

**Condition Schedule APP-2005011178.01 – Pahiatua Wastewater Treatment Plant General Conditions Applying to all Permits**

<i>Horizons</i>	<i>Applicant</i>	<i>Applicants Comment</i>
<p><b>Descriptive Specification</b></p> <p>1. 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> <p>a. On 11 December 2015, being a response to the s92 further information request of June 2015; and</p> <p>b. On 12 April 2017, being a response to the s92 further information request of November 2016.</p> <p>Where the application is inconsistent with the requirements of the conditions, the conditions will prevail.</p>		
<p>2. The wastewater discharge authorised by these permits shall be limited to:</p> <p>a. A maximum 12 month rolling median daily (midnight to midnight) discharge of <b>applicant to indicate</b> cubic metres;</p> <p>b. A maximum discharge of 3,460 cubic metres peak wet weather flow,</p> <p>at approximate map reference NZTopo50 BM35:408-194.</p>	<p>2. The wastewater discharge authorised by these permits shall be limited to:</p> <p>a. A maximum 12 month rolling median daily (midnight to midnight) discharge of 800 cubic metres;</p> <p>b. A 95<sup>th</sup> percentile daily flow of 1,500m<sup>3</sup>/day,</p> <p>at approximate map reference NZTopo50 BM35:408-194.</p>	<p><i>Based on statistics from para 7.7 of Mr Crawford's evidence. Also notes the concern regarding absolutes as flow consent condition.</i></p>
<p><b>Environmental Standard</b></p> <p>3. <b>By 1 July 2018<sup>1</sup></b> of these permits, the permit holder shall have achieved the requirements of Policy 5-11 by either ensuring the discharge is</p> <p>(i) being applied onto or into land, or</p> <p>(ii) flowing overland, or</p> <p>(iii) passing through an alternative system that mitigates the adverse effects on the mauri of the receiving water body.</p>	<p><i>Delete.</i></p>	<p><i>This condition is unnecessary. The proposed wetland meets Policy 5-11. This condition introduces uncertainty for the applicant.</i></p>
	<p><i>Within three months of commencement of this permit the Consent Holder shall submit a plan detailing the final plant structured optimisation programme. The programme shall take no longer than 18 months to complete. The plan shall nominate a suitably qualified operations technician who will implement the structured optimisation programme. The plan shall</i></p>	<p><i>Based on para 11.26 of Mr Crawford evidence. A suitably qualified technician to be nominated, allows for Horizons compliance officers to have contact regarding the optimisation process.</i></p>

<sup>1</sup> Based on the wetland being completed by March 2018

	<i>specify a stepwise optimisation process of the Chemical dosing system, lamella clarifier operation, micro-filter operation and UV disinfection.</i>	
	<p style="text-align: center;"><b>WWTP Management Plan</b></p> <p><i>Within six months of commencement of this permit the consent holder shall prepare an Operation and management plan. Shall include but not be limited to –</i></p> <ul style="list-style-type: none"> <li>- <i>A description of the entire treatment system facility</i></li> <li>- <i>Plans of the treatment facility</i></li> <li>- <i>A description of routine inspection and maintenance procedures to be undertaken with respect to the treatment plant and discharge components</i></li> <li>- <i>Procedures for recording routine maintenance and all repairs that are undertaken</i></li> <li>- <i>A description of monitoring and record keeping of that monitoring</i></li> <li>- <i>Procedures for reporting compliance purposes</i></li> <li>- <i>A description of procedures for reporting non-compliances to Horizons Regional Council</i></li> <li>- <i>Procedures for reviewing and updating the Operations and Management Plan</i></li> </ul> <p><i>Any updates to the Plan shall be forwarded to Horizons Regional Council</i></p>	<b>TBC</b>
<p><b>Monitoring Provision</b></p> <p>4. <i>Within [xx] months of commencement of these permits, the permit holder shall install signage advising Mangatainoka River users that treated wastewater is being discharge into the location<sup>2</sup>.</i></p>		
<p>5. Within five years of commencement of these permits, the permit holder shall have <b>completed</b> 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 Tararua District Wastewater Forum (TDWF), and to the Regulatory Manager of the Manawatu-Wanganui Regional Council.</p>	<p>5. <i>Within ten years of commencement of these permits, the permit holder shall have 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 Pahiatua Wastewater Treatment Plant. The findings of the feasibility study shall be provided to the Tararua District Wastewater Forum (TDWF), and to the Regulatory Manager of the Manawatu-Wanganui Regional Council.</i></p>	<i>Longer timeframe is considered appropriate given length of term being recommended</i>
<p>6. Within twelve months of commencement of these permits, the permit holder shall have completed a recreational user's investigation of the Mangatainoka River [xx] kilometres upstream and [xx] kilometres downstream of the discharge point and mixing zone .</p>		

<sup>2</sup> Greater specificity is required as to where the placement of signage should be but until the final discharge location is known I am unable to indicate this.

<p>7. <b>Within twelve months of commencement</b> of these permits, the permit holder shall have completed a recreational user's investigation of the Mangatainoka River [xx] kilometres upstream and [xx] kilometres downstream of the discharge point and mixing zone<sup>3</sup>.</p>		
<p>8. 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, monitoring and maintenance. A record of these visits and any maintenance undertaken shall be kept in a log book, available to the Manawatu-Wanganui Regional Council's Consents Monitoring Officer upon request.</p>		
<p>9. <b>By 31 October of each year</b>, the Consent Holder shall provide the Manawatu-Wanganui Regional Council's Consents Monitoring Team and the Tararua District Wastewater Forum (TDWF), an Annual Environmental Report for the 12 month period ending 30 June. The monitoring report shall include but shall not be limited to:</p> <ul style="list-style-type: none"> <li>a. A summary of analyses and records collected in accordance with conditions of these permits, including all sampling conditions;</li> <li>b. A summary of the daily inflow and outflow volumes for the oxidation ponds including a comment on the relative volumes;</li> <li>c. An assessment of the analyses and records;</li> <li>d. An assessment of the effects on 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.</li> <li>e. A report on the effects of the discharge on the benthic biota of the Mangatainoka River as required by condition xx of the discharge to water permit</li> <li>f. A comment on the extent to which conditions of these permits have been complied with;</li> <li>g. A record of any complaints that are received relating to the operation of the Oxidation ponds;</li> <li>h. Report on trends as a result of permit monitoring.</li> </ul>		
<p>10. <b>Within 3 months</b> of these permits commencing, the Permit Holder shall install a pond level sensor alarm.</p>		

<sup>3</sup> Signage may be required to be shifted depending on any outcomes from this report.

<p>11. <b>Within 3 months</b> of these permits commencing, the Permit Holder shall install a high level alarm.<sup>4</sup></p>		
<p><b>Tararua District Wastewater Forum (TDWF)</b></p> <p>12. The permit holder shall initiate the inaugural meeting of the Tararua District Wastewater Forum (<b>TDWF</b>) 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> <p>13. The permit holder shall secure the services of an independent facilitator who is responsible for facilitating discussions any time the forum meets.</p> <p>14. 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.</p> <p>15. 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> <ol 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, Coryn 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</li> <li>j. Manawatu River Accord participants.</li> </ol> <p>16. In addition to condition 15 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.</p> <p>17. 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>		

<sup>4</sup> These two conditions require further development including what pond level would trip a trigger e.g. how full the pond is and the corresponding warning alarm. It would be best if the applicant provided what these levels would be.

<p><i>Review</i></p> <p>18. The Permit Holder shall, no later than six months following the 5<sup>th</sup> anniversary of the commencement date of these Permits, have completed a performance review of the operation of Pahiatua Wastewater Treatment Plant. In particular, the performance review shall evaluate:</p> <ul style="list-style-type: none"> <li>k. The effectiveness of the conditions of these Permits in avoiding, remedying and mitigating any adverse effects on the environment;</li> <li>l. The Permit Holder's record of compliance with these Permit conditions;</li> <li>m. The effectiveness of the Permit Holder's methods in achieving the One Plan schedule E targets downstream of the discharge point;</li> <li>n. Based on available monitoring and state of the environment data, the condition of the Mangatainoka River catchment (including groundwater resources) downstream of the discharge;</li> <li>o. Based on the Permit Holder's monitoring records for the preceding years, whether there is any discernible correlation between the discharges and the quality of any downstream water body and any downgradient groundwater; and;</li> <li>p. Whether any amendments are required or recommended to any conditions of consent to address any significant adverse effects on the environment.</li> </ul> <p>19. The Permit Holder shall forward to the Manawatu-Wanganui Regional Council's Regulatory Manager, no later than 3 months after completion of the performance review, a report detailing the findings of the review accompanied by an audit of the performance review prepared by an appropriately qualified and experienced water quality scientist.</p>	<p><i>Delete</i></p>	<p><i>Seems onerous, unnecessary and unjustified, particularly given the annual reports being prepared under Condition 9.</i></p> <p><i>Little reasoning offered for this condition. Suspect trying to find a way for 'compulsory review'.</i></p> <p><i>Condition is also ambiguous, statement such as discernible correlation of ANY downstream waterbody is entirely too open ended.</i></p> <p><i>It also reads to cover those matters that are part of HRC SOE monitoring.</i></p> <p><i>Condition is not fair or reasonable.</i></p>
<p>20. 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 2020 and July 2024</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, which may arise as a result of the exercise of this permit. The review of conditions shall be for the purpose of:</p> <ul style="list-style-type: none"> <li>a. The modification of the monitoring programme, including reviewing the frequency of the monitoring or the determinants required;</li> <li>b. Requiring compliance with any relevant rule of an operative Regional Plan;</li> <li>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;</li> </ul>	<p>20. 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 2020, July 2024 and July 2027</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, which may arise as a result of the exercise of this permit. The review of conditions shall be for the purpose of:</p> <ul style="list-style-type: none"> <li>a. The modification of the monitoring programme, including reviewing the frequency of the monitoring or the determinants required;</li> <li>b. Requiring compliance with any relevant rule of an operative Regional Plan;</li> <li>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;</li> <li>d. Addressing any adverse effects on the environment which may arise that are appropriately addressed at a later stage;</li> </ul>	<p><i>Added additional review date to reflect longer term.</i></p> <p><i>Seems like little benefit to allow for a review in July 2018, given it is acknowledged the plant would not yet be fully commissioned.</i></p>

<p>d. Addressing any adverse effects on the environment which may arise that are appropriately 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 Mangatainoka 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>i. The deletion or amendment of any conditions of the permits;</p> <p>ii. The addition of new conditions of consent including conditions imposing more stringent discharge quality standards or more stringent receiving 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 equivalent</p> <p><b>ADVICE NOTE:</b> 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.</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 Mangatainoka 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>i. The deletion or amendment of any conditions of the permits;</p> <p>ii. The addition of new conditions of consent including conditions imposing more stringent discharge quality standards or more stringent receiving 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 equivalent</p> <p><b>ADVICE NOTE:</b> 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.</p>	
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**Duration**

21. These permits shall expire on **1 July 2032**.

*Condition Schedule ATH-2016200772.00 – Pahiatua Wastewater Treatment Plant  
Discharge to Air Permit*

***Pre-Development Assurance***

2. **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:
- a. Details of regular inspections, plant maintenance and cleaning as required to avoid offensive odours;
  - b. Responsibilities of on-site staff;
  - c. Monitoring procedures;
  - d. Contingency procedures in the event of equipment failures;
  - e. A complaints procedure including;
    - i. Provision of a 24 hour telephone contact number,
    - ii. A stated commitment by the permit holder to respond to odour complaints within a specified time period,
    - iii. Actions to be taken by the permit holder to verify complaints
    - iv. Provision for recording the responses made by the permit holder to complaints, and
    - v. Records of actions taken by the permit holder to address the sources of any verified odour
  - f. Management procedures for storage and handling of primary screenings and other solid wastes handling; and
  - g. Procedures for monitoring and managing pond sludge levels to minimize the risk of upset conditions in the ponds resulting in offensive odours.

***Environmental Standards***

22. 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.

**ADVICE NOTE:** When considering the objectionableness of odour, the Manawatu-Wanganui Regional Council will take into consideration the FIDOL factors: frequency, intensity, duration, offensiveness and location.

23. 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:
- a. The details of the complainant if given;
  - b. The location of where the contaminant, e.g. odour, was detected;
  - c. A description of the wind speed and direction when the alleged adverse effect was detected by the complainant;
  - d. The date and time of the detection;
  - e. The most likely cause of the discharge detected;
  - f. The dissolved oxygen levels in both ponds; and
  - g. If applicable, any corrective action undertaken by the Consent Holder to avoid, remedy or mitigate the adverse environmental effect detected by the Complainant.
24. 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.
25. A copy of information recorded in the complaints register shall be included in the Annual Environmental Report required by condition **Error! Reference source not found.** of the General Conditions. The Annual Environmental Report shall be provided to the Regulatory Manager by **31 October** of each year.
26. 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.
27. 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 22.
28. The consent holder shall advise the Consents Monitoring Team at least fourteen (14) days prior to undertaking any pond desludging works. The consent holder shall include as part of this advice, notice to the Regional Council of the method or methods 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 22.

*Condition Schedule ATH-2016200747.00 and ATH-2017201456.00 – Pahiatua Wastewater Treatment Plant Discharge to Land Permit - Pond and Wetland Seepage*

<i>Horizons</i>	<i>Applicant</i>	<i>Applicant Comment</i>
<p><b>Environmental Standards</b></p> <p>1. <b>Within three months</b> 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).</p>	<p><b>Permeability Investigations</b></p> <p>1 – <i>Within six months of commencement of this Permit the Consent Holder shall submit to the Manawatu-Whanganui Regional Council’s Consents Monitoring Team Leader a methodology to investigate the rate of seepage from all the existing treatment ponds. The plan shall include, but not be limited to –</i></p> <p>a. <i>Methodology for a water balance to be undertaken for each of the ponds, as a minimum inflows and outflows from the treatment system shall be recorded over a 12 month period, consideration to be given to measuring pond levels and identify where evaporation rates are to be recorded; or other suitable method to determine seepage rate of each of the treatment ponds</i></p> <p>b. <i>The methodology proposed shall be peer reviewed by an independent IPENZ Chartered engineer</i></p> <p>c. <i>Results from the water balance undertaken in accordance with the peer reviewed methodology shall be submitted to the Horizons Regional Councils Consents Monitoring Team Leader and the Tararua Wastewater Forum within six months of the completion of the 12 month monitoring period.</i></p>	<p><i>A suggested alternative condition for investigating permeability and effects. This needs to be based on a suitable period of time.</i></p> <p><i>Consider a more specific condition is appropriate in this case</i></p> <p><i>This condition is modified from the Affco hearing and a condition I recommended for that (using the Ashhurst decision as an example)</i></p> <p><i>Have incorporated sharing the results with the WW Forum to address submitter concerns</i></p>
<p>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.</p>	<p>2 – <i>By 1 July 2020 the Consent Holder shall submit a report to the Manawatu-Whanganui Regional Council’s Consents Monitoring Team Leader and Tararua Wastewater Forum, detailing an assessment of environmental effects. The report must be prepared by an independent and suitably experienced and qualified water quality scientist(s). The report shall include but not be limited to:</i></p> <p>a. <i>An assessment of the effects on both groundwater and surface water as is able to be determined from the analyses and records collected in accordance with conditions of these Permits</i></p> <p>b. <i>An assessment on the contribution (or not) that the discharge from the existing ponds and constructed wetland or adding cumulatively (outside the uncertainty of measurement for the sample) to the exceedance of One Plan Schedule targets</i></p> <p>c. <i>An assessment of options to mitigate any more than minor adverse effects, including an assessment from an independent IPENZ Chartered geotechnical engineer as to whether relining existing ponds to a permeability standard of 1x10-9 m/s is practicable (this shall include an economic assessment)</i></p>	
<p>3. <b>By 1 July 2018</b>, all wastewater treatment ponds must have a lining with a permeability not exceeding 1 x10<sup>-9</sup> m/s</p>	<p><b>Delete</b></p>	<p><i>Consent was sought for as permitted permeability standard may not be able to be met. In addition way condition currently reads is that all the ponds at the WWTP would need to be lined. Suspect this was a drafting error.</i></p>

<p>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.</p>	<p><i>Delete.</i></p>	<p><i>No sub-liner would be installed. However applicant did agree to groundwater monitoring during pre-hearing (though agreed to 2 bores). Alternative condition 4 regarding GW monitoring bores proposed.</i></p>
	<p><b>4</b> Within three months of the date of commencement of this consent, the consent holder shall install three groundwater monitoring wells on the site at or as near as practicable at the locations specified in <b>Appendix 1</b> and to the following specifications:</p> <p>a) The monitoring wells shall have a diameter <b>of not less than 50/100 millimetres / of a sufficient size to enable samples to be taken</b> and shall be installed at the locations identified in <b>xxxx plan</b>.</p> <p>b) The wells shall be drilled to a depth of up to <b>xxx</b> metres below the summer low ground level and/ shall be screened across the full depth of the <b>water table/aquifer</b>, with a screen length of no more than <b>xxx</b> metres.</p> <p>c) The borehole casing shall be constructed of polyvinyl chloride (PVC) or a similar inert material and shall be capped and secured to prevent entry of surface water.</p> <p>d) A concrete pad at least 0.3 metres radius shall be constructed around the bore head of the monitoring well at ground level, to prevent leakage around the casing. The concrete pad shall slope away from the bore.</p> <p>e) The wells shall be installed by a suitable qualified person(s) and constructed in accordance with the New Zealand Standard for Drilling Rock and Soil NZS 4411:2001.</p>	<p><i>Invite comment from Mr Baker regarding suitable depth for sampling.</i></p>
<p><b>Monitoring Provision</b></p> <p>5. Samples collected under Condition 4 shall be analysed for the following parameters:</p> <p>a. Total Phosphorus (TP)</p> <p>b. Dissolved Reactive Phosphorus (DRP)</p> <p>c. Total Nitrogen (TN)</p> <p>d. Nitrate Nitrogen (NO<sub>3</sub>-N)</p> <p>e. Nitrite Nitrogen (NO<sub>2</sub>N)</p> <p>f. Ammoniacal Nitrogen (NH<sub>4</sub>-N)</p> <p>g. Escherichia coli (E. coli)</p> <p>h. Dissolved oxygen (field measurements)</p> <p>i. Electrical Conductivity (EC) (field measurements)</p> <p>j. Chloride</p> <p>k. Static water level</p>	<p><b>Monitoring Provision</b></p> <p>5. <b>Samples collected under Condition 4 shall be analysed for the following parameters:</b></p> <p>a. <b>Total Phosphorus (TP)</b></p> <p>b. <b>Dissolved Reactive Phosphorus (DRP)</b></p> <p>c. <b>Total Nitrogen (TN)</b></p> <p>d. <b>Nitrate Nitrogen (NO<sub>3</sub>-N)</b></p> <p>e. <b>Nitrite Nitrogen (NO<sub>2</sub>N)</b></p> <p>f. <b>Ammoniacal Nitrogen (NH<sub>4</sub>-N)</b></p> <p>g. <b>Escherichia coli (E. coli)</b></p> <p>h. <b>Dissolved oxygen (field measurements)</b></p> <p>i. <b>Electrical Conductivity (EC) (field measurements)</b></p> <p>j. <b>Chloride</b></p> <p>k. <b>Static water level</b></p> <p>l. <b>pH (field measurement and laboratory measurement)</b></p> <p>m. <b>Soluble Carbonaceous Biological Oxygen Demand (ScBOD5)</b></p> <p><i>The Consent Holder shall take samples quarterly from all bores identified in Condition 4 in the months of January, April, July and October in accordance with the MfE Groundwater sampling protocols (2006) or updated document.</i></p>	<p><i>Added specifying sampling frequency in accordance with recommendation from Mr Baker.</i></p>

<p>l. pH (field measurement and laboratory measurement) m. Soluble Carbonaceous Biological Oxygen Demand (ScBOD5)</p>	<p><i>Sampling shall be undertaken quarterly for a period of two years following commencement of consent, thereafter reducing to six-monthly.</i></p>	
<p>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.</p>		
<p>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 <b>Error! Reference source not found.</b> in the General Conditions.</p>		
	<p>8. Within six months of commencement of this permit the consent holder shall submit a wetland construction and establishment plan. The plan shall include but not be limited to –</p> <ul style="list-style-type: none"> <li><i>a. A detailed drawing of the finalised wetland design</i></li> <li><i>b. Details and source of the clay lining to be used for the wetland to achieve a low permeability clay liner, including an opinion from a suitably qualified engineer regarding likely final permeability of the liner and that the clay is not of a ‘dispersive’ nature</i></li> <li><i>c. Details of the plant establishment programme, including a timeline</i></li> <li><i>d. Updates to the general WWTP management plan for maintenance of the wetland</i></li> </ul>	<p><i>Consider it appropriate to submit a final detailed design plan. Given importance of the plant establishment this should be detailed.</i></p> <p><i>Final detailed design of wetland will also allow for final ESCP to be submitted.</i></p>

Condition Schedule ATH-199501433.02 – Pahiatua Wastewater Treatment Plant – Discharge to Water Permit

Definitions:	
cBOD <sub>5</sub>	Carbonaceous five days Biochemical Oxygen Demand
ScBOD <sub>5</sub>	Soluble Carbonaceous five days Biochemical Oxygen Demand
NH <sub>4</sub> -N	Ammoniacal Nitrogen
NO <sub>x</sub> N	Total oxidised nitrogen
TN	Total Nitrogen
TSS	Total Suspended Solids
DRP	Dissolved Reactive Phosphorous
<i>E.coli</i>	<i>Escherishia coli</i>
g/m <sup>3</sup>	Grams per cubic metre

<i>Horizons</i>	<i>Applicant</i>	<i>Applicant Comment</i>
<p>Environmental Standards</p> <p>1. <b>Until 1 July 2018</b>, the treated wastewater shall meet the following standards:</p> <p>a. The concentration of Ammonical-nitrogen (NH<sub>4</sub>-N) shall not exceed 1 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 3 g/m<sup>3</sup> 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 1 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples; and no more than 3 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples</p> <p>c. The concentration of total suspended solids shall not exceed 10 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 83 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</p> <p><b>ADVICE NOTE:</b> Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant.</p>	<p>1. <b>Until 1 July 2018</b>, the treated wastewater shall meet the following standards:</p> <p>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;</p> <p>b. The concentration of soluble carbonaceous BOD<sub>5</sub> (sCBOD<sub>5</sub>) shall not exceed 23 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples; and no more than 31 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples</p> <p>c. The concentration of total suspended solids shall not exceed 41 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 65 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</p> <p><b>ADVICE NOTE:</b> Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant.</p>	<p><i>Date changed to reflect expert evidence of Mr Crawford regarding commissioning period.</i></p> <p><i>Parameters reflect current performance at the plant (Table 2 Mr Crawfords evidence)</i></p>

<p>2. <b>Until 1 July 2018</b>, the treated wastewater discharge shall meet the following standards when flow in the Mangatainoka River as measured at “Mangatainoka at Pahiatua Town Bridge” flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <p>a. The concentration of <i>E.coli</i> shall not exceed 200 MPN/100ml in more than 8 out of 12 samples, and no more than 2000 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of DRP shall not exceed 1 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.</p>	<p>2. <b>Until 1 July 2019</b>, the treated wastewater discharge shall meet the following standards when flow in the Mangatainoka River as measured at “Mangatainoka at Pahiatua Town Bridge” flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <p>a. The concentration of <i>E.coli</i> shall not exceed 600 MPN/100ml in more than 8 out of 12 samples, and no more than 2000 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of DRP shall not exceed 1 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.</p>	<p><i>Date changed to reflect expert evidence of Mr Crawford regarding commissioning period</i></p>
<p>3. <b>By 1 July 2018</b>, the treated wastewater shall meet the following standards:</p> <p>a. The concentration of Ammonical-nitrogen (NH<sub>4</sub>-N) shall not exceed 1 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples, and no more than 3 g/m<sup>3</sup> 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 1 g/m<sup>3</sup> in more than 8 out of 12 consecutive samples; and no more than 3 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples</p> <p>c. The concentration of total suspended solids shall not exceed 10 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.</p> <p><b>ADVICE NOTE:</b> Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant.</p>	<p>3. <b>By 1 July 2019</b>, the treated wastewater shall meet the following standards:</p> <p>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;</p> <p>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</p> <p>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.</p> <p><b>ADVICE NOTE:</b> Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant.</p>	<p><i>Date for standards to be achieved changed to reflect advice of Mr Crawford regarding commissioning period.</i></p> <p><i>Standards in accordance with Table 6 of Mr Crawford evidence</i></p>
<p>4. <b>By 1 July 2018</b>, the treated wastewater discharge shall meet the following standards when flow in the Mangatainoka River as measured at “Mangatainoka at Pahiatua Town Bridge” flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <p>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 1000 MPN/100ml in more than 2 out of 12 consecutive samples.</p> <p>b. The concentration of DRP shall not exceed 0.1 g/m<sup>3</sup> in more than 8 out of 12 samples, and no more than 0.5 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</p> <p><b>ADVICE NOTE:</b> Compliance with condition 4 will be based on the flow at the “Mangatainoka at Pahiatua Town Bridge” flow recording station is less than 23,337 l/s. Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant.</p>	<p>4. <b>By 1 July 2019</b>, the treated wastewater discharge shall meet the following standards when flow in the Mangatainoka River as measured at “Mangatainoka at Pahiatua Town Bridge” flow recording station is at or below the 20<sup>th</sup> flow exceedance percentile flow:</p> <p>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.</p> <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 1.0 g/m<sup>3</sup> in more than 2 out of 12 consecutive samples.</p>	<p><i>Date for standards to be achieved changed to reflect advice of Mr Crawford regarding commissioning period.</i></p> <p><i>Standards in accordance with Table 6 of Mr Crawford evidence</i></p>

		<b>ADVICE NOTE:</b> Compliance with condition 4 will be based on the flow at the “Mangatainoka at Pahiatua Town Bridge” flow recording station is less than 23,337 l/s. Compliance shall be based on grab samples taken immediately downstream of the UV treatment plant.	
5.	<b>By 1 July 2018</b> , all wastewater discharge into the Mangatainoka River shall pass through the primary screening unit, the oxidation ponds, the UV disinfection unit, the wetland complex and discharge via the unlined wetland section.	5.	<b>By 1 July 2019</b> , all wastewater discharge into the Mangatainoka River shall pass through the primary screening unit, the oxidation ponds, the UV disinfection unit, the wetland complex and discharge via the unlined wetland section.
6.	The UV disinfection unit shall be equipped with a UV sensor to monitor UV transmission or intensity through the wastewater during operation.	6.	The UV disinfection unit shall be equipped with a UV sensor to monitor the applied UV dose.
7.	The UV sensor shall be monitored continuously, and at a minimum operating intensity of 30 mJ/cm <sup>2</sup> with an alarm notifying the consent holder if the applied UV intensity is operating ineffectively.	7.	The UV sensor shall be monitored continuously, and shall be programmed with an alarm notifying the consent holder if the applied UV dose decreases below the manufacturer’s recommended dose for a period of more than 24 hours. It is expected that this alarm setting will be of the order of 30 mJ/cm <sup>2</sup> .
	<b>Receiving Water Quality</b> 8. The treated wastewater discharge shall not cause any of the following in the Mangatainoka River at the river flows outlined in Table 1, and after the reasonable mixing distance of 200m <sup>5</sup> ; a. the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or b. bacterial and / or fungal slime growths visible to the naked eye as plumose growths or mats; or c. any emission or objectionable odour; or d. a more than minor adverse effect on aquatic life; or e. a change in horizontal visibility, defined as the horizontal sighting range of a black disc, by more than 20%; or f. the DO concentration to fall below 80 % saturation; or		<b>Receiving Water Quality</b> 8. The treated wastewater discharge shall not cause any of the following in the Mangatainoka River at the river flows outlined in Table 1, and after the reasonable mixing distance of 200m <sup>6</sup> ; a. the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or b. bacterial and / or fungal slime growths visible to the naked eye as plumose growths or mats; or c. any emission or objectionable odour; or d. a change in horizontal visibility, defined as the horizontal sighting range of a black disc, by more than 20%; or
			<i>Date may be able to be bought back but depends on when wetland can be constructed and planted.</i>
			<i>Alternative condition on advise of Mr Crawford</i>
			<i>Reasons for proposed changes as outlined in Dr Ausseils para 9.2</i>

<sup>5</sup> Based on a distance seven times the width of the River or 200m whichever is the least.

<sup>6</sup> Based on a distance seven times the width of the River or 200m whichever is the least.

- g. the ammoniacal nitrogen (NH<sub>4</sub>-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
- h. the average POM concentration to exceed 5 g/m<sup>3</sup> at flows below median; or
- i. the *Chlorophyll a*. to exceed 120 mg/m<sup>2</sup> on more than 5% of sampling occasions, on the basis of monthly measurements taken over a period of at least 24 months; or
- j. 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
- k. the cover of filamentous mats greater than 2 cm long to exceed 30% or cover of mats greater than 3mm thick to exceed 60%; or
- l. a reduction in QMCI of greater than 15%; or
- m. the concentration of toxicants to exceed the trigger values for freshwater for the protection of 99% of species (ANZECC 2000); or
- n. the soluble carbonaceous BOD<sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GF/C filter) to exceed 1.5 g/m<sup>3</sup> at flows below the 20<sup>th</sup> FEP.

**Advice note:** The measurement of toxicants is to measure the material used for DRP removal. Until this is known we are unable to be more specific.

- e. the ammoniacal nitrogen (NH<sub>4</sub>-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
- f. the average POM concentration to exceed 5 g/m<sup>3</sup> at flows below median; or
- g. the *Chlorophyll a*. to exceed 120 mg/m<sup>2</sup> on more than 8% of sampling occasions, on the basis of monthly measurements taken over a period of at least 36 months; or
- h. the cover of filamentous mats greater than 2 cm long to exceed 30% or cover of mats greater than 3mm thick to exceed 60%; or
- i. a reduction in QMCI of greater than 20%; or
- j. the concentration of toxicants to exceed the trigger values for freshwater for the protection of 99% of species (ANZECC 2000); or
- k. the average soluble carbonaceous BOD<sub>5</sub> concentration due to dissolved organic compounds (that is, material passing through a GF/C filter) to exceed 1.5 g/m<sup>3</sup> at flows below the 20<sup>th</sup> FEP.

**Advice note:** The measurement of toxicants is to measure the material used for DRP removal. Until this is known we are unable to be more specific.

**Table 1**

Condition	Contaminant or Effect (abbreviated, for reference only)	River Flows	Zone of Reasonable Mixing downstream
(a)	Films, scums, foams	All	200 metres
(b)	Bacterial/fungal slime growths	All	200 metres
(c)	Objectionable odour	All	200 metres
	Effects on Aquatic Life	All	200 metres
(g)	Horizontal visibility	All	200 metres
(h)	Dissolved Oxygen	All	200 metres

(i)	Ammonia-nitrogen	All	200 metres
(j)	Particulate organic matter	At or below the median	200 metres
(k ,l)	Periphyton biomass	All	200 metres
(m)	Periphyton cover	All	200 metres
(n)	QMCI	All	200 metres
(o)	Toxicants	All	200 metres
(p)	Soluble carbonaceous BOD <sub>5</sub>	At or below the 20th FEP	200 metres

**ADVICE NOTE:** The River flows in Table 1 are those measured at the “Mangatainoka at Pahiatua Town Bridge” water level recording station and the 20<sup>th</sup> flow exceedance percentile at the station is 23,337 l/s.

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.

**ADVICE NOTE:** To perform the statistical test, analysis needs to be against a minimum of 12 upstream and downstream paired results from the monthly sampling.

**Effluent Monitoring**

10. 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 lined wetland treatment area 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 Mangatainoka River discharged under authorisation of these consents.

<p>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 <i>Resource Management (Measurement and Reporting of Water Takes) Regulations 2010</i>.</p>											
<p>14. <b>Within three months of</b> 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.</p> <p><b>ADVICE NOTE:</b> 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.</p>											
<p>15. Where telemetry equipment fails for reasons other than fair wear and tear, replacement or repair will be at the consent holder's expense and replacement will be required within seven days.</p>											
<p>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.</p> <p><b>ADVICE NOTE:</b> 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.</p>											
<p><b>River Monitoring</b></p> <p>17. The consent holder shall take samples from the Mangatainoka River at approximately Easting: 1840568, Northing: 5519399 (NZTM) upstream (Site A) and at Easting: 1841026, Northing: 5519774 (NZTM) approximately 200 metres downstream (Site B) of the discharge point to the Mangatainoka River, and a sample of the discharge at the Discharge Point as shown on <b>Plan ATH- 199501433.02</b> attached to and forming part of these consent conditions. The samples shall be analysed for the constituents and at the frequency listed in Table 2 to assess compliance with Condition 8 of this consent.</p> <p><b>Table 2: Effluent and River Monitoring</b></p> <table border="1" data-bbox="388 1688 1368 1852"> <thead> <tr> <th>Constituent</th> <th>Wastewater - Monthly</th> <th>River - Monthly</th> </tr> </thead> <tbody> <tr> <td>cBOD<sub>5</sub></td> <td>X</td> <td>X</td> </tr> <tr> <td>ScBOD<sub>5</sub></td> <td>X</td> <td>X</td> </tr> </tbody> </table>	Constituent	Wastewater - Monthly	River - Monthly	cBOD <sub>5</sub>	X	X	ScBOD <sub>5</sub>	X	X		
Constituent	Wastewater - Monthly	River - Monthly									
cBOD <sub>5</sub>	X	X									
ScBOD <sub>5</sub>	X	X									

Dissolved oxygen		X
NH4-N	X	X
Nitrite	X	X
Nitrate	X	X
TN	X	X
TSS	X	X
Turbidity		X
Horizontal visibility (black disc)		X
Particulate organic matter	X	X
DRP	X	X
Total Phosphorus	X	X
<i>E.coli</i>	X	X
pH		X
Conductivity		X
Temperature		X
Toxicants	X	X

**ADVICE NOTE:** pH, temperature, horizontal visibility and dissolved oxygen shall be measured on site, directly in the River.

**ADVICE NOTE:** It is preferable that the downstream sample is collected before the upstream sample so that disturbed sediment does not impact the downstream sampling result.

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 Mangatainoka 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 26.7 m<sup>3</sup>/s in the Mangatainoka River at Pahiatua Town Bridge) and during a period of low flow (at least one week below 1/2 median flow in the Mangatainoka River at Pahiatua Town Bridge defined as 4.45 m<sup>3</sup>/second).

20. The locations of the assessments and sampling are to be consistent with those noted in 16 and as per the map received as part of the section 92 request response dated 12 April 2017.

21. Macroinvertebrate sampling referred to in Condition 19 is to be undertaken **annually** between **January to March** inclusive when a discharge is occurring. The

21. Macroinvertebrate sampling referred to in Condition 19 is to be undertaken **annually** between **January to March**

*Recommending annually for 3 years, then reducing to once every 3*

<p>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> <ol 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> </ol>	<p>inclusive when a discharge is occurring for three years following commencement of consent. Thereafter macroinvertebrate sampling shall be undertaken every three years. 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> <ol style="list-style-type: none"> <li>d. 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>e. 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>f. enumeration of the results as taxa richness, MCI, QMCI, %EPT taxa and %EPT individuals.</li> </ol>	<p><i>years. As recommended by Dr Ausseil in para 9.1 of his evidence.</i></p>
<p>22. The consent holder shall have an appropriately experienced 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 run habitat, as close as possible to the sites selected under Condition 19 above regardless of flows. The periphyton and algae assessment is to include:</p> <ol style="list-style-type: none"> <li>a. 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 run habitat, and extending across the width of the river at each sampling site. The visual monitoring methods shall follow the protocols outlined in Appendix 2 of "A periphyton monitoring plan for the Manawatu-Wanganui Region" (Kilroy et al. 2008). Reported estimates shall include: <ol style="list-style-type: none"> <li>i. percentage cover of visible stream or river bed by bacterial and/or fungal growths (sewage fungus) visible to the naked eye;</li> <li>ii. percentage cover of visible stream or river bed by filamentous algae more than 2 cm long;</li> <li>iii. percentage cover of visible stream or river bed by diatoms or cyanobacteria mats more than 0.3 cm thick;</li> <li>iv. percentage cover of visible stream or river bed by diatoms less than 0.3 cm thick; and</li> <li>v. percentage cover of visible stream or river bed that is clean.</li> </ol> </li> <li>b. the collection of a periphyton sample at the same established monitoring sites and transects as defined in Condition 19 above, using method QM-1b from the Stream</li> </ol>		

<p>Periphyton Monitoring Manual (Biggs &amp; Kilroy 2000). Analysis of periphyton samples shall follow the Biggs &amp; Kilroy (2000) guidelines for <i>chlorophyll a</i> analysis.</p>		
<p>23. The consent holder shall have an appropriately experienced and qualified freshwater ecologist undertake a one off continuous Dissolved oxygen monitoring Programme at the points upstream and downstream of the discharge noted in 17. This is to 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 26.7 m<sup>3</sup>/s in the Mangatainoka River at Pahiatua Town Bridge) and during a period of low flow (at least one week below ½ median flow in the Mangatainoka River at Pahiatua Town Bridge defined as 4.45 m<sup>3</sup>/second). Monitoring is to occur for no less than 10 days between the period January to April following completion of plant upgrades (<b>July 2018</b>).</p>		
<p>24. The continuous dissolved oxygen monitoring is to be undertaken in accordance with the National Environmental Monitoring Standards document for Measuring, Processing and Archiving of Dissolved Oxygen Data (version 2, dated July 2016). Once collected processing is to be carried out by a suitably qualified expert to ascertain the effect the discharge is having on dissolved oxygen Saturation and concentration in regards to Life Supporting Capacity.</p>		
<p>25. The consent holder shall advise the Manawatu-Wanganui Regional Council's Regulatory Manager if the absence of low flow conditions prevent the monitoring required by Conditions 19, 21, 22 and 24 within five days of a decision being made that the monitoring cannot be undertaken.</p>		
<p><b>Operational Restrictions</b></p> <p>26. <b>Within three months</b> of commencement of these consents, the consent holder shall arrange safe access to sampling sites consistent with the requirements of Conditions 17 and 19 of these consents. Such safe access 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.</p>		
<p><b>Post-Development Assurance</b></p> <p>27. 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 received at the treatment plant to ensure there has been no unexplained increase in flows (based on a five year running average) that could adversely affect treatment plant performance. The results of the review must be included in the next annual monitoring report to the Regulatory Manager. In the event that the review shows that unexplained increased flows could result in</p>		

<p>adverse effects on treatment plant performance, the permit holder must investigate the reasons for the unexplained increased 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.</p>		
<p>28. 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 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>Monitoring Provision</b></p> <p>29. 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>		
<p>30. At least six months prior to the assessment of water quality being required pursuant to condition 31 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>	<p><i>Delete</i></p>	<p><i>Appears to have been copied from the Feilding Decision.</i></p> <p><i>Onerous and unnecessary as not dealing with same degree of effects or uncertainty here.</i></p> <p><i>No justification in any of the 42A reports to justify this condition.</i></p>
<p>31. The independent panel engaged pursuant to Condition 30 shall, no later than 5 years following the upgrades are completed, undertake an assessment of the water quality, periphyton, macroinvertebrate and continuous dissolved oxygen monitoring data collected during the monitoring periods.</p> <p>The assessments shall:</p>	<p><i>Delete</i></p>	<p><i>Reasons as above and as for Condition 8</i></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 Mangatainoka River;</li> <li>b. Consider any reports received from the Liaison Group;</li> <li>c. Consider the results of macroinvertebrate, periphyton and dissolved oxygen monitoring undertaken in accordance with Conditions 19, 20, 21, 22 and 24;</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 Mangatainoka River), so as to minimize adverse effects on the One Plan's Schedule B values for the Mangatainoka River.</li> <li>g. The findings of the independent panel's assessment shall be submitted to the Regulatory Manager and the TDWF by <b>1 July 2022</b>.</li> </ul>		
<p>32. <b>By 31 July</b> each year commencing <b>31 July 2018</b> the consent holder shall prepare a report that summarises and assesses all of the monitoring information required under Conditions 17, 19, 20, 22 and 24 of these consents. The provision of this report should be included in the Annual Environmental Report required by condition <b>Error! Reference source not found.</b> of the general conditions.</p>		
<p>33. The Report required by condition 32 will be provided to the Manawatu-Wanganui Regional Council's Regulatory Manager by <b>31 October</b> of each year.</p>		



**Descriptive Specification**

1. This land use consent authorises the following activities:
  - a. Land disturbance including earthworks and cut and fill associated with the creation of a wetland  
  
Such works shall be undertaken on the property legally described as Lot 1 DP 52391 near Pahiatua Wastewater Treatment Plant, Julia Street, Pahiatua at approximate map reference NZTopo50 BM35:407-192 (hereafter referred to as the property).
2. The consent holder must undertake the activity in general accordance with the consent application including all accompanying plans and documents first lodged with the Manawatu-Wanganui Regional Council on **12 April 2017** and:
  - a. Further information received on **28 April 2017** included in the s41B hearing report.

**Advice Note:** Where there may be inconsistencies between information provided by the applicant and conditions of the resource consent, the conditions of the resource consent will apply.

**Advice Note:** Any variance from the location, design concepts and parameters, implementation and or operation may require a new resource consent or a change of consent conditions pursuant to section 127 of the Resource Management Act 1991.

**Pre-Development Assurance**

3. The consent holder shall be responsible for all contracted operations related to the exercise of this resource consent, and shall ensure contractors are made aware of the conditions of this resource consent and ensure compliance with those conditions.
4. A copy of this consent shall be kept onsite at all times that physical works authorised by this resource consent are being undertaken and shall be produced without unreasonable delay upon request from a servant or agent of the Manawatu-Wanganui Regional Council.

**Advice Note:** An electronic version on a smartphone or tablet is acceptable.

5. Prior to activities commencing as authorised by this resource consent, the consent holder shall appoint a representative(s) who shall be the Manawatu-Wanganui Council's principal contact person(s) in regard to matters relating to this resource consent. The consent holder shall inform the Manawatu-Wanganui Regional Council of the representative's name and how they can be contacted, **5 working days prior** to the resource consent being exercised. Should that person(s) change during the term of this resource consent, the consent holder shall immediately inform the Manawatu-Wanganui Regional Council and shall also give written notice to the Manawatu-Wanganui Regional Council of the new representative's name and how they can be contacted.
6. The consent holder shall arrange and conduct a pre-construction site meeting and invite the Manawatu-Wanganui Regional Council Consents Monitoring Officer, the site representative(s) nominated under condition 5 of this consent, the contractor, and any other party representing the consent holder **prior to any** work authorised by this consent commencing on site.

**Advice Note:** In the case that any of the invited parties, other than the site representative does not attend this meeting, the consent holder will have complied with this condition, provided the invitation requirement is met.

7. The consent holder shall provide the Manawatu-Wanganui Regional Council's Regulatory Manager with a revised and updated "Erosion and Sediment Control Plan" (E&SCP) **20 working days** prior to the commencement of activities authorised by this resource consent. The E&SCP shall be based upon and include, specific principles and practices which are appropriate for the activities authorised by this consent

and contained within the Greater Wellington Regional Council document titled “Erosion & Sediment Control – Guidelines for the Wellington Region dated September 2002 & Reprint 2006”. The updated E&SCP shall address the following aspects relating to the works:

- a. Details of all principles, procedures and practices that will be implemented to undertake erosion and sediment control to minimise the potential for sediment discharge from the site, including flocculation;
- b. The design criteria and dimensions of all key erosion and sediment control structures;
- c. A site contour plan of a suitable scale to identify;
  - i. The locations of waterways;
  - ii. The extent of soil disturbance and vegetation removal;
  - iii. Any “no go” and/or buffer areas to be maintained undisturbed adjacent to watercourses;
  - iv. Areas of cut and fill;
  - v. Locations of topsoil stockpiles;
  - vi. All key erosion and sediment control structures;
  - vii. The boundaries and area of catchments contributing to all stormwater impoundment structures;
  - viii. The locations of all specific points of discharge to the environment; and
  - ix. Any other relevant site information
- d. Construction timetable for the erosion and sediment control works and the bulk earthworks proposed;
- e. Timetable and nature of progressive site rehabilitation and re-vegetation proposed;
- f. Maintenance, monitoring and reporting procedures;
- g. Rainfall response and contingency measures including procedures to minimise adverse effects in the event of extreme rainfall events and/or the failure of any key erosion and sediment control structures;
- h. Procedures and timing for review and/or amendment to the E&SCP; and
- i. Identification and contact details of personnel responsible for the operation and maintenance of all key erosion and sediment control structures.

8. The E&SCP required by condition 7 shall be certified in writing by the Manawatu-Wanganui Regional Council's Regulatory Manager or his agent acting in a technical certification capacity prior to any activities authorised by this resource consent commencing.

9. The consent holder shall undertake all earthworks authorised by this consent in accordance with the certified E&SCP.

**Advice Note:** Several conditions require technical certification from the Manawatu-Wanganui Regional Council. That certification (or withholding of certification) shall be based on the Manawatu-Wanganui Regional Council's assessment of whether the matters being considered achieve the objective of minimising sediment discharges from the site to the extent practicable.

10. Any changes proposed to the E&SCP required by condition 7 shall be confirmed in writing by the consent holder and certified in writing by the Manawatu-Wanganui Regional Council's Regulatory Manager or his agent acting in a technical certification capacity, prior to the implementation of any changes proposed.

11. The consent holder shall ensure that a copy of the certified E&SCP, including any certified amendments, is kept onsite and this copy is updated within **5 working days** of any amendments being certified.

12. The consent holder shall contact the Manawatu-Wanganui Regional Council's Regulatory Team **5 working days** prior to the commencement of the construction, installation and disturbance works authorised by this consent and on completion of the works each year (**by 30 April**).

**Advice Note:** The Regulatory Team can be contacted on 0508 800 800, -OR- [compliance.shared@horizons.govt.nz](mailto:compliance.shared@horizons.govt.nz).

13. **Twenty (20) working days** prior to activities commencing as authorised by this resource consent, the consent holder shall provide the Manawatu-Wanganui Regional Council with a draft Flocculation Management Plan (FMP) for technical certification by the Manawatu-Wanganui Regional Council. The FMP shall include as a minimum:

- a. Specific design details of the flocculation system;

- b. Monitoring, maintenance (including post-storm) and including a record system;
  - c. Details of optimum dosage (including assumptions);
  - d. Results of any initial flocculation trial;
  - e. A spill contingency plan;
  - f. Contact details of the person responsible for the operation and maintenance of the flocculation treatment system and the organisational structure to which this person shall report.
14. The Flocculation Management Plan required by condition **13** shall be certified in writing by the Manawatu-Wanganui Regional Council acting in a technical certification capacity prior to any works authorised by this consent commencing.
15. Any changes proposed to the Flocculation Management Plan required by condition **13** shall be confirmed in writing by the consent holder and certified in writing by the Manawatu-Wanganui Regional Council acting in a technical certification capacity, prior to the implementation of any changes proposed.
16. Unless otherwise certified in writing by the Manawatu-Wanganui Regional Council acting in a technical certification capacity, the consent holder shall chemically treat all sediment retention ponds or decanting earth bunds for the purpose of reducing sediment discharges from the site and shall ensure that the Flocculation Management Plan required by condition **13** of this resource consent is implemented.

#### *Environmental Standards*

17. The consent holder shall ensure that the soluble aluminium concentration of any discharge from a sediment retention pond or decanting earth bund that is treated with an aluminium based flocculent shall not exceed 0.2 grams per cubic metre.
18. The consent holder shall ensure that the pH of any discharge from and sediment control structure treated with any flocculent shall be no less than 5.5 or greater than 8.5 pH units.
19. The consent holder shall ensure that the suspended solids concentration of any discharge from any sediment control device, including but not limited to sediment retention ponds, decanting earth bunds does not exceed 150 grams per cubic metre.

**Advice Note:** The above suspended solids consent limit does not apply during storm events where silt laden stormwater is discharging over the emergency spillway.

20. The consent holder shall ensure that sediment losses discharged from the site during storm events greater than the 5 per cent AEP are minimised by adhering to the E&SCP and FMP.
21. The consent holder shall ensure that all cleanfill material deposited at the site is free of pest plants identified in the Manawatu-Wanganui Regional Council Pest Plant Strategy, combustible, putrescible (except that cleanfill material may contain up to 5% by weight putrescible matter), degradable or leachable components, hazardous substances products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices, materials that may present a risk to human health, or liquid waste.
22. The consent holder shall ensure that sediment losses to surface water arising from the exercise of this resource consent are minimised during the duration of the works and during the term of this consent. In this regard, erosion and sediment control measures shall be established and maintained in accordance with the document titled "*Erosion and Sediment Control – Guidelines for the Wellington Region, dated September 2002*", and the certified E&SCP.
23. All earthmoving machinery, pumps, generators and ancillary equipment shall be operated in a manner, which ensures spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body, ephemeral water body, or overland flow path, such that any spillage can be contained so that it does not enter surface water.

24. The consent holder shall ensure that, as far as practicable, all clean water run-off from stabilised surfaces including catchment areas above the site shall be diverted away from the exposed areas via a stabilised system to prevent erosion. The consent holder shall also ensure the outfall(s) of these systems are protected against erosion.
25. The consent holder shall ensure that all sediment laden run-off from the site is treated by sediment retention structures. These structures are to be fully operational before bulk earthworks commence and shall be maintained to perform at least at 80% of their operational capacity and be designed in accordance with the certified E&SCP and the Greater Wellington Guidelines.
26. The consent holder shall ensure that all erosion and sediment control structures are inspected on a weekly basis and within 24 hours of each rainstorm event that is likely to impair the function or performance of the controls.
27. The consent holder shall carry out monitoring and maintenance of erosion and sediment controls in accordance with the conditions of these resource consents and shall maintain records detailing:
  - a. The date, time and results of the monitoring undertaken; and
  - b. The erosion and sediment controls that required maintenance; and
  - c. The date and time when the maintenance was completed.

These records shall be provided to the Manawatu-Wanganui Regional Council at all reasonable times and within 72 hours of a written request to do so.

28. Earthworks shall not be conducted during the period **1 May to 30 September** inclusive during any year that this resource consent is current, apart from necessary maintenance works, unless certified in writing by the Manawatu-Wanganui Regional Council.

**Advice Note:** Maintenance is defined in the One Plan 2014.

29. Requests to undertake earthworks during the period **1 May to 30 September** inclusive, for any year that these resource consents are current, shall be submitted in writing to the Manawatu-Wanganui Regional Council by **1 April** and shall be in the form of amendments to the certified E&SCP in accordance with condition **7** of this consent.

**Advice Note:** In considering a request for the continuation of winter earthworks, the Manawatu-Wanganui Regional Council will consider a number of factors; including:

- The nature of the site and the winter soil disturbance works proposed;
- The quality of the existing/proposed erosion and sediment controls;
- The compliance history of the site/operator;
- Seasonal/local soil and weather conditions;
- Sensitivity of the receiving environment; and
- Any other relevant factor.

#### *Post-development assurance*

30. Notwithstanding condition **34**, the consent holder shall ensure those areas of the site where earthworks have been completed shall be stabilised against erosion as soon as practically possible and within a period not exceeding **14** days after completion of any works authorised by this resource consent. Stabilisation shall be undertaken by providing adequate measures (vegetative and/or structural) that will minimise sediment runoff and erosion to the satisfaction of the Manawatu-Wanganui Regional Council acting in a technical certification capacity. The consent holder shall monitor and maintain the site until vegetation is established to such an extent that it prevents erosion and prevents sediment from entering any water body.
31. The removal of any erosion and sediment control measures from any area where soil has been disturbed as a result of the exercise of this resource consent shall only occur after consultation and written approval has been obtained from the Manawatu-Wanganui Regional Council acting in a technical certification capacity. In this respect, the main issues that will be considered by the Manawatu-Wanganui Regional Council include:

- a. The quality of the soil stabilisation and/or covering vegetation;
  - b. The quality of the water discharged from the rehabilitated land; and
  - c. The quality of the receiving water.
32. Re-vegetation and/or stabilisation of all disturbed areas is to be completed in accordance with the measures detailed in the document titled "*Erosion and Sediment Control – Guidelines for the Wellington Region, dated September 2002*) and the certified E&SCP.
33. The works shall remain the responsibility of the consent holder and shall be maintained so that any erosion, scour or instability of the works that is attributable to the works carried out as part of this consent is remedied by the consent holder within ten (10) working days.
34. The consent holder shall ensure that the site is appropriately stabilised by **30 April** of each year unless otherwise certified in writing by the Manawatu-Wanganui Regional Council. Stabilisation shall be undertaken by providing adequate measures (vegetative and/or structural and including, pavement, metalling, hydro-seeding, re-vegetation and mulching) that will minimise erosion of exposed soil to the extent practical.

***Duration***

35. This resource consent will expire on **1 July 2019**.