked eye as plumes floatable or suspended materials; or	a. The production of any conspicuous oil or grease films, scums or foams, or bacterial and / or fungal slime growths visible to the naked eye as plumes floatable or suspended materials; or
b.	Removal of E. coli standard, based on technical advice. With E. coli standards being imposed, end of pipe, should be enough to ensure no adverse effects as a result of the discharge. Deleted. Also consistent with other recent decisions.	any emission or objectionable odour; or	b. bacterial and / or fungal slime growths visible to the naked eye as plumes floatable or suspended materials; or	b. bacterial and / or fungal slime growths visible to the naked eye as plumes floatable or suspended materials; or	b. bacterial and / or fungal slime growths visible to the naked eye as plumes floatable or suspended materials; or
c.	any conspicuous change in colour or clarity; or	any emission or objectionable odour; or	c. any conspicuous change in colour or clarity; or	c. any emission or objectionable odour; or	c. any emission or objectionable odour; or
d.	any conspicuous change in clarity; or	a more than minor adverse effect on aquatic life; or	d. any conspicuous change in clarity; or	d. any conspicuous change in clarity; or	d. any conspicuous change in clarity; or
e.	a more than minor adverse effect on farm animals; or	render the receiving water unsuitable for consumption by farm animals; or	e.d. render the receiving water unsuitable for consumption by farm animals; or	e.d. render the receiving water unsuitable for consumption by farm animals; or	e.d. render the receiving water unsuitable for consumption by farm animals; or
f.	a more than minor adverse effect on aquatic life; or	a more than minor adverse effect on aquatic life; or	f. a more than minor adverse effect on aquatic life; or	f. a more than minor adverse effect on aquatic life; or	f. a more than minor adverse effect on aquatic life; or
g.	black disc, by more than 20%; or	a change in horizontal visibility, defined as the horizontal sighting range of a black disc, by more than 20%; or	g. —	g. —	g. —
h.	the DO concentration to fall below 80 % saturation; or	the DO concentration to fall below 80 % saturation; or	h.e. a change in horizontal visibility, defined as the horizontal sighting range of a black disc, by more than 20%; or	h.e. a change in horizontal visibility, defined as the horizontal sighting range of a black disc, by more than 20%; or	h.e. a change in horizontal visibility, defined as the horizontal sighting range of a black disc, by more than 20%; or
i.	the ammoniacal nitrogen ( $\text{NH}_4\text{-N}$ ) concentration to exceed 2.1 grams per cubic metre at any time, or to exceed 0.4 grams per cubic metre on an rolling annual average ; or	the average DO concentration to fall below 5 g/m <sup>3</sup> at flows below median; or	j. the average POM concentration to exceed 120 mg/m <sup>2</sup> on more than 8% of sampling occasions, or to exceed 120 mg/m <sup>2</sup> on more than 8% of sampling occasions, or	k. the Chlorophyll a levels to move between bands as prescribed by the Freshwater NPs 2014, on the basis of monthly measurements taken over a period of at least 36 months; or	l. the Chlorophyll a levels to move between bands as prescribed by the Freshwater NPs 2014, on the basis of monthly measurements taken over a period of at least 36 months, or
j.	the average POM concentration to exceed 5 g/m <sup>3</sup> at flows below median; or	the bases of monthly measurements taken over a period of at least 36 months, or	m. the cover of filamentous mats greater than 2 cm long to exceed 30% or cover of mats greater than 3 mm thick to exceed 60%; or	n. a reduction in QMCi of greater than 20%; or	o. the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or
k.	the Chlorophyll a levels to move between bands as prescribed by the Freshwater NPs 2014, on the basis of monthly measurements taken over a period of at least 36 months; or	the bases of monthly measurements taken over a period of at least 36 months, or	p. the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or	q. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.	r. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.
l.	the Chlorophyll a levels to move between bands as prescribed by the Freshwater NPs 2014, on the basis of monthly measurements taken over a period of at least 36 months, or	the bases of monthly measurements taken over a period of at least 36 months, or	m. the cover of filamentous mats greater than 2 cm long to exceed 30% or cover of mats greater than 3 mm thick to exceed 60%; or	n. a reduction in QMCi of greater than 20%; or	o. the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or
m.	the cover of filamentous mats greater than 2 cm long to exceed 30% or cover of mats greater than 3 mm thick to exceed 60%; or	the bases of monthly measurements taken over a period of at least 36 months, or	p. the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or	q. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.	r. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.
n.	a reduction in QMCi of greater than 20%; or	the bases of monthly measurements taken over a period of at least 36 months, or	o. the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or	q. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.	r. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.
o.	a reduction in QMCi of greater than 20%; or	the bases of monthly measurements taken over a period of at least 36 months, or	o. the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or	q. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.	r. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.
p.	the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or	the bases of monthly measurements taken over a period of at least 36 months, or	o. the concentration of toxicants to exceed the trigger values for freshwater protection of 99% of species (ANZECC 2000); or	q. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.	r. the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.
q.	the soluble carbonaceous BOD <sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GFC filter) to exceed 1.5 g/m <sup>3</sup> at flows below the 20 <sup>th</sup> FEP.	Table 1	Table 1	Table 1	Table 1

	Condition	Contaminant or Effect (abbreviated, for reference only)	River Flows	Zone of Reasonable Mixing downstream
(a)	Films, scums, foams	All	330 metres	
(b)	Bacterial/fungal slime growths	All	330 metres	
(c)	Objectionable odour	All	330 metres	
(d)	Conspicuous colour or clarity	All	330 metres	
(e)	Unsuitable for farm animals	All	330 metres	
(f)	Effects on Aquatic Life	All	330 metres	
(g)	Horizontal visibility	All	330 metres	
(h)	Dissolved Oxygen	All	330 metres	
(i)	Ammonia-nitrogen	All	330 metres	
(j)	Particulate organic matter	At or below the median	330 metres	
(k,l)	Periphyton biomass	All	330 metres	
(m)	Periphyton cover	All	330 metres	
(n)	QMCI	All	330 metres	
(o)	Toxicants	All	330 metres	
(p)	Soluble carbonaceous BOD <sub>5</sub>	At or below the 20th FEP	330 metres	
9.	If the consent holder is unable to comply with any of the limits in Condition 8 due to the upstream exceedances, the consent holder shall use a Wilcoxon Signed Rank test to determine if there are any significant increases or decreases that are having adverse effects. If it is determined that there are significant adverse effects occurring, it will be considered as a non-compliance with the respective limit.			
	<b>ADVICE NOTE:</b> To perform the statistical test, analysis needs to be against a minimum of 12 upstream and downstream paired results from the monthly sampling.			
10.	<b>Effluent Monitoring</b> To enable the sampling of the treated wastewater, easy and safe access to a sampling port(s) shall be provided by the Consent Holder and maintained as close as is practicable to those sampling locations specified in condition 17			
11.	The consent holder shall take monthly grab samples of the wastewater downstream of the UV treatment unit and the samples shall be analysed for the constituents and at the frequencies listed in Table 2 to assess compliance with Condition 8 and 9 of these consents			
12.	Within three months of commencement of these consents, the consent holder shall have a flow meter installed, by an accredited installer. The installer must ensure the flow meters are located on the inflow and outflow line. The flow meters must have a pulse counter output traceably calibrated to +/- 5 % or better. The flow meter shall be capable of providing daily inflow and discharge volumes use as well as a pulse counter output. The flow meter shall be positioned to measure the entire volume of treated sewage effluent discharge into the surface water of the Makakahi River, discharged under authorisation of these consents			

13.		The consent holder shall ensure the flow meter required by Condition 12, is installed by an irrigation New Zealand Blue Tick accredited installer and be installed in accordance with the standards set out in the Ministry for the Environment Guidelines Resources Management (Measuring and Reporting of Water Takes) Regulations 2010.																																																																																																									
14.		Within three months of commencement of these consents, the consent holder shall install and maintain, in a fully operational condition, a GPRS data logger / telemetry unit compatible with the Manawatu-Wanganui Regional Council's Telemetry system on the discharge line traceable to +/- 5 % or better.																																																																																																									
15.		ADVANCE NOTE: This unit, which is attached to the pulse counter output, will be monitored by the Manawatu-Wanganui Regional Council to ensure compliance with the resource consent conditions.																																																																																																									
16.		With the exception of network power failure or network maintenance the consent holder shall ensure that power supply is maintained at the site at all times.																																																																																																									
17.		ADVICE NOTE: If power supply is lost at the site due to consent holder negligence or abuse and telemetry units require recalibration by Manawatu-Wanganui Regional Council staff the costs associated will be recovered from the consent holder.																																																																																																									
18.		The consent holder shall take samples from the Makakahi River at approximately T25:380-5922, BN35:280-975 90 metres upstream (Site A) and at approximately T25:383-595, BN35:283-9730 metres downstream (Site B) of the discharge point to the Makakahi River, and a sample of the river. The freshwater ecologist shall ensure that the physical characteristics (substrate, depth, velocity, shading) of the upstream and downstream sites are, as much as practicable, similar adequately matched. [...] The locations of the assessment and sampling shall be:																																																																																																									
19.		a. upstream of the discharge point in the first riffle upstream within 100m of the discharge point and b. downstream of the discharge point in the first riffle within 150m of the discharge point																																																																																																									
20.		The samples shall be analysed for the constituents and at the frequency listed in Table 2 to assess compliance with Condition 8 of these consents.																																																																																																									
21.		Table 2: Effluent and River Monitoring																																																																																																									
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18.	All wastewater and river water quality analysis shall be undertaken by an appropriate accredited laboratory. All methodologies adopted shall be appropriate for either wastewater or river water analyses respectively and the soluble CBOD <sub>5</sub> shall be GF/C filtered. The methodologies shall be determined in consultation with the Manawatu- Wanganui Regional Council's Regulatory Manager																				
19.	The consent holder shall have an appropriately experienced and qualified freshwater ecologist undertake macroinvertebrate sampling in the Makakahi River. The macroinvertebrate assessment shall be undertaken following a period of at least three weeks without a significant flood event (defined as an instantaneous river flow exceeding three times the median flow, defined as 9.54 m <sup>3</sup> /s in the Makakahi River at Hamua) and during a period of low flow (at least one week below ½ median flow in the Makakahi River at Hamua defined as 1.59 m <sup>3</sup> /second).																				
20.	<p>The locations of the assessments and sampling are shown on Plan APP- 200511178.01 A as Site A, and Site B and as detailed below:</p> <ul style="list-style-type: none"> <li>a. the Makakahi River at a site located in the reach 200 metres upstream of the discharge point to the Makakahi River (Site A); and</li> <li>b. The Makakahi River at a site located in the reach 100 metres to 330 metres downstream of the discharge point to the Makakahi River (Site B)</li> </ul>	<p><i>The Permit Holder shall have an appropriately qualified and experienced freshwater ecologist undertake macroinvertebrate sampling in the Makakahi River. The freshwater ecologist shall ensure that the physical characteristics (substrate, depth, velocity, shading) of the upstream and downstream sites are, as much as practicable, similar/adequately matched.</i></p> <p><i>The locations of the assessment and sampling shall be:</i></p> <p><i>a. upstream of the discharge point in the first riffle upstream within 100m of the discharge point and</i></p> <p><i>b. downstream of the discharge point in the first riffle within 150m of the discharge point</i></p>	<p>Based on technical comments from Dr Ausseil and in response to concerns raised by other SW experts.</p>																		
21.	<p>Macroinvertebrate sampling referred to in Condition 19 is to be undertaken <b>annually</b> between January to March inclusive when a discharge is occurring. The macroinvertebrate sampling shall follow Protocols C3 (Hard-bottomed quantitative), P3 (full count with subsampling option) and QC3 (Quality control for full count with subsampling option) from the Ministry for the Environment's "protocols for sampling macroinvertebrates in wadeable streams" (Stark et al. 2001). This shall involve:</p> <ul style="list-style-type: none"> <li>a. collection of 5 replicate 0.1 m<sup>2</sup> Surber samples at random within a 20 m section of riffle habitat at each sampling site.</li> <li>b. full count of the macroinvertebrate taxa within each replicate sample to the taxonomic resolution level specified for use of the Macroinvertebrate Community Index (MCI).</li> <li>c. enumeration of the results as taxa richness, MCI, QMCI, %EPT taxa and %EPT individuals</li> </ul>	<p>Macroinvertebrate sampling referred to in Condition 19 is to be undertaken annually between January to March inclusive when a discharge is occurring. The macroinvertebrate sampling shall follow Protocols C3 (Hard-bottomed quantitative), P3 (full count with subsampling option) and QC3 (Quality control for full count with subsampling option) from the Ministry for the Environment's "protocols for sampling macroinvertebrates in wadeable streams" (Stark et al. 2001). This shall involve:</p> <ul style="list-style-type: none"> <li>a. collection of 5 replicate 0.1 m<sup>2</sup> Surber samples at random within a 20 m section of riffle habitat at each sampling site.</li> <li>b. full count of the macroinvertebrate taxa within each replicate sample to the taxonomic resolution level specified for use of the Macroinvertebrate Community Index (MCI).</li> <li>c. enumeration of the results as taxa richness, MCI, QMCI, %EPT taxa and %EPT individuals</li> </ul>																			

22.	The consent holder shall have an appropriate experience and qualified freshwater ecologist undertake monthly assessments of the percentage cover, biomass, chlorophyll A, AFDW and community composition of periphyton, filamentous algae and cyanobacterial mats in riffle habitat, as close as possible to the sites selected under Condition 19 above regardless of flows. The periphyton and algae assessment is to include:	a. visual assessment of the percentage cover of both filamentous algae and algal mats (to the nearest 5%) at 5 points across each of four transects encompassing riffle habitat, and extending across the width of the river more than 2 cm long;	i. percentage cover of visible stream or river bed by bacterial and fungal growths (sewage fungi) visible to the naked eye;	ii. percentage cover of visible stream or river bed by filamentous algae more than 2 cm long;	iii. percentage cover of visible stream or river bed by diatoms or cyanobacterial mats more than 0.3 cm thick;	iv. percentage cover of visible stream or river bed by diatoms less than 0.3 cm thick; and	v. percentage cover of visible stream or river bed that is clean.	vi. collection of a periphyton sample at the same established monitoring sites and transects as defined in Condition 19 above, using method GM-1b from the Stream Periphyton Monitoring Manual (Biggs & Klrroy 2000).	vi. Manager if the absence of low flow conditions prevent the monitoring required by Conditions 19, 21 and 22 within five days of a decision being made that the monitoring cannot be undertaken	23.
24.	<b>Post-Development Assurance</b>	Within three months of commencement of these consents, the consent holder shall arrange access to sampling sites consistent with the requirements of Conditions 17 and 19 of these consents. Such sites shall be maintained at all times for the duration of these consents, with the exclusion of times when high flows in the River may render access hazardous.	At least once every five years, or earlier if there is an unexplained increase in flows, the consent holder must review records of wastewater flows (based on five years running average) that could have been no unexplained increase in flows (based on five years running average) that could adversely affect treatment performance. The results of the review must be included in the next annual monitoring report to the Regulator. Manager. In the event that the review shows that unexplained increased flows could result in adverse effects on treatment performance, the permit holder must investigate the reasons for the unexpected flows and put in place remedial works as necessary. In the event there is disagreement between the permit holder and consent authority in relation to the need for investigations and/or remedial works, the permit holder must commission an independent review by a suitably qualified expert acceptable to the consent authority.	25.						
26.	The consent holder shall notify the Manawatu-Wanganui Regional Council's Environmental Protection Manager within two working days of any non-compliance occurring or when it to the consent authority.									

	<p>becomes certain that a breach of consent conditions is about to occur. For conditions requiring compliance with a particular water quality standard, notification is required within two working days of receipt of the water quality analysis from the Laboratory.</p>		
	<p><b><i>Monitoring Provision</i></b></p>		
27.	<p>The consent holder shall make results of monitoring undertaken required by Conditions 17 and 19 of these consents available to the Manawatu-Wanganui Regional Council's Regulatory Manager on request, and data records for each three month period ending March, June, September and December shall be forwarded to Manawatu-Wanganui Regional Council's Regulatory Manager in a suitable electronic format, within 14 days after the end of each three monthly period.</p>		
28.	<p>At least six months prior to the assessment of water quality being required pursuant to condition 29 the permit holder shall engage an independent panel comprising three appropriately qualified and experienced scientists:</p> <ul style="list-style-type: none"> <li>a one scientist nominated by the permit holder;</li> <li>b one scientist nominated by Manawatu-Wanganui Regional Council; and</li> <li>c one independent scientist (and, for these purposes, an independent scientist shall exclude any person who has presented evidence to the hearing of this permit).</li> </ul> <p>Should the engagement of any of the appointed scientists cease the party who nominated that scientist shall nominate a further appropriately qualified and experienced replacement.</p>	Delete	<p>Do not consider this condition is appropriate. Discussed in supplementary evidence of TM and Dr Ausseil.</p>
29.	<p>The independent panel engaged pursuant to Condition 28 shall, no later than 5 years following the upgrades are completed, undertake an assessment of the water quality periphyton and macroinvertebrate monitoring data collected during the monitoring periods.</p> <p>The assessments shall:</p> <ul style="list-style-type: none"> <li>a. examine the effects of the discharge on the Schedule B values identified in the One Plan for this reach of the Makakahi River;</li> <li>b. Consider any reports received from the Liaison Group;</li> <li>c. Consider the results of macroinvertebrate and periphyton monitoring undertaken in accordance with Conditions 19, 20, 21 and 22;</li> <li>d. Consider past and likely future compliance with Conditions 3 and 4.</li> <li>e. Provide recommendations on the monitoring frequency and monitoring parameters for the remainder of the permit;</li> <li>f. Provide recommendations on any changes required to the discharge regime, and effluent quality (including nutrient concentrations and loads discharged to the Makakahi River), so as to minimize adverse effects on the One Plan's Schedule B values for the Makakahi River.</li> </ul> <p>The findings of the independent panel's assessment shall be submitted to the Regulatory Manager and the TDWF by 1 July 2022</p>	<p>The consent holder shall prepare an assessment of the water quality, periphyton and macroinvertebrate monitoring data. The assessment shall be undertaken by a suitably qualified person and be independently peer reviewed.</p> <p>The assessments shall:</p> <ul style="list-style-type: none"> <li>a. examine the effects of the discharge on the Schedule B values identified in the One Plan for this reach of the Makakahi River;</li> <li>b. Consider the results of macroinvertebrate and periphyton monitoring undertaken in accordance with Conditions 19, 20, 21 and 22;</li> <li>c. Consider past and likely future compliance with Conditions 3 and 4.</li> <li>d. Provide recommendations on the monitoring frequency and monitoring parameters for the remainder of the permit;</li> <li>e. Provide recommendations on any changes required to the discharge regime, and effluent quality (including nutrient concentrations and loads discharged to the Makakahi River), so as to minimize adverse effects on the One Plan's Schedule B values for the Makakahi River.</li> <li>f. The findings of the assessment shall be submitted to the Regulatory Manager and the TDWF by 1 July 2022</li> <li>g. The finding of the assessment shall be considered in the alternative disposal feasibility study required by Condition 5 of the general conditions permit.</li> </ul>	<p>TM opinion is that a report still needs to be done to collate and assess the monitoring data collected. But doesn't need additional expense of a panel. Once the discharge point is shifted I understand from the evidence of Dr Ausseil that it is a much less complex situation to assess (compared to Feilding where the original condition came from).</p>
30.	<p><b>By 31 July each year commencing 31 July 2017</b> the consent holder shall prepare a report that summarises and assesses all of the monitoring information required under Conditions 17, 19, 21 and 22 of these consents. The provision of this report should be included in the Annual Environmental Report required by condition 8 of the general conditions</p>		
31.	<p>The Report required by condition 30 will be provided to the Manawatu-Wanganui Regional Council's Regulatory Manager by <b>31 October</b> of each year.</p>		

