TREATMENT PLANT APPROVAL 14/2020
Plumbing and Drainage Act 2018

Approval

1. The Aqua-Nova model 10114 ("the system") described in the Specifications and Drawings in the attached Schedule and manufactured by Everhard Industries Pty Ltd (ABN 41 009 690 859) ("the manufacturer") has been assessed in accordance with the Queensland Plumbing and Wastewater Code (QPW Code) dated 26 October 2017.

2. Approval is granted for the secondary quality wastewater treatment system, subject to compliance by the manufacturer with the requirements of the Plumbing and Drainage Regulation 2018, and the conditions of approval detailed below.

3. This approval, the conditions of approval and the Schedule comprise the entire Treatment Plant Approval document.

4. Any modification by the manufacturer to the design, drawings or specifications scheduled to this approval must be approved by the Chief Executive.

Conditions of approval

5. The manufacture, installation, operation, service and maintenance of the systems must be in conformity with the conditions of this Treatment Plant Approval.

6. The secondary quality wastewater treatment system, which is an example of the approved systems, may only be used on premises that generate per day:

   (a) a maximum hydraulic loading of 2,000 litres; and
   (b) a maximum organic loading of 700 grams BOD⁵

7. The system must continue to meet the requirements of secondary quality wastewater treatment system, producing the following effluent quality:

   (a) 90% of the samples taken must have a BOD⁵ less than or equal to 20 g/m³ with no sample greater than 30 g/m³.

   (b) 90% of the samples taken must have total suspended solids less than or equal to 30 g/m³ with no sample greater than 45 g/m³.

   (c) 90% of the samples taken must have a thermotolerant coliform count not exceeding 200 organisms per 100 mL with no sample exceeding 1000 organisms per 100 mL.

   (d) Total chlorine concentration must be between 0.5 g/m³ and 2.0 g/m³ in four out of five samples taken.

8. Each system must be serviced in accordance with the details supplied in the owner’s operation and maintenance manual.

9. This approval does not extend, apply to, or include the land application system used in conjunction with an approved system installed on premises.
10. Each system must be supplied with —

(a) a copy of this Treatment Plant Approval document;
(b) details of the system;
(c) instructions for authorised persons for its installation;
(d) a copy of the owner’s manual to be given to the owner at the time of installation; and
(e) detailed instructions for authorised service personal for its operation and maintenance.

11. At each anniversary of the Treatment Plant Approval date, the supplier must submit to the Chief Executive a list of all systems installed in Queensland during the previous 12 months. Where the Chief Executive is notified of any system failures the Chief Executive may randomly select a number of installed systems for audit. The Chief Executive will notify the supplier’s nominated NATA accredited laboratory which systems are to be audited for BOD⁵ and TSS. The sampling and testing of the selected systems, if required, is to be done at the supplier’s expense. The following results must be reported to the Chief Executive;

a) Address of premises;
b) Date inspected and sampled;
c) Sample identification number;
d) BOD⁵ for influent and effluent; and
e) TSS for influent and effluent.

12. The Chief Executive may, by written notice, cancel this approval if the manufacturer/supplier fails —

a) to comply with one or more of the conditions of approval; or
b) within 30 days, to remedy a breach, for which a written notice been given by the Chief Executive.

13. This approval may only be assigned with the prior written consent of the Chief Executive.

14. This approval expires on 01 January 2024 unless cancelled earlier in accordance with paragraph 12 above.
TREATMENT PLANT APPROVAL No. 14/2020
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SCHEDULE

Attachment 1

Drawings and Specifications for the

Aqua-Nova model 10114
Schedule 1: Specification

Aqua-Nova (10114) Aerated Wastewater Treatment System

The Aqua-Nova (10114) Aerated Wastewater Treatment System (AWTS) is designed to treat the wastewater from a residential dwelling occupied by a maximum of 15 persons (2250L/day) to a Secondary Standard:

- \( \text{BOD}_5 < 20\text{g/m}^3 \)
- \( \text{TSS} < 30\text{g/m}^3 \)
- \( \text{Thermotolerant Coliforms} < 200\text{cfu/100mL} \)
- Total Chlorine Concentration greater or equal to 0.5g/m\(^3\) less than 2.0g/m\(^3\)

The Aqua-Nova (10114) is contained in 3900L Concrete Septic Tanks and collection wells each with design capacities as set out below.

Operation

The Aqua-nova treatment plant is a two tank system.

Wastewater flows into the first tank (Primary Tank). This tank acts as a septic tank removing most solids and fats/oils. Solids retained in this tank are digested anaerobically.

Water from this tank flows to a second tank. This tank is aerated and fitted with submerged media. Aerobic bacteria grow on the media to biodegrade the remaining contaminants in the wastewater. Bacteria occasionally slough off the media and become suspended in the water.

Aeration is continuous.

Water then flows to a clarifier where the solids are allowed to settle. These solids are pumped back to the start of the treatment plant.

Clarified wastewater is chlorinated.
The Aqua-Nova AWTS is assembled in the following configuration:

<table>
<thead>
<tr>
<th>Design capacities</th>
<th>Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$2 \times 3900 \text{L}$</td>
</tr>
<tr>
<td>primary sedimentation</td>
<td>$3587 \text{L}$</td>
</tr>
<tr>
<td>secondary treatment</td>
<td></td>
</tr>
<tr>
<td>aeration chamber</td>
<td>$2630 \text{L}$</td>
</tr>
<tr>
<td>sedimentation</td>
<td>$430 \text{L}$</td>
</tr>
<tr>
<td>irrigation</td>
<td>$393 \text{L}$</td>
</tr>
<tr>
<td>emergency storage</td>
<td>$1040 \text{L}$</td>
</tr>
</tbody>
</table>

- A chlorine disinfection unit is installed on the outlet of the clarifying chamber.

- Air is supplied to the contact aeration chamber by a Nitto LA120 air blower or equivalent, producing an airflow of a nominal 120 litres/minute at 1.3 m water depth.

- A Davey model D-25A submersible irrigation pump or equivalent is installed in the irrigation chamber for standard above ground irrigation. Type of pump may vary if subsurface irrigation is employed or the disposal area is significantly above the location of the sewage treatment plant.

- Label will be located on the Control Box of the system and have the following information provided:
  - System Name
  - Model No.
  - Approval Number
  - Design Hydraulic Capacity
  - Date of Manufacture
  - Top Load Limitations
  - Weight of Tank
  - Lifting/Transport Instructions
  - The name and telephone number of an appropriate service representative to be contacted in the event that a problem with the plant occurs.
  - The website from which the documentation can be downloaded during the design life.
TANK INSTALLATION AND PLUMBING TO BE IN ACCORDANCE WITH PLUMBING INSTRUCTIONS PROVIDED WITH SYSTEM.

INCOMING WASTE FLOW

EXCAVATION LINE 5.0m x 2.5m x 2.2m DEEP

100mm DIA uPVC RUBBER RING JOINT

RISERS UPTO A MAXIMUM HEIGHT OF 900mm CAN BE ADDED TO THE TANK CASE TO INCREASE DEPTH TO INVERT WHERE NECESSARY

INLET PIPE METHOD NOT TO BE USED UNLESS PIPE IS SUPPORTED

25mm DIA uPVC RUBBER RING JOINT PIPE

100mm DIA RUBBER RING JOINT PIPE

25mm DIA uPVC SLUDGE RETURN LINE

25mm DIA uPVC BACKFILL TO RIM OF TANK WITH SELECT BACKFILL ONLY

900 Liter EMERGENCY STORAGE CAPACITY PRIOR TO OVERFLOW INTO CLARIFICATION, CONTACT OR IRRIGATION TANK SHOWN

TREATMENT TANK

SEDIMENTATION CHAMBER

EFFLUENT APPLICATION/IRRIGATION SYSTEM TO BE AS PER INSTRUCTIONS OR DESIGN PROVIDED WITH EACH INDIVIDUAL SYSTEM.

DISINFECTION & PUMPOUT CHAMBER

AERATION CHAMBER

ELECTRICAL CONTROL BOX WITH ALARM LIGHT

BACKFILL TO RIM OF TANK WITH SELECT BACKFILL ONLY

1250mm Min THK SAND BED

100mm DIA RUBBER RING JOINT PIPE

1650mm SLUDGE RETURN LINE

200mm DIA IRRIGATION LINE

TREATMENT TANK

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