

## On-site Effluent Treatment National Testing Programme (OSET NTP)

**PERFORMANCE CERTIFICATE**  
**Findlater PA 5x5 On-site Domestic Wastewater Treatment System,**  
**OSET NTP Trial 8, 2012/2013**

### **System Tested**

The **Findlater PA 5x5** on-site wastewater treatment system participated in Trial 8 of the On-site Effluent Treatment National Testing Programme (OSET NTP). This commenced on 29 October 2012 and ran over nine months (43 weeks) during which the treated effluent discharge was monitored generally every six days. The Findlater PA 5x5 system is a submerged aerated filter treatment unit using Bio Blok 2000 media. Rated design capacity is 1,600 litres/day. Total liquid volume is 8,160 litres (primary treatment 4,200 litres; twin chamber secondary treatment 830 and 810 litres respectively; clarification: 1,360 litres; pump chamber 960 litres). Emergency storage is 1,839 litres. No tertiary treatment (such as UV disinfection) is incorporated. It is a two tank system with primary treatment in the first tank and secondary treatment in a second twin chamber tank.

### **Test Flow Rate**

The **Findlater PA 5x5** system was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 to 6 person household) over an 8 month (35 week) period November 2012 to June 2013 followed by a 1 month (4 week) high load effects test in July 2013 involving 5 days at 2,000 litres per day then 1,000 litres/day over the following 3 weeks.

### **Testing and Evaluation Procedures**

A total of 37 treated effluent samples of organic matter (BOD<sub>5</sub>) and suspended solids (TSS) at generally six day intervals during weeks 9 to 35 were tested and evaluated against the secondary effluent quality requirements of the joint Australia/NZ standard AS/NZS 1547:2012.

A total of 16 treated effluent samples of organic matter (BOD<sub>5</sub>), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH<sub>4</sub>-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals during weeks 23 through 35 were benchmarked and rated on their median values. In addition, the energy used by the treatment system was assessed on the mean of consumption levels over the 16 sample days.

### **AS/NZS 1547:2012 Secondary Effluent Quality Requirements**

These requirements are that 90% of all test samples must achieve a BOD<sub>5</sub> of  $\leq 20 \text{ g/m}^3$  and TSS of  $\leq 30 \text{ g/m}^3$  with no one result for BOD<sub>5</sub> being  $>30 \text{ g/m}^3$  and no one result for TSS being  $>45 \text{ g/m}^3$ . The **Findlater PA 5x5 system achieved** a performance level of **100%** for BOD<sub>5</sub> and **100%** for TSS based on the full set of 37 test results in weeks 9 to 35, with no results exceeding the maximums.. The **Findlater PA 5x5 system** thus **meets** the secondary effluent quality requirements of AS/NZS 1547:2012.

## On-site Effluent Treatment National Testing Programme (OSET NTP)

### Benchmark Ratings

The Findlater PA 5x5 system achieved the following effluent quality ratings for the sixteen benchmarking results in weeks 23 to 35.

Indicator Parameters	Median	Std Dev	Rating	Rating System				
				A+	A	B	C	D
<i>BOD<sub>5</sub> (mg/L)</i>	<0.2	1.8	A+	<5	<10	<20	<30	≥30
<i>TSS (mg/L)</i>	2	1	A+	<5	<10	<20	<30	≥30
<i>Total Nitrogen (mg/L)</i>	37.7	4.6	D	<5	<15	<25	<30	≥30
<i>NH<sub>4</sub>- Nitrogen (mg/L)</i>	0.6	1.0	A+	<1	<5	<10	<20	≥20
<i>Total phosphorus (mg/L)</i>	3.6	0.4	B	<1	<2	<5	<7	≥7
<i>Faecal Coliforms (cfu/100mL)</i>	5,100	2,500	B	<10	<200	<10,000	<100,000	≥100,000
<i>Energy (kWh/d) (mean)**</i>	2	0.1	C	0	<1	<2	<5	≥5

**\*\* Note:** Overall energy rating reflects conditions at the test facility – power consumption for effluent pumping under field conditions will be specific to the distribution system as installed.

This Performance Certificate is specific to the **Findlater PA 5x5 system** model as specified above when operated at a flow rate of 1,000 litres/day, and had a 5 year validity period to 23 March 2019.

On 28 February 2019 Findlater Construction Ltd applied for a 3 year extension to the above certificate and provided a signed and legally witnessed statement confirming that there has been no change made whatsoever to the plant as tested in 2013. Hence OSET-NTP have extended the validity period of the Performance Certificate by 3 years to 23 March 2022.

For the full OSET NTP report on the performance of the **Findlater PA 5x5 system** contact **Findlater Construction Ltd** Ltd of Blenheim, Ph: (03) 5792284 Mob 021 464 232.

### Authorised By:



Ray Hedgland, Technical Manager, OSET NTP  
4 April 2019