AirDuck Aeration Nozzle

AirDuck Aeration Nozzles are a unique, Australian made, small bubble, venturi diffuser for helping treat the true causes of water quality problems, resulting in a thriving, healthy, eco-system just as nature intended.

AirDuck Aeration Nozzles unique, advanced design, is one of the most natural, energy efficient & cost-effective ways to provide Aeration and Circulation to a body of water.

AirDuck Aeration Nozzles are a small bubble venturi diffuser that dramatically improves the dissolved oxygen levels in the water, provides important circulation to prevent thermal stratification & also helps cool the water.

AirDuck Aeration Nozzles produce the ultimate bubble size which does not disturb the sludge layer as it is releasing air & water. The AirDuck Nozzle allows for maximum exposure of the bubbles to the water column, where the all-important oxygen transfer takes place. Improved circulation is also achieved at the same time, making sure the sun-warmed surface water is being thoroughly mixed with the much colder bottom layer of water. The only visible sign of the aeration unit running in the body of water being treated, is a flotation device on the surface (this contains the air intake pipe) & a circle of small air bubbles surrounding it, making it totally at home with the natural environment.

AirDuck Aeration Nozzles are made from strong, Ultra-High Density Polyurethane material, with no moving parts, which is perfect for handling extreme environments & ensures a long operating lifespan.

Pump Selection:
Each AirDuck Aeration Nozzle requires 220L/min (13,200LPH) at 500kPa (50 meters of head).

This allows for the use of solar powered pumps, which can be ideal if a 3-phase or single-phase power source is not readily available. Units are capable of operating at 9 meters deep & if aimed downward, the flow can reach up to 11 meters deep.

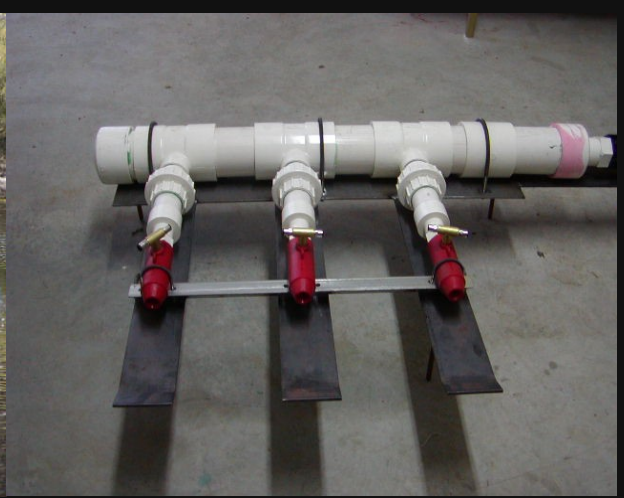
AirDuck Lake Aerators in the City of Belmont

Two AirDuck aerators were installed at Tomato Lake around 2003 for the purposes of improving water quality. Each aerator consists of three AirDuck Nozzles mounted on a PVC manifold with airlines and connected to a submersible pump. This results in the injection of 3,600L of air per minute into the bottom of the lake. The aerators operate for 16 hours per day from 09.00 am till 01.00 am. A smaller aerator has also been installed in Centenary Park Lake and the Central Belmont Main drain lake at Ascot Waters. A smaller unit has been operating effectively in Norlin Park lake and has significantly reduced the extent of filamentous green algae over the summer months and improved water quality. The AirDuck has replaced one of the large RIO lake agitators, which had been in Tomato Lake for 4 years to circulate water around the lake by pushing the water with a large turbine. This system, whilst assisting in reducing the extent of blue-green algal blooms, had high maintenance and power costs and it was decided to replace it with the new system, when the agitator motor and gearbox seized in June, 2003.

Whilst aeration is not a solution to all water quality problems, it will certainly improve the health of the lakes, which suffer from lack of oxygen. Within 4 weeks of installation at Tomato Lake, which is a conservation category wetland, visibility in the water improved from almost zero, to being able to see the bottom of the lake. The night time dissolved oxygen levels also increased from 3.6 to 10.3 mg/L. Some of the benefits to be gained from installing the AirDuck aerators include;

- Circulation of the lake water
- Increased oxygen in the water for aquatic organisms
- Reduced anaerobic (low oxygen) decomposition and therefore reduced odour
- Reduced water temperature and reduced evaporation
- Reduced potential for Botulism bacteria which thrives in warm temperature and low oxygen conditions
- Reduced incidence and severity of blue-green algae
- Improved water clarity
- Removal of some excess nutrients (nitrates)

The effectiveness of the AirDuck systems in Tomato Lake will be monitored through the City of Belmont's Tomato Lake Water Quality Monitoring Program. Data has been collected since 1998 to determine the effectiveness of water quality improvement initiatives such as the installation of lake agitators, bacterial application for nutrient reduction and foreshore revegetation.



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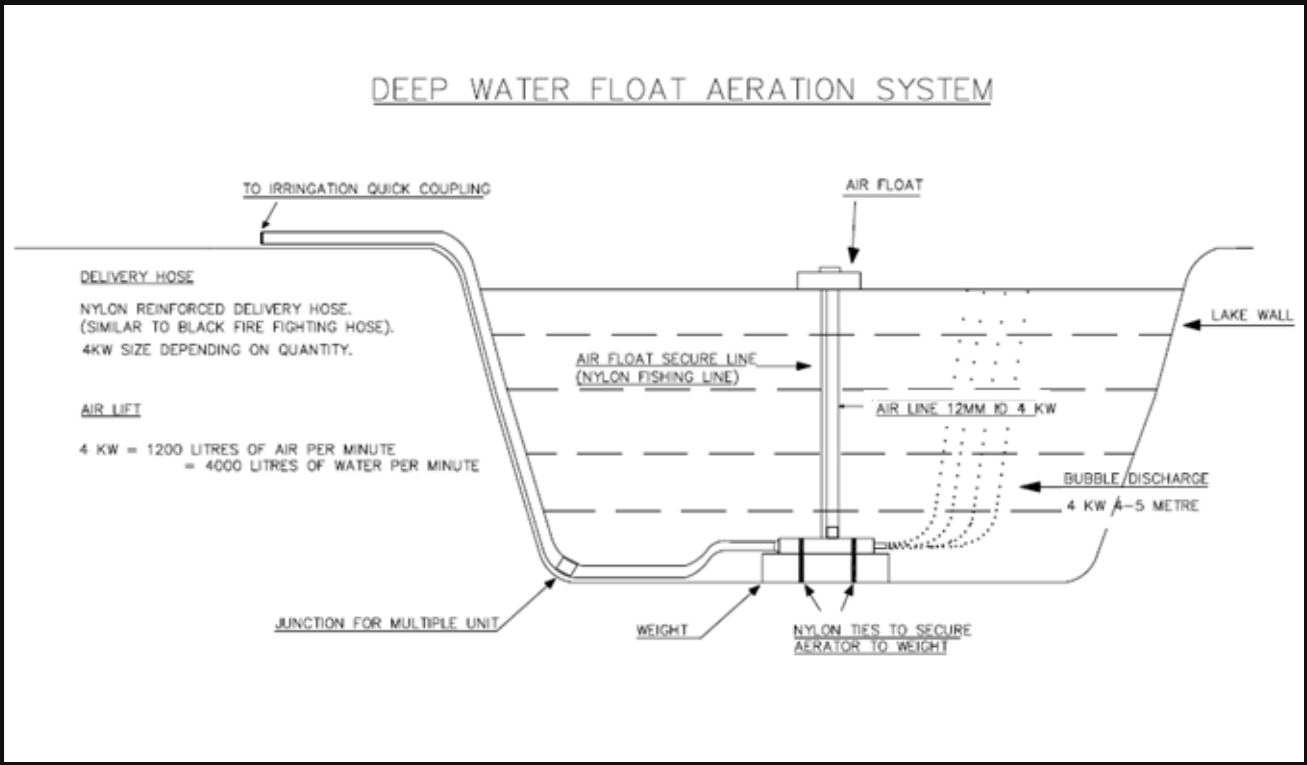
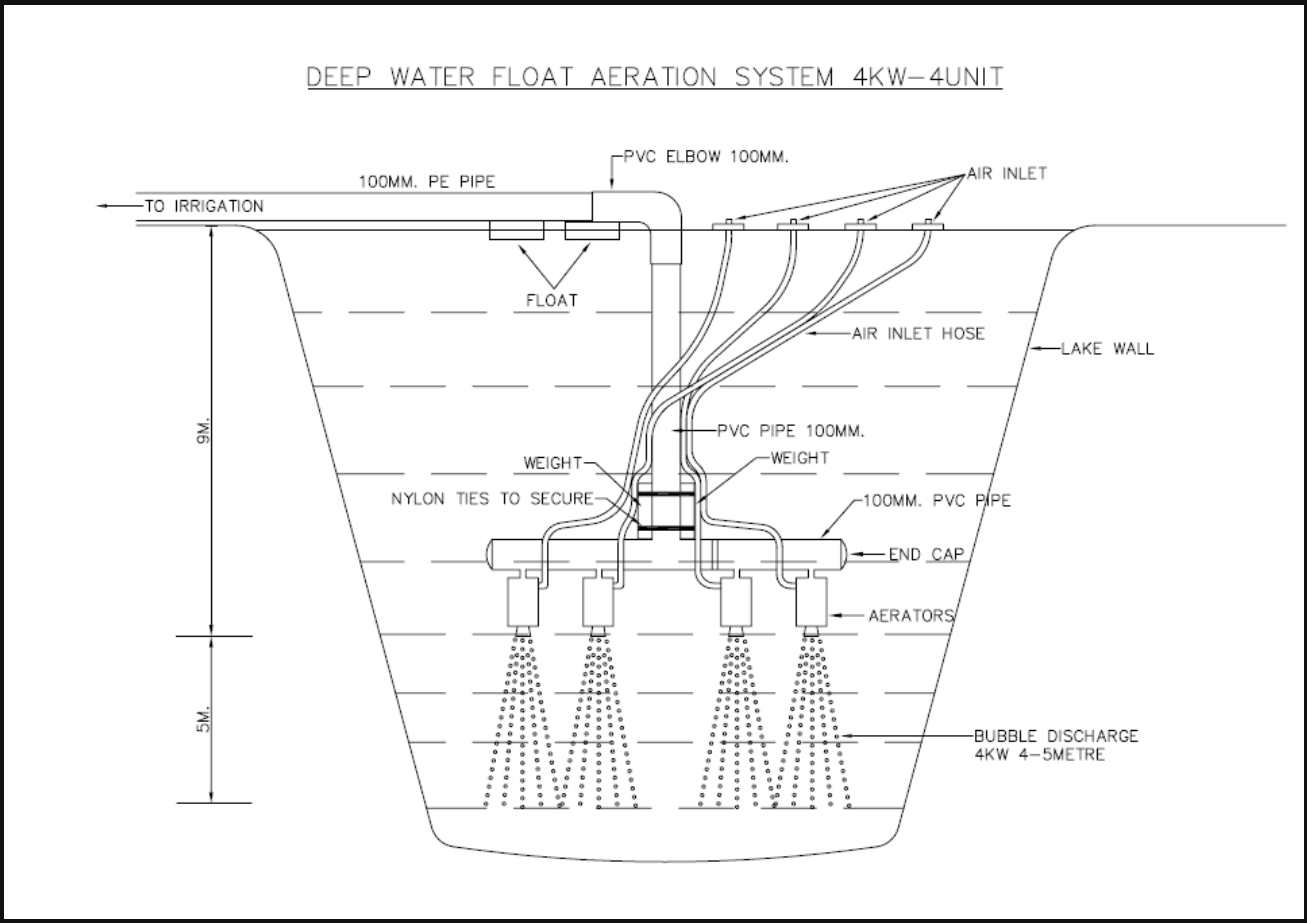
INSTALLATION GUIDES





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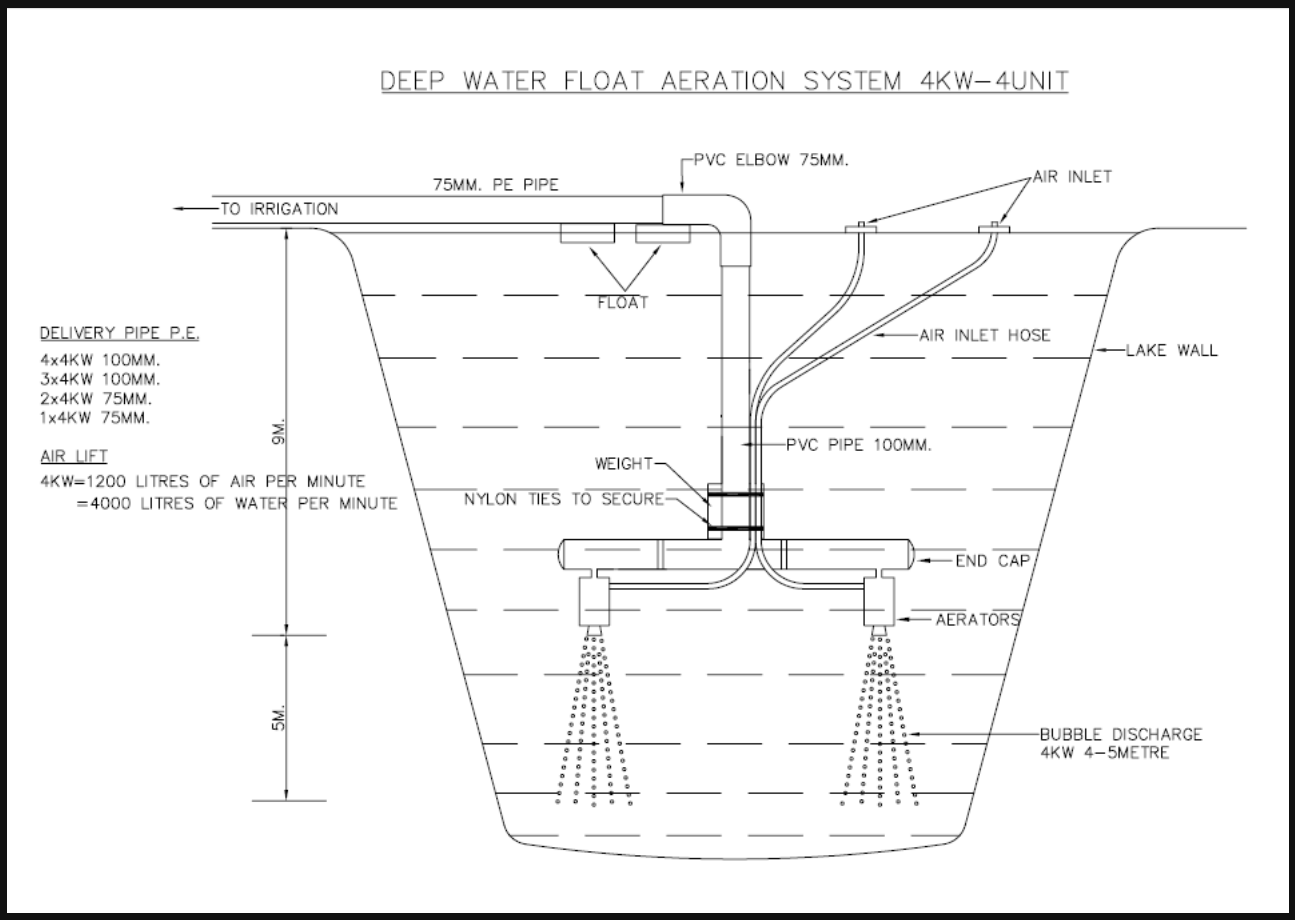



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