CHIEF EXECUTIVE APPROVAL 07/2011
Amendment no.1
Plumbing and Drainage Act 2002, part 5, division 1, section 93

File reference: SD 32

Approval

- The **Ozzi Kleen GTS 10** described in the Specifications and Drawings in the attached Schedule and manufactured by **Suncoast Waste Water Management** (ABN 62 063 770 534) has been assessed in accordance with the Queensland Plumbing and Wastewater Code (QPW Code) dated 19 January 2011.

- Approval is granted for an **advanced secondary greywater treatment system**, subject to compliance by the manufacturer with the requirements of the *Plumbing and Drainage Act 2002* (PDA), part 5, division 1, section 91 and the conditions of approval detailed below.

- This approval, the conditions of approval, and the Schedule comprise the entire Chief Executive Approval document.

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

Lindsay Walker

A/Executive Director
Building Codes Queensland

Date approved: 25.1.13

Conditions of approval

1. The system may only be used on premises that generate per day —

   (a) maximum hydraulic loading of 2,000 L;

   (b) maximum organic loading of 600g BOD^5;

2. An approved system, when installed on premises, must continue producing effluent that meets the following standard:-

   (a) BOD^5 - less than or equal to 10mg/L

   (b) Suspended solids less than or equal to $10g/m^3$

   (c) Thermo-tolerant coliform less than or equal to10 organisms per 100ml

   (d) where chlorination is the disinfection process, the total chlorine concentration shall be greater than or equal to $0.5g/m^3$ and less than $2.0g/m^3$ in four out of five samples taken.

3. The manufacture, installation, operation, service and maintenance of the system must be in conformity with the conditions of this Chief Executive Approval. The system must be supplied with —

   (a) a copy of this Chief Executive 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 personnel for its operation and maintenance.

4. The system must be serviced in accordance with the details supplied in the owner's service and maintenance manuals.

5. The Chief Executive may, by written notice, cancel this approval if the manufacturer fails:

   (a) to comply with one or more of the conditions of approval; or

   (b) within 30 days of the notice being issued, to remedy a breach, for which a written notice has been given by the Chief Executive.

6. This approval does not extend, apply to, or include the land application system used in conjunction with an approved system installed on premises.

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

8. This approval expires on 15 April 2016 unless cancelled earlier in accordance with paragraph 5 above.

Lindsay Walker

A/Executive Director
Building Codes Queensland

Date approved: 25/6/13

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SCHEDULE

Attachment 1:	Specifications
Attachment 2:	Drawings

Lindsay Walker

A/Executive Director
Building Codes Queensland

Date approved: 25/6/13

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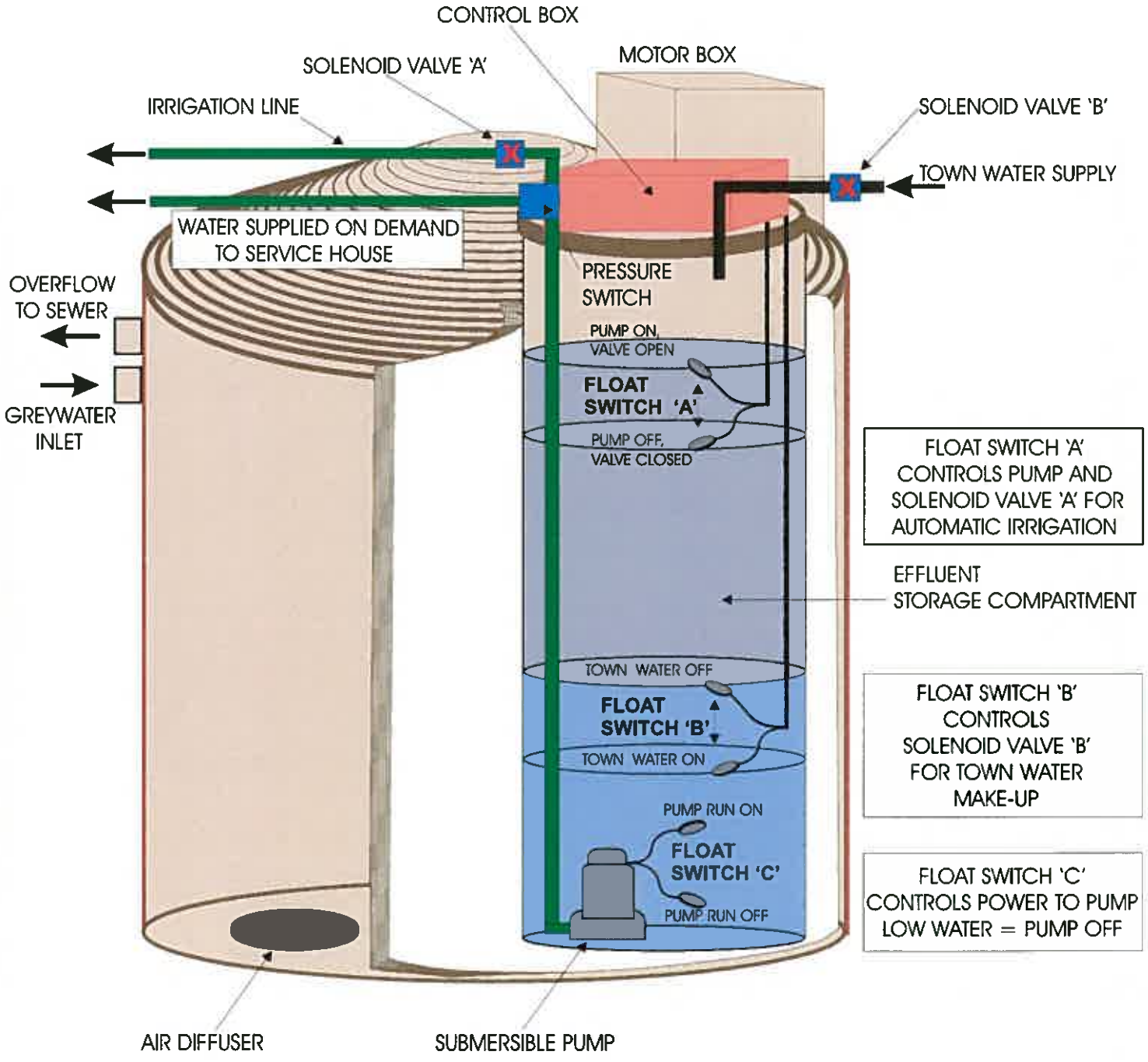

Department of Housing and Public Works
Amendment to
Chief Executive Approval

Approval No. 07/2011

Date of Issue: 25 May June 2013

Delegate Signature: _____

Building Codes Queensland

GENERAL

Suncoast Waste Water Management has developed **OZZI KLEEN** a unique sewage treatment and greywater treatment systems. In this compact system, flow equalisation, biological oxidation, secondary sedimentation and biological nutrient removal occur in an aerobic treatment process.

GREYWATER CHARACTERISTICS

This system has been designed to treat normal household greywater to the required standards as set by the State Regulatory Authorities. Greywater is defined as domestic wastewater excluding toilet waste and may include wastewater arising from a hand basin, bath, shower and laundry. **Sewage from toilets and wastewater from the kitchen must not be discharged to the greywater system.**

The plant performance is based on the following incoming raw greywater characteristics:

Parameter	Raw Wastewater Characteristics
Maximum hydraulic load	2,000 l/day
Biological Oxygen Demand (BOD_5)	300 mg/litre
Total Suspended Solids (TSS)	300 mg/litre
Total Nitrogen	70 mg/litre
Total Phosphorus	10 mg/litre
Total grease and oils	70 mg/litre
pH	$6 < pH < 10$
Wastewater temperature range	10°C to 38°C

GTS10 COMPONENTS

The treatment plant consists of the following (refer to diagram below):

- Biological Treatment Component (bioreactor);
- Effluent Disinfection Component (chlorinator);
- Irrigation Equipment;
- Electronic Controls (OK1 controller);

To control the level of the mixed liquor suspended solids (MLSS) in the aeration tank, sludge wasting may be required. The amount of sludge wasting is determined by continual testing of the mixed liquor using the settling test to keep the settled solids between 10% to 50% using a 30 minutes settling time (refer to SV30 test below).

The sludge wasting will not need to be carried out until there is sufficient biomass which would be determined at the time of each service.

Once put into operation the level of biomass remaining is determined at the time of each service using the SV30 test and recorded on the service test report sheet.

Sludge wasting is carried out by operation of an external submersible sludge pump to pump out the waste sludge by a licensed contactor in order to maintain the desired level of sludge or suspended matter in the mixed liquor in the bioreactor.

BASKET STRAINER

The decanted effluent from the aeration tank will flow through a basket strainer for removing the scums from the decanted effluent.

EFFLUENT DISCHARGE:

When the water has reached the predetermined level in the chlorine contact tank, the effluent pump will operate and pump out the now disinfected water to the irrigation or disposal system.

GTS10 GREYWATER TREATMENT SYSTEM - SPECIFICATIONS

Aeration Tank: (certified to AS/NZS 1546.1, StandardsMark License no. SMKB 20032)

Material of construction	Polyethylene
Tank volume	5000 litre
Tank diameter	1900 mm
Tank wall height	1900mm
Minimum working volume	3460 litre
Tank buffer capacity	1070 litre
Sludge age	40 days
Minimum residence time	54 hr

Aeration Equipment:

Air blower	Diaphragm compressor
Air blower capacity	5.1 m³/hr FAD @ 130 mbar
Air blower motor power rating	85 W
Air blower sound power level	38 dB(A)
Air blower control	OzziKleen OK1control system
Air diffuser type	Elastox-T disc type
Air diffuser: Number off	1 off

Effluent Decanting Equipment:

Decanter type	Floating Decanter
Decanter construction	Polyethylene
Decanting control	OzziKleen OK1control system

Effluent Tank:

Material of construction	Polyethylene
Tank volume	850 litre
Tank diameter	470 mm
Tank wall height	2300 mm

Effluent Pumping Equipment:

Effluent pump	Submersible centrifugal pump
Effluent pump duty	40 l/min @ 8 m head
Effluent pump motor power rating	750 W

Standard Disinfection Equipment:

Chlorinator type	Trichlor tablet dispenser
Chorine contact volume	226 litre
Chlorine contact time, minimum	30 minutes

Motor Box:

Construction	Polyethylene

Location of motor box	Combined blower and control box, mounted on aeration tank
Equipment contained	Air blower, control panel, decanter solenoid and ***chemical dosing equipment***

Electrical Control Panel:

The control panel has an electronic control system that houses the controls for the blower, the decanter, the sludge wasting system, the effluent pump and the nutrient removal equipment. The OK1 controller has a liquid crystal display that displays the plant status and allows adjustment of the control parameters.

Control System Alarms:

The control system has an alarm panel mounted in the house. The alarm panel has an electronic audio-visual interface, giving the following alarm signals:

Blower	Loss of air pressure
High water	High water level in aeration tank
Power	Loss of mains power

Method of Construction and Materials:

The tanks are a one-piece vessel made of polyethylene, using the roto-moulding process. As the tanks are roto-moulded in one operation, there are no seams or joins.

The minor components of the plant are also made of roto-moulded polyethylene. These components are screwed in place to achieve a robust corrosion proof system.

Specifications for Polyethylene:

Conforms to food grade requirements	FDA Regulations CFR21 Part 117.1520
Density to ASTM D1505	939 kg/m³
Tensile Strength at Yield @ 500 mm/min to ASTM D638M	18 Mpa
Flexural (Young's) Modulus to ASTM D790M	760 Mpa
Vicat Softening Temperature to ASTM D1525	117