



# DIFFUSED AERATION - WWTP

## FLOATING DIFFUSED SUB-SURFACE AERATION FOR SEWAGE LAGOONS/PONDS

For Earth supply, install and service our unique floating diffused aeration system for sewage wastewater ponds.

The aeration system comprises of land based aeration blowers, poly supply lines and the diffusers are designed by For Earth for highly efficient in dissolved oxygen supply process water (SAE). The diffusers are micro-bubble with pore size 0.3-0.8mm.

The advantages of the floating diffused aeration system;

- Simple maintenance and servicing. Aeration Blowers are land based. Diffusers require cleaning annually and are easily removed and cleaned and replaced.
- Very low noise.
- Even distribution of dissolved oxygen
- No erosion of banks
- Easily relocated to other sites
- Considerable energy savings.
- Considerable capital expenditure savings – infrastructure, plant & equipment.

Our floating diffused aeration system has been used with floating baffle curtains in wastewater ponds to achieve excellent treatment results. We have many independent reports and can supply on request.

Please don't hesitate to contact me directly if you have any questions.

*Best regards*

*Shane Mckibbin  
Manager*

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**For Earth Pty Ltd** (since 2004)

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# PROJECT FILE

## Floating Diffused Aeration



## Wastewater Solutions

Client	Council
Location	NSW
Sewage Treatment Process	Inlet screening, Sequence Batch Treatment, waste stabilisation ponds
Est daily flow (DWF)	2,500,000L
Population	12,000
Issues	Carryover solids to stabilisation ponds, nutrient levels, algae.
Works installed	Installation of For Earth low energy diffused aeration system and bacteria dosing system
Install Date	Jan 2018
Description	A catch all pond was designed into the treatment process to capture any carryover solids from the SBR tanks. This catch all pond prevents nutrient carryover to the shallow tertiary ponds and reduces algae outbreaks in Summer. The catch all pond was loaded with sludge and required desludging. Council chose For Earth diffused aeration and bacteria dosing system to desludge and maintain low sludge levels and low nutrient levels.



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# PROJECT FILE

## Floating Diffused Aeration



## Wastewater Solutions

Client	Council
Location	NSW
Sewage Treatment Process	Oxidation Ponds - since 1991
Est daily flow (DWF)	350,000L
Population	1400
Issues	Sludge Build up in ponds / algae blooms / water quality
Works installed	Installation of For Earth bacteria dosing and low energy diffused aeration system
Install Date	20/01/2014
Description	Council had been quoted \$500K to mechanically desludge oxidation ponds 1 and 2. Council Management met with For Earth to discuss using our Low energy floating diffused aeration system and automated bacteria dosing system to biologically desludge these two lagoons. Council after review of other project data proceeded with the For Earth Proposal. After 6 months sludge levels/volume had reduced av of 80% independently monitored. Total cost to Council \$50K Cap exp and \$12K in bacteria. The Council continue with the system and achieving many other benefits in odour and algae reduction.



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# PROJECT FILE

## Floating Diffused Aeration



## Wastewater Solutions

Client	Water Corp
Location	VIC
Sewage Treatment Process	Waste stabilisation ponds with floating poly baffled influent zone that is aerated.
Est daily flow (DWF)	1,000,000L
Population	3,000 (doubles in holiday periods)
Issues	Ammonia levels rising – require increased aeration and improved treatment process
Works installed	Installation of For Earth low energy aeration system and bacteria dosing system
Install Date	16/1/2012
Description	Client required increased aeration to treat the rising BOD loads and also adopted the automated bacteria dosing system to ensure correct biological process. Existing mechanical aerator required regular shutdown to remove ragging.



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# PROJECT FILE

## Abattoir



## Wastewater Solutions

Client	Red Meat Processor
Location	QLD
Treatment Process	Anaerobic pond followed by facultative ponds
Est daily flow	2,000,000L
Works installed	Installation of For Earth low energy aeration system and automated bacteria dosing.
Install Date	Sept 2015
Description	Client seeking aeration for wastewater ponds to improve wastewater treatment. Client initially purchased a For Earth low energy floating diffused aeration and automated bacteria dosing system to trial in 1 wastewater lagoon. After 6 months of operation and successful treatment results client installed 3 more systems. Client have two EPA discharge points which have both met well below discharge levels since installation.



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# PROJECT FILE

## Energy savings with diffused aeration.



## Wastewater Solutions

Client	Council
Location	NSW
Sewage Treatment Process	Inlet screening, Continuous Flow Aeration Tank (EAT), Clarifier, sludge ponds
Est daily flow (DWF)	2,100,000L
Population	7,500
Issues	Energy costs rising. Aeration lagoon using 3 mechanical surface aerators and 3 mixers.
Works installed	For Earth floating diffused aeration system 20kW and bacteria dosing system
Install Date	June 2013
Benefits/cost savings	Council Engineer has calculated 30% saving in annual electrical bill for site since installation of the For Earth diffused aeration system. Operator has significantly reduced run time of the mechanical aerators while still achieving required ammonia levels from clarifier with daily testing. Sludge storage ponds are taking 3-4 years to fill instead of 12-15 months.



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# PROJECT FILE

## Floating Diffused Aeration



## Wastewater Solutions

Client	Water Corp
Location	VIC
Sewage Treatment Process	Waste stabilisation ponds with floating poly baffled influent zone that is aerated.
Est daily flow (DWF)	2,100,000L
Population	7,000 (growing rapidly)
Issues	Ammonia levels rising – require increased aeration and improved treatment process
Works installed	Installation of For Earth low energy aeration system and bacteria dosing system
Install Date	4/2/2014
Description	Client required increased aeration to treat the increasing ammonia levels and also adopted the automated bacteria dosing system to ensure correct biological process. Also issues with aging mechanical surface aerators.



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# PROJECT FILE

## Floating Diffused aeration



## Wastewater Solutions

Client	Council
Location	NSW
Sewage Treatment Process	Digester, trickle filters and sludge storage lagoon (Digester sludge)
Est daily flow (DWF)	1,400,000L, 7,000EP.
WAS/day	Twice a week from digester.
Issues	Client looking for more economical and environmental solution for sludge removal and odour control.
Works installed	Installation of For Earth low energy aeration system and bacteria dosing system
Install Date	January 2013



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# PROJECT FILE

## Floating Diffused aeration



## Wastewater Solutions

Client	Water Corp
Location	VIC
Sewage Treatment Process	Inlet Screening, Aerated Lagoon 2 x 10kW Surface aerators , maturation lagoons
Est daily flow (DWF)	125,000L
Population	500 (increases during holiday periods)
Issues	One mechanical surface aerator at end of life. Increasing energy costs.
Works installed	Installation of For Earth low energy diffused aeration system. 1 x 5.5kW aeration blower.
Install Date	Sept 2019



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# PROJECT FILE

## *Energy savings with diffused aeration.*



## Wastewater Solutions

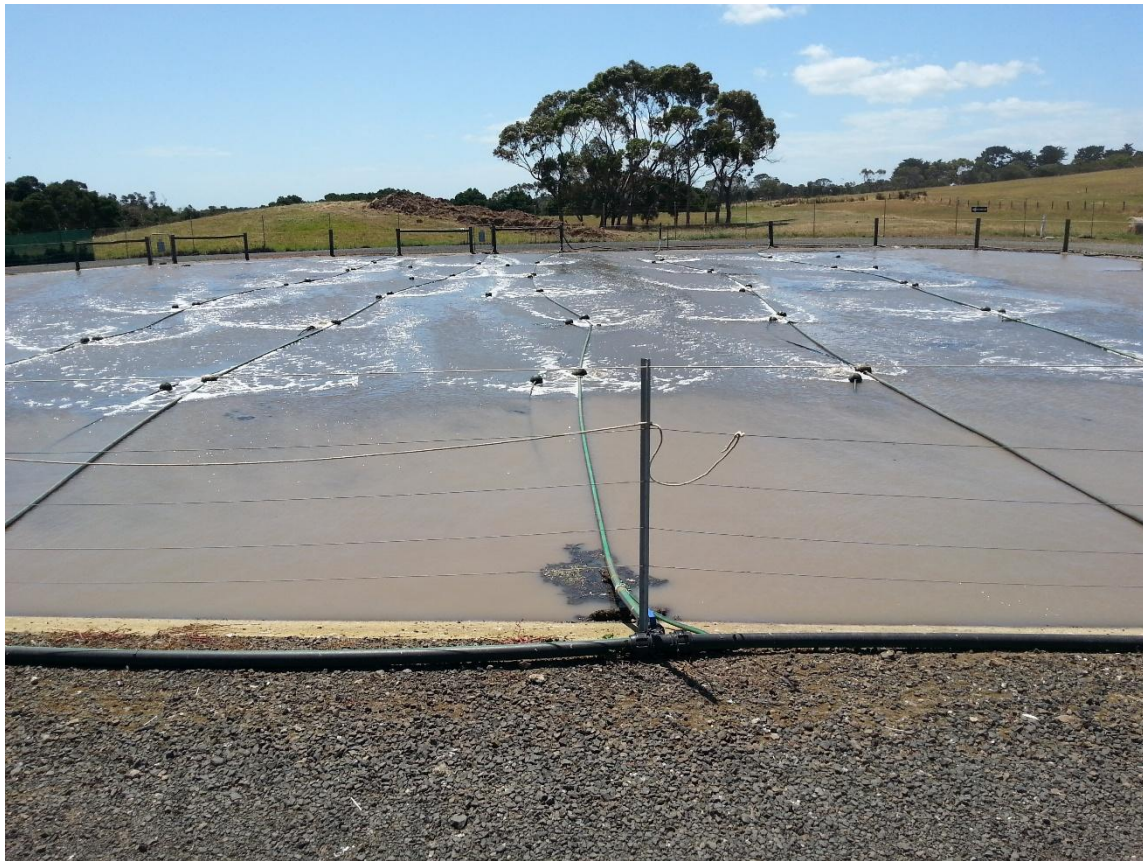
Client	Water Corp
Location	VIC
WWTP process	Activated Sludge
Treatment Process	Sludge holding lagoon that is aerated allowing aerobic sludge transfer to aerobic zone of treatment process to bio augment influent with aerobic bacteria.
Works installed	For Earth floating diffused aeration selected
Install Date	Sept 2018
Description	Mechanical aerators at end of life and causing noise complaints from nearby residence. For Earth floating diffused aeration selected due to low energy requirement and low noise levels.



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## ENERGY ESTIMATES FOR VARIOUS AERATORS

AERATOR TYPE	SAE CLEAN	ALPHA -	DO CONC	SAE PROCESS	AVE. SAE
	WATER lbs O2/hp-hr	HIGH SRT SYSTEMS		WATER lbs O2/hp-hr	
High Speed Surface	1.5 - 2.3	0.85	2 mg/l	1.0 - 1.5	1.25
Low Speed Surface	2.5 - 3.5	0.85	2	1.65 - 2.3	2
Disc Aerator Surface	1.8 - 2.8	0.85	2	1.2 - 1.85	1.5
Turbine	2.0 - 3.0	0.75	2	1.2 - 1.8	1.5
Coarse Bubble Roll	2.2 - 3.2	0.65	2	1.15 - 1.65	1.4
Coarse Bubble Grid	2.7 - 3.7	0.65	2	1.4 - 1.9	1.65
Aspirator No Blower	0.8 - 1.2	0.6	2	0.4 - 0.6	0.5
Aspirator With Blower	1.2 - 1.9	0.6	2	0.55 - 0.9	0.75
Fine Bubble Grid Standard	5.7 - 8.0	0.6	2	2.75 - 3.9	3.3
Fine Bubble Grid Hi Density	7.0 - 12.0	0.6	2	3.4 - 5.8	4.6

