

TREATMENT PLANT APPROVAL 13/2020
Plumbing and Drainage Act 2018

Approval

1. The **Aqua-Nova model 10114Z** (“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 advanced 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 advanced 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 2,250 litres; and
 - (b) a maximum organic loading of 700grams BOD⁵
7. The system must continue to meet the requirements of advanced 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 10 g/m³ with no sample greater than 20g/m³.
 - (b) 90% of the samples taken must have total suspended solids less than or equal to 10g/m³ with no sample greater than 20g/m³.
 - (c) 90% of the samples taken must have a thermotolerant coliform count not exceeding 10 organisms per 100 mL with no sample exceeding 200 organisms per 100 mL.
 - (d) Total chlorine concentration must be between 0.5g/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.

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Delegated Authority
Department of Housing & Public Works

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.

Stacey McInnes

**A/Director
Plumbing, Drainage and Special Projects
Building Legislation and Policy**

Date approved: 14 July 2020

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Department of Housing & Public Works



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SCHEDULE

Attachment 1

Drawings and Specifications for the

Aqua-Nova model 10114Z

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Schedule 1: Specification

Aqua-Nova (10114Z) Aerated Wastewater Treatment System

The Aqua-Nova (10114Z) Aerated Wastewater Treatment System (AWTS) is designed to treat the wastewater from a residential dwelling occupied by a maximum of 15 persons or a small commercial premises that generates a maximum of 2250L/day to a Advanced Secondary Standard

| | | |
|------------------------------|---------------------|---|
| BOD ₅ | < | 10mg/L |
| TSS | < | 10mg/L |
| Thermotolerant Coliforms | < | 10cfu/100mL |
| Total Chlorine Concentration | greater or equal to | 0.5g/m ³ less than 2.0g/m ³ |

The Aqua-Nova (10114Z) 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 and pumped through a Granular Media Filter prior to irrigation.

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Configuration

The Aqua-Nova AWTS is assembled in the following configuration:

| Design capacities | Concrete 2 x 3900L |
|---|-----------------------|
| primary sedimentation | 3587L |
| secondary treatment <ul style="list-style-type: none"> • aeration chamber • sedimentation • irrigation | 2630L 430L 393L |
| emergency storage | 1040L |
| operational water level <ul style="list-style-type: none"> • primary • secondary | (mm) 1500 1400 |

- 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.

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TANK INSTALLATION AND PLUMBING TO BE IN ACCORDANCE WITH PLUMBING INSTRUCTIONS PROVIDED WITH SYSTEM.

THIS INLET PIPE METHOD NOT TO BE USED UNLESS PIPE IS SUPPORTED

INCOMING WASTE FLOW

EXCAVATION LINE
5.0m x 2.5m x 2.22m DEEP

100mm DIA uPVC RUBBER RING JOINT

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

25mm DIA IRRIGATION LINE

SAND FILTER

100mm DIA RUBBER RING JOINT PIPE

25mm DIA uPVC SLUDGE RETURN LINE

SAND FILTER

ELECTRICAL CONTROL BOX WITH ALARM LIGHT

50mm DIA VENT

BACKFILL TO RIM OF TANK WITH SELECT BACKFILL ONLY

1000 L EMERGENCY STORAGE CAPACITY PRIOR TO OVERFLOW INTO CLARIFICATION, CONTACT, OR IRRIGATION TANK SHOWN

CONTACT CHLORINATOR

BACTERIA MEDIA

SUBMERSIBLE PUMP AS PER TABLE

50mm MIN THK SAND BED

TREATMENT TANK

PRIMARY TANK

SEDIMENTATION CHAMBER

DISINFECTION & PUMPOUT CHAMBER

AERATION CHAMBER

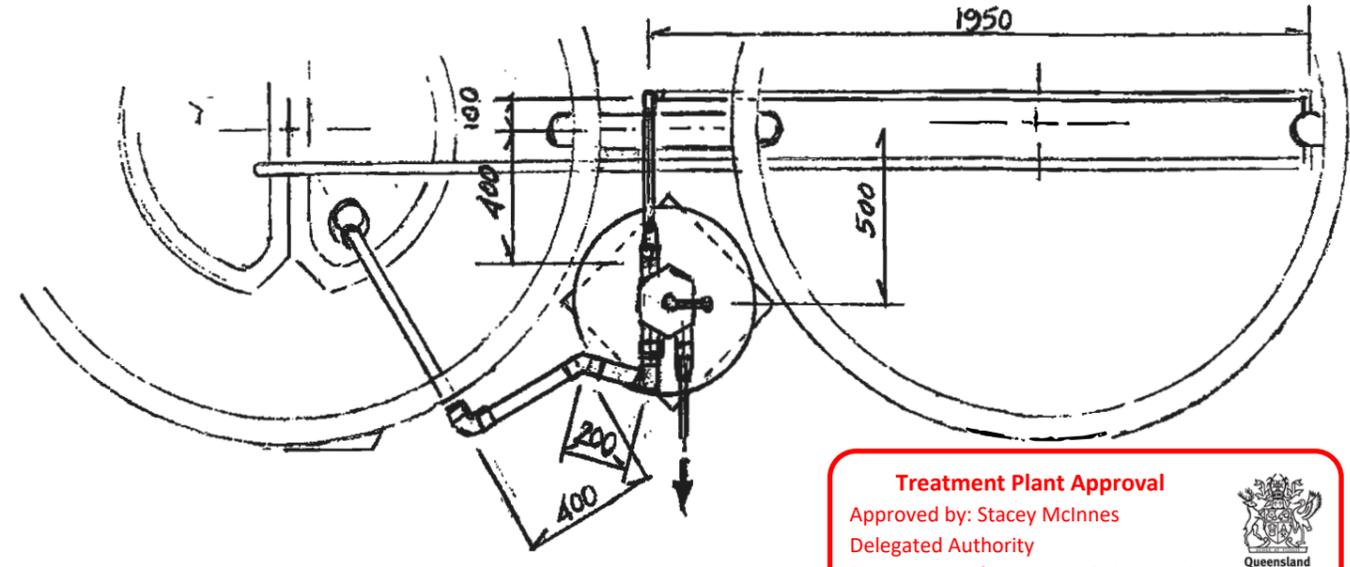
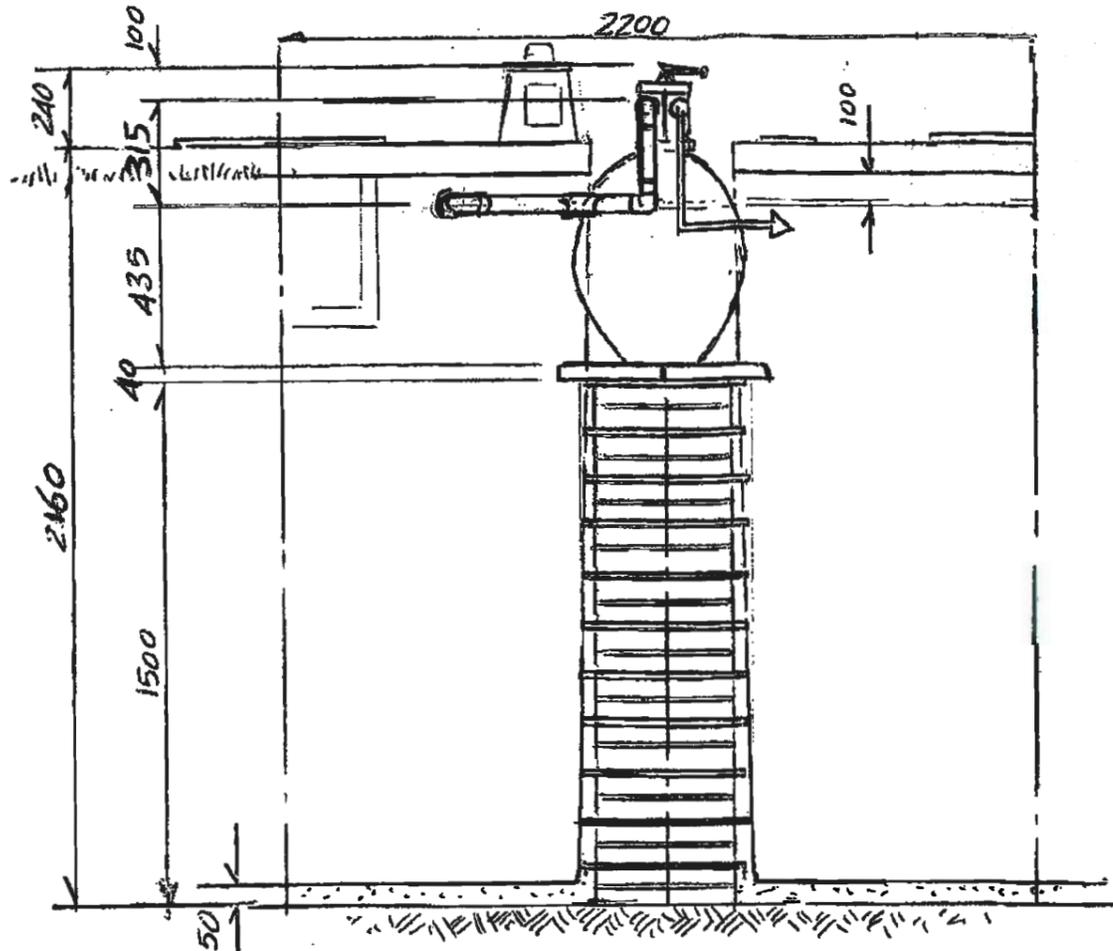
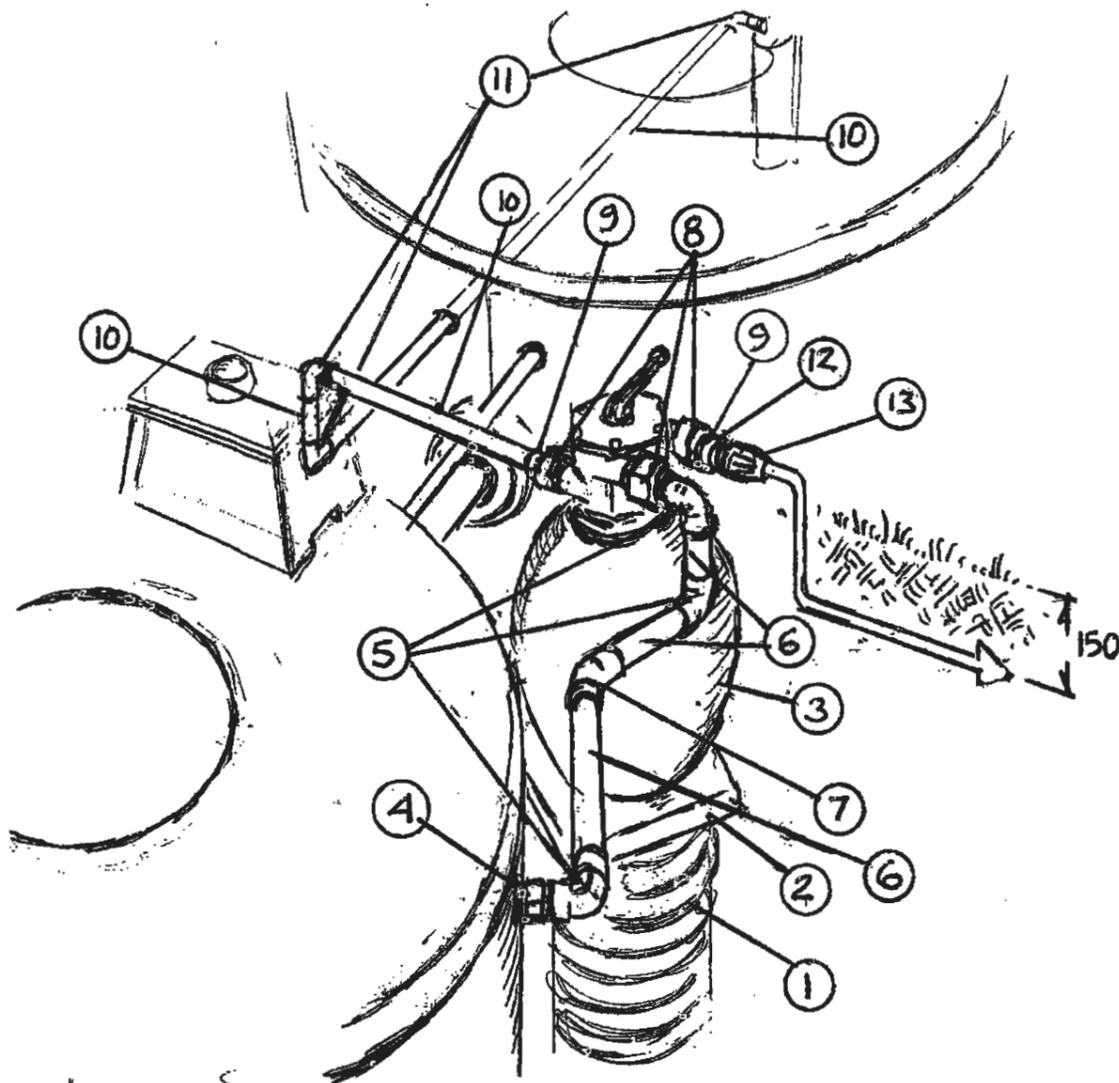
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EFFLUENT APPLICATION/IRRIGATION SYSTEM TO BE AS PER INSTRUCTIONS OR DESIGN PROVIDED WITH EACH INDIVIDUAL SYSTEM.

| PRODUCT CODE No. | DETAILS / DESCRIPTION |
|------------------|-----------------------------------|
| 10114Z | DAVEY 25 PUMP FITTED |
| 10114EZ | CLAYTON BLUE DIVER 30 PUMP FITTED |
| 10114DZ | DAVEY 42 PUMP FITTED |

| AMMENDMENT 1 | | MODEL CODE ADDED TO TITLEBLOCK | | | BJJ | 6/5/10 |
|--|-----------|--------------------------------|----------|----------|--|----------|
| DRAWN | DATE | APPROVED FOR MANUFACTURE | MATERIAL | MASS | SCALE | PRC2 No. |
| BJJ | 17-3-2010 | | | | 1:25 | |
| TITLE: AQUANOVA - 10114Z - ADVANCED SECONDARY CONCRETE TREATMENT SYSTEM - 2 x 3900lt CASES | | EVERHARD INDUSTRIES PTY LTD | | | 405 NEWMAN ROAD, GEEBING, QLD, 4034 PH 1 07 1 3637 5444 FAX 1 07 1 3265 2111 | |
| DRAWING NUMBER | | | | REVISION | DATE | |
| MP - 6640 | | | | 1 | 6/5/10 | |



| 13 | 1" BSP M X 25 TUBE UNION | 1 | POLY - SUPPLIED WITH TANK KIT |
|------|-------------------------------------|-----|-------------------------------|
| 12 | 25 SLIP X 1" BSP F ADAPTOR | 1 | UPVC |
| 11 | 25mm SLIP 90° ELBOW | 3 | UPVC |
| 10 | 25mm PIPE X 2500 | 1 | 420 + 260 + 1900 + 100 |
| 9 | 40 X 25 SLIP/SUP REDUCER | 2 | UPVC |
| 8 | 40 BSP M X 40 SLIP UNION | 3 | SUPPLIED WITH FILTER - ITEM 3 |
| 7 | 40mm SLIP 45° ELBOW | 1 | UPVC |
| 6 | 40mm UPVC PIPE X 900 | 1 | 50 + 350 + 150 + 260 + 50 |
| 5 | 40mm SLIP 90° ELBOW | 3 | UPVC |
| 4 | 1" BSP M X 40 SLIP TAKE-OFF ADAPTOR | 1 | UPVC |
| 3 | DAVEY SF 180 SAND FILTER | 1 | COMPLETE KIT |
| 2 | 450 PLAIN CONCRETE SLAB | 1 | |
| 1 | 375 RIBSTRUCT PIPE X 1500 | 1 | 'U' GROUND GRADE POLYMER |
| ITEM | DESCRIPTION | QTY | REMARKS |

EVERHARD INDUSTRIES PTY. LTD. IS. AND ALWAYS SHALL BE. THE SOLE OWNER OF THIS DRAWING. NO DATA HEREIN MAY BE COPIED BY ANY MEANS. NOR ANY DEPICTED ITEM MADE. WITHOUT PRIOR APPROVAL IN WRITING FROM THE MANAGEMENT.

FIRST APPROVED FOR MANUFACTURE
 ISSUE REVISION:
 DATE:
 APP'D BY:

EVERHARD INDUSTRIES PTY. LTD
 PLASTICS & PRECAST CONCRETE
 OLD CONCRETE AQUA-NOVA SYSTEM SAND FILTER LAYOUT.
 FILE: SCALE: DRG. NO:
 DATE: 29/8/2001
 RF 3464

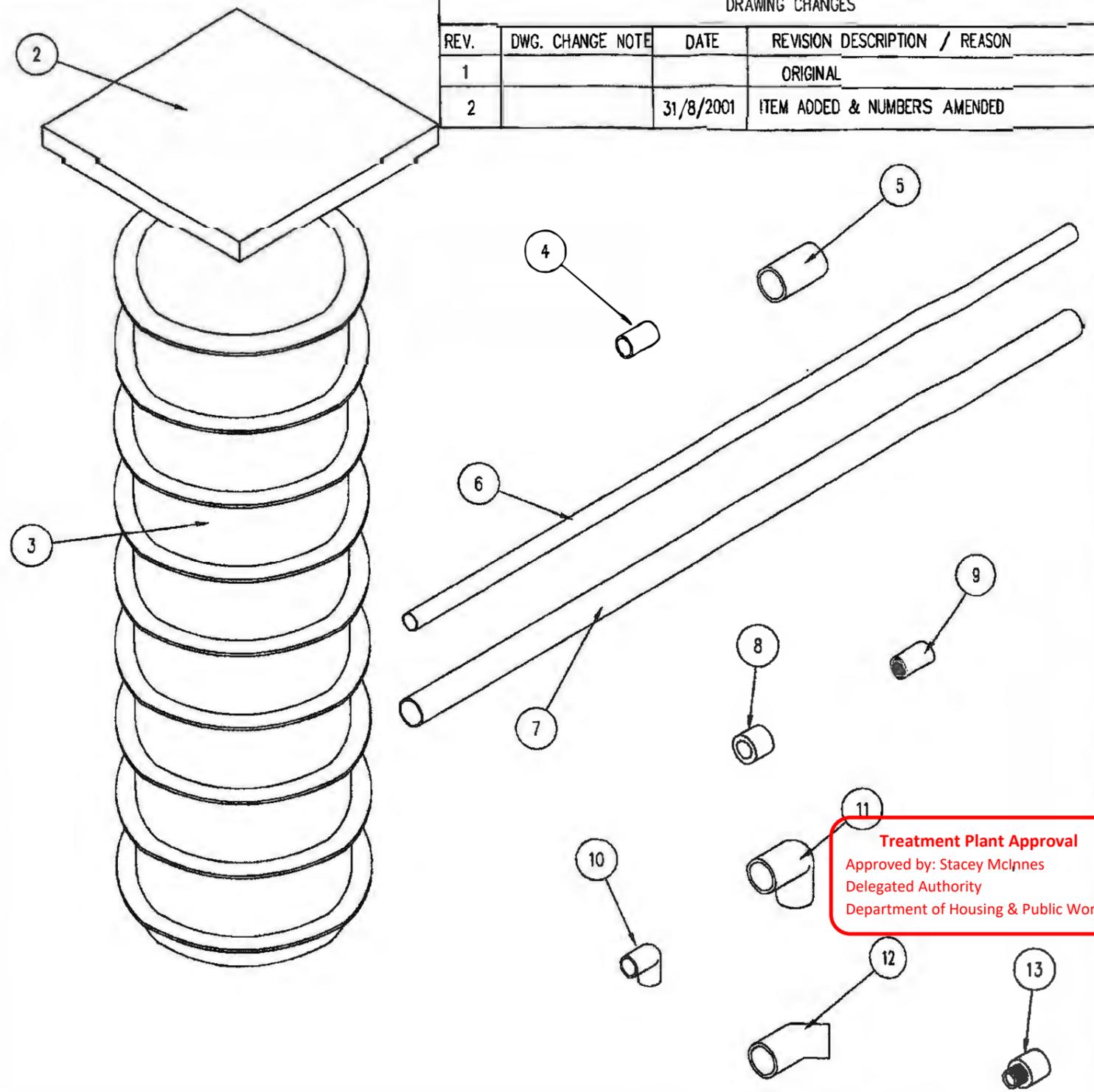
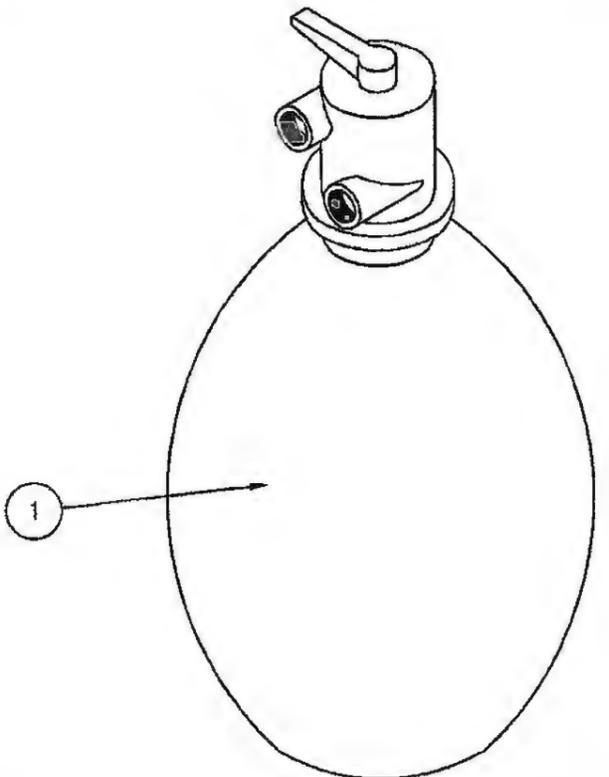
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| ITEM | QUANTITY | PART No. | DESCRIPTION | SIZE | GRADE | MASS |
|------|----------|----------|--|-------------|----------|-------|
| 1 | 1 | 95371 | DAVEY SAND FILTER SF180 - COMPLETE KIT | SF180 | | |
| 2 | 1 | 42512 | PLAIN PAVING SLAB | 450sqm x 38 | | 19.54 |
| 3 | 1 | 86720 | 375mm RIBSTRUCT FLAT FLANGE 1 END | 1.2m | U/GROUND | 9.6 |
| 4 | 2 | 90952 | PVC SLIP-SLIP COUPLING | 25mm | | |
| 5 | 1 | 90730 | PVC SLIP-SLIP COUPLING | 40mm | | |
| 6 | 2 | 90742 | 25mm PVC PIPE | 1.5m | CLASS 12 | |
| 7 | 2 | 90743 | 40mm PVC PIPE | 1.5m | CLASS 12 | |
| 8 | 2 | 90532 | PVC REDUCING BUSH | 40/25 | | |
| 9 | 1 | 90720 | FEMALE ADAPTOR 25 SLIP/1" BSP | | CAT 18 | |
| 10 | 3 | 90719 | PVC ELBOW SLIP-SLIP | 25mm | | |
| 11 | 2 | 90728 | PVC ELBOW SLIP-SLIP | 40mm | | |
| 12 | 1 | 90729 | PVC 45° SLIP - SLIP BEND | 40mm | | |
| 13 | 1 | | PVC TAKE-OFF ADAPTOR PIPE x BSPM | 40 x 1" | | |

| DRAWING CHANGES | | | |
|-----------------|------------------|-----------|-------------------------------|
| REV. | DWG. CHANGE NOTE | DATE | REVISION DESCRIPTION / REASON |
| 1 | | | ORIGINAL |
| 2 | | 31/8/2001 | ITEM ADDED & NUMBERS AMENDED |

| | |
|---|------|
| MANUFACTURING OPERATIONS | |
| Tolerance [Except where otherwise stated] Over Up to Tolerance | |
| ANGULAR TOLERANCE (U.N.O.) | |
| BEND RADIUS | |
| CORNERS AND FILLETS | |
| MARK PART No IN REGION MARKED. | |
| ALL DIMENSIONS TO BE MET AFTER PLATING REMOVE ALL BURRS BREAK ALL SHARP EDGES 0.4mm-0.8mm | |
| SURFACE ROUGHNESS INCLUDING REAMED HOLES | N8 ✓ |
| SURFACE ROUGHNESS FOR DRILLED HOLES U.N.O. | N9 ✓ |
| WELDING | |



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| | | | | | | | |
|--------------------|-------------------------|----------|-----------|--------|---|---------------------------|----------|
| MATERIAL | DIMENSIONS IN mm U.N.O. | DRAWN | BJD | Client | EVERHARD INDUSTRIES PTY LTD | | |
| MATERIAL AS LISTED | APPROVAL STAMP | DATE | 27/8/2001 | Title | SAND FILTER INSTALLATION KIT FOR AQUANOVA QLD POLYMER TREATMENT SYSTEM PART No. 60008 | | |
| TREATMENT | | SCALE | NTS | Weight | Arm | Drawing Number | Revision |
| | | CHECKED | | | | MP - 3462 3495 | 2 |
| | | APPROVED | | | | | |

