

Working Harbour

Gladesville Bridge Marina (GBM) is committed to the State Government's policy of supporting 'working harbour'. The term working harbour means supporting the continued use of the harbour for those that derive income from the waterway and rely on infrastructure to support the land water interface.

The removal of the slipway does not mean an end to our commitment to the working harbour policy. During the last financial year 735 contractors were permitted onto the site to perform work on boats. All this work was done on boats berthed in the marina and only 5 contractors performed work on the slipway. It has been recognised by industry over many years that an increasing amount of work is carried out alongside a marina. Hull maintenance now generally occurs at larger dedicated sites.

The removal of the slipway to provide better parking and reduce the industrial impact on residents will have little impact on the working harbour outcome.

Background

Archaeological evidence shows that the ability to pull boats from the water has been a necessity for well over 3000 years. Boats must be pulled from the water to repair and maintain the hull below the waterline.

Traditionally boats were made of timber and careened (brought up at high tide and worked on while the boat rests on the bottom at low tide) to effect repairs suffered from worm damage and to scrape marine growth from the hull. Timber docking strips and skin fittings were changed every few years, and seams tightened up with cotton or okum. Painting the hull both above and below water, is performed while the boat is on dry land.

The majority of boats are now constructed of fibreglass, or more correctly Glass Reinforced Plastics (or GRP for short), with timber boats now far less common. This transition has resulted in a change to the types of repairs being carried out while the boat is out of the water. There are several established ways to bring boats out of the water; these include using a slipway, straddle carrier and dry dock. Dry Docks are generally used for ships.



Fig 1. Gladesville Bridge Marina Slipway

Slipways

Slipways have been used for several hundred years as a way of bringing a boat out of the water for repair. A carriage or cradle runs up and down the rails into the water. The boat is placed in the submerged cradle and a winch winches the boat up out of the water to be worked on. Once repairs have been completed the boat is lowered down the rails and floated back off the cradle.

Gladesville Bridge Marina Slipway has 4 cradles (originally 5) in a line on one pair of rails. The cradles can be separated and used individually, or joined for larger boats. An electric winch is used to pull the boats up and out of the water.

Straddle carriers

Straddle carriers were first used to haul out boats in the early 1950's. The ability to move the boat around and place it anywhere within a yard was its greatest advantage. A straddle carrier is usually located within a hardstand area.

The straddle carrier is made up of a tall frame with four legs with a wheel at the base of each leg. All four legs are driven and able to be steered giving the carrier a great ability to manoeuvre boats into tight spaces on a hardstand. It runs out over the waterway on two fingers. Slings are lowered into the water and the boat is positioned within them. The straddle carrier then winches the slings up with the boat - high enough to clear the surface that the straddle carrier is running on. The boat can then be carried to its destination within the yard. It is lowered to the ground on blocks or a stand and then propped. The straddle carrier is then free to be driven around the yard for other duties.



Fig 2. Typical Straddle Carrier

Comparison between slipway and straddle carriers

	Slipway	Straddle carrier
Boat support	Supports timber boats evenly along the keel putting less strain on the vessel	GRP boats are well supported as the slings can be moved forward or backwards to position them in line with strong points of the boat such as bulkheads etc.
Area required	The rails run a long way into the water to allow the cradle to get beneath the boat. The angle of the rails is shallow to put less strain on the winch and also to keep the vessel reasonably level. The slipway area is defined by the amount that the rails (and cradles) take up both in the water and on the land base.	A pair of fingers the length of the largest boat is all the water space required to operate a straddle carrier over the water. Once on land, the straddle carrier can usually turn on its own axis and can be 'driven' to any area within a yard. Ideally a straddle carrier has sufficient hardstand space to store numerous vessels
Maintenance	Slipway cradles are usually made of steel and are fully immersed in salt water each time the boat is slipped. This results in a need for increased priming and painting which helps to prolong the cradles, but they need to be replaced every 10 years or so. The winch and rails need to be checked to ensure that they are secure. The wire rope used to pull the boat and cradle needs to be greased and replaced every few years.	Usually powered by a diesel engine, the maintenance on a straddle carrier is reasonably straight forward. The cables and sheaves need greasing and the slings need to be checked at least weekly and then discarded after a certain time. Most of the slings have a use by date on them. Tyres need to be set at correct pressures and replaced when worn.
Capacity	The capacity of the slipway is defined by the power of the winch motor and the breaking strain of the wire rope used to pull up the cradles. The strength of the cradle is also a limiting factor with many older slipways changing from timber to steel.	Straddle carriers are getting larger each year. 20 years ago, a 60t lift was considered sufficient to meet most demand. Nowadays a 100t lift seems to be the minimum you would consider. The power of the diesel engine and the breaking strain of the slings determine the capacity of the straddle carrier. There is a built-in margin for safety.
Boat limits	Any vessel that is narrower than the maximum beam of the cradle and can be properly supported on its keel can be slipped.	Straddle carriers are generally not limited by length. The beam of the machine and the fingers are what limit the size of boat.

		Most straddle carriers are usually capable of lifting more than 50t.
Noise	Slipways are usually powered by an electric winch and are therefore very quiet. A small amount of noise is generated by the boat and cradle travelling up or down the rails.	Straddle carriers are usually powered by a diesel engine which sits in the body of the frame. The engine revs are usually raised when the slings are being raised or lowered as well as when the straddle carrier is being driven around the yard.
Environment	Slipways usually contain several pits or grates to catch any runoff from water blasting or cleaning activities. The water can be pumped up to a treatment plant for disposal or recycling. The base of the slipway is tidal. Care needs to be taken to ensure that any debris is collected.	A space on the hardstand is usually dedicated to the cleaning of vessel. Just like a slipway, the water is treated and either recycled or sent to waste. The advantage of a dedicated wash bay is that it is usually flat and not affected by the tide.

Conclusion

The present slipway is not able to service the current marina and mooring clients as it is too small. The slipway is limited by the beam (width) and is unable to slip approximately 20% of our current berth holders. As boat preferences are moving away from timber with less than 5% of boats GBM services annually being timber, the benefits of having a slipway cradle are continually diminishing. Additionally, boats that are stored on-water are generally getting bigger, and this further impacts on the numbers of boats being able to be slipped.

Due to the size of the current hardstand, and other associated impacts, it is not practical to install a straddle carrier. There are several Straddle Carrier facilities available in Sydney with some that have become recently available. These include White Bay 6, Sydney City Marine, Woolwich Dock, Noakes (North Sydney) and Fergusons Boatshed. These facilities can take up any demand following the closure of the GBM slipway.

On behalf of Gladesville Bridge Marina



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